

## Foreword

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I was deeply honored when Dr. Svetlana Masgutova invited me to write the Foreword for their most recent book, *Reflexes of the Brain: Portal to Neurodevelopment and Learning*. It was also very humbling, as I am certainly a novice regarding Masgutova Neuro-sensorimotor Reflex Integration (MNRI®). My clinical background is primary care, military medicine, and, for the past 15 years, disaster medicine. That led to my introduction to MNRI® as I was organizing an international conference on disaster risk reduction. An experienced communication science and MNRI® Specialist, Marie-France Renaud (Canada), provided input to our Psychosocial/Mental Health and Building Community Resilience work group.



Charles Beadling, MD

I had the opportunity to observe Dr. Masgutova and her team of Core Specialists in action during a Conference for children with a variety of neurodevelopmental challenges. Hearing the first-hand experiences of Shannon Desilets, Core MNRI® Specialist (USA), that provided therapy for the families victimized by the Sandy Hook school shooting in Newtown, Connecticut, was incredibly transformative. Shannon exuded a level of compassion often missing in traditional western medicine. It was such a privilege to meet and learn from Shannon and also Pamela Curlee.

Watching children break through walls of isolation and engage with their therapist during the MNRI® Family Conference was remarkable. More remarkable was watching the parents exuberantly express the joy and relief they felt when they witnessed these changes in their children. These parents traveled cross country to get the only therapy that helped their children. I live in a world of evidence-based practice and welcome this book as a step in providing that for MNRI®.

The book begins with the theory of reflex integration. Dr. Masgutova developed this program over decades, beginning with helping traumatized children following the Ufa train catastrophe then the nuclear disaster in Chernobyl. Understanding of normal reflex integration, and reflex integration disorder, evolved by her treating victims of a series of other disasters. The first section ends with a discussion of the neurophysiological basis of MNRI®.

The second section captures scientific research, or the evidence base, for MNRI® therapy. The effectiveness of MNRI® with functional disabilities like cerebral palsy (CP), and genetic disorders such as Down Syndrome, is discussed. Studies that examined a variety of diagnoses, from dyslexia to immunological problems provide depth to this evidence base. The third section examines the systemic application of MNRI® and the exploitation of technology in a computerized assessment.

The diverse application of MNRI® is demonstrated in the fourth section, a compilation of case studies by Core Therapists and Core Specialists in Training. Common and uncommon problems, from autism to selective mutism, are covered. Even the use of MNRI® following stroke is discussed. This section brings out the unique perspective of each therapist and their individual application of the theories of MNRI®.

Medicine is often described as 'Art and Science.' The first sections address the science showing clear evidence that MNRI® is effective for a variety of issues from Down syndrome to autism to CP. Section five is the heart and soul, or 'Art' of MNRI®. These last sections provide the perspective of the "Winners:" children, parents, and specialists. The difficulty with this perspective is it is 'anecdotal.' One success is not predictive of success in other patients. However, when coupled with evidence from the scientific research given, we see from these stories how this therapy impacts real people. As a primary care physician, I see the challenge before us is to get enough trained specialists mainstreamed to work in hospitals, schools, prisons, the military, and homes where these people need the help. The stories of these parents and MNRI® specialists are impressive and it is the science behind it that shows that it is clearly effective. We need to spread the word of the restoration available through the MNRI® program and continue to capture scientific data to prove its effectiveness.

## *Reflexes: Essential Component for Optimal Health and Healing*

*Grayce Marie Stratton, Ph.D., Clinical Psychologist, CA, USA*

As a cognitive scientist, EEG biofeedback provider, and clinical neuropsychologist practicing on the front-line of mental health, I was entirely unaware of Masgutova Neurosensorimotor Reflex Integration (MNRI®) until 2011. This was the year when parents of four different child patients of mine nearly simultaneously introduced me to MNRI® as a pivotal treatment in their child's progression toward vastly improved health. These particular patients, all on the autistic spectrum, had made tremendous gains in speech, socialization, cognitive processes, and physical agility and stability that far exceeded the gains achieved by peers who were not involved in Masgutova Method® programs.

Intrigued by the ostensible power of an intervention outside the fields of medicine and psychology, but which unmistakably seemed to have profound positive effects on the targets of both, I investigated further: I met with MNRI® trained specialists and observed their work, spoke with more families about their experiences, and consulted with colleagues in other parts of the country and across the globe, only to become more impressed by what I saw and learned. Eventually I took a 4-day training course myself, solely to understand the basis for this effective work and to puzzle together just how the process as presented could mechanistically and scientifically bring about such remarkable outcomes as I was witnessing.

Four years later, I am now a devotee of the work of Dr. Svetlana Masgutova. Indeed, an MNRI® referral is often a foundational recommendation in my treatment plans for many conditions and for individuals of all ages. This is because primary reflexes trigger development that has either been arrested or impeded or which has not been prompted at the outset of life to progress naturally toward maturation of the senses and systems of the body. Without maturation (termed 'integration' in Masgutovian terms), these resources meant for wellness are compromised, with corresponding decrements in learning, motor control, physical and mental resilience, and the capacity for joy that all humans deserve. With integration, however, the body-mind complex is liberated to develop – and in cases where there has been injury – to fully heal.

I am pleased to endorse Masgutova Neurosensorimotor Reflex Integration as an essential component of both optimal health and optimal life performance. I believe every child deserves to be evaluated for reflex integration and that difficulties in this area should be considered as a component of any state of disease or disorder of any significance no matter what the age of the patient.



Grayce Marie Stratton,  
Ph.D

## *A Letter from Newtown, Connecticut*

*Scarlett Lewis, Parent*



I lost my son, Jesse Lewis, in the Sandy Hook tragedy on December, 14, 2012. As a single mother of two boys I felt immediately afterwards that I might die as well from the shock, horror, immeasurable loss, and sadness. My remaining son and I were both severely traumatized by the nature of the loss of our beloved Jesse and also from our experience while waiting at the firehouse, surrounded by first responders, military, the anger and confusion around us, and the horrific images that plagued us afterwards of the day as well as the murder scene even though we had not witnessed this personally.



Scarlett Lewis & Jesse

People meet in different ways. I met the MNRI® team on their 'expedition to Newtown' when they arrived to help children and adults proposing their reflex integration treatment protocol...

We had several MNRI® pattern integration treatments by Dr. Svetlana, the creator of the MNRI® program, and her team. They explained the physical reactions to the trauma that were happening in my body, some that I noticed, such as sleeplessness, agitation, depression, memory issues, and inability to focus, and some that I did not, but could identify, once the team patiently explained how my brain was reacting to the trauma. Everything they said made complete sense and resonated within me as truth. They demonstrated the reflexes and responses my body was exhibiting from the trauma and were able to explain both in theory and physically how they were working with my brain to correct these issues.

The teams that Dr. Svetlana brought to Newtown to work with survivors were incredible, compassionate specialists – responsive, knowledgeable, and adept at their process. Their calm and professional demeanor immediately put me but even more so, my young son who had trepidation of more strangers in our presence, at ease.

MNRI® has allowed my son and I to move past the physical, mental, and emotional affects of trauma and loss now and has enabled us to re-enter life as productive and well adjusted people. Both my son and I have been able to step outside our own pain and be in service to others which has expanded our healing... that I credit MNRI®, Dr. Svetlana, and her team for cultivating and then helping to flourish. There is no doubt that MNRI® and it's ability to connect with the brain and to counteract the negative affects of trauma has a tremendous impact on our healing and ability to move forward with our life.

I consider the MNRI® team my friends as their sacrifice to bring this healing method to the world speaks to their personal integrity and dedication to heal the world from the terrible trauma that results from disasters that occur every day. I highly recommend MNRI® to anyone fortunate enough to experience this incredible healing tool.

## *Program of Monumental and Pioneering Impact*

*Paul G. Curlee, MD, MPH, Denver, CO, USA*

**D**r. Svetlana Masgutova's work is of monumental and pioneering impact in the understanding and use of motor and sensory reflexes to balance and integrate physiology and psychology.

Historically, her awareness in applying neuro-sensory integration techniques came to the aid of many children in 1989, victims of a terrible train wreck in Russia.

Since then, I have learned a great deal about her work, attended her seminars with other health care providers, and witnessed the effect on many children and adults. Her work is the profound understanding of physiological reflex patterns. We all know the sensory stimulation-motor reflex phenomenon. We know it on a rather gross level such as an ankle or knee jerk in response to the percussion hammer. This reflex loop is limited to the peripheral sensory nerve, spinal cord efferent nerve, and reactive skeletal muscles. Dr. Masgutova has taken this phenomenon much more deeply into a variety of domains of the nervous system we do not yet fully understand. She has correlated reflex patterns, some of which we call primitive, with higher levels of function such as speech, behavior, coordinated movement and so forth. Her knowledge and research, more importantly, has generated new understanding of the meaning within reflexes we might just call reactions.

I share two examples to give you easy insight. In the case of autism, toe walking and equinovarus postures of the feet are commonly present and may contribute to the constellation of challenges facing those afflicted. Dr. Masgutova's correlation of this reflex pattern, the Achilles' tendon under extreme tension with the gastrocnemius muscle, is termed the 'Tendon Guard Reflex.' She has deduced, from thousands of empirical observations, that this reflex is often associated with fear. In the case of encountering an unexpected danger, this reflex is appropriately activated for life-saving reactions. When this Tendon Guard Reflex response is retained without a personal threat, it becomes abnormal. When the TGR is found to be active in an autistic child it commonly represents latent fear-type reactions. Dr. Masgutova has further developed simple physical exercises which integrate this reflex, creating a more balanced physiology and psychological functioning. When this abnormal reflex is balanced, toe walking improves. Also an autistic individual, perhaps fearful to even simple touch, may commonly become receptive to parents and therapists. These balancing techniques occur rapidly and markedly quicker than years of customary therapy that may not have been successful. Dr. Masgutova, and her trained associates, shares this profound balancing of reflex patterns with enormous skill and empathy to parents and clients. The positive, sometimes unexpected, outcomes are striking.

Another example is the Babinski Reflex, which we do call a primitive reflex in that it usually disappears



Paul G. Curlee, MD

in children between the age of one and two years. When present in adults, it is considered most abnormal, signifying severe infection, tumors, or intracranial hemorrhage; all life-threatening conditions. Contrarily, Dr. Masgutova has found this reflex present in other conditions, such as speech and developmental delays. Her correlations of the Babinski Reflex with other states and the ability to balance this abnormal reflex pattern with simple movement integration techniques are truly monumental. Children with developmental delays such as cerebral palsy, and others, can benefit enormously with Dr Masgutova's balancing of reflex patterns.

Dr. Masgutova has helped innumerable individuals and families confronting traumatic brain injury, attention deficit disorders, developmental delays, and many other conditions. I have encouraged her to take on the enormous problems of PTSD, especially in this time of warfare and injured soldiers. Behavioral and cognitive therapies go only so far. These new techniques of balancing deep, core, psycho physiological reflex patterns thereby integrating harmony into the whole physiology, will become phenomenal adjunctive modalities to usual care.

Many physicians, physical therapists, occupational, speech therapists, and psychologists have attended Dr. Masgutova's seminars. Her associates are trained to her exacting standards of professionalism and profound knowledge. Seeing this growth in knowledge and skillful learning gives me new hope for the healing arts.

I recommend Dr Masgutova, her associates, and the Svetlana Masgutova Educational Institute with utmost confidence and trust. Practitioners and lay persons learning this new knowledge will enhance their own lives and those of their patients.

## *The MNRI® Approach is the ‘Missing Link’ to True Therapy, Development, and Growth*

*Lori Burgess, MST, CCC, SLP, Minneapolis, MN, USA*



I am a master's level speech pathologist, interpreter for the deaf, and hold many other certifications and awards. I have worked in this field for over 20 years with neurologically impaired and neurotypical individuals with differing impairments including cognitive, speech and language, sensory (auditory, proprioceptive, visual, etc), articulation, cochlear implants, trauma, pragmatic, stuttering, swallowing, feeding – the list can go on and on. I am always striving to find the best techniques and the most well rounded instructors to assist me in my endeavors to make the children and adults I work with as independent and communicative as possible.

I count myself very lucky to have been introduced to Dr. Svetlana Masgutova and the Masgutova Method® for Neuro Sensory Motor Reflex integration. I truly feel that her method is the ‘missing link’ to true speech pathology and other types of therapy and developmental growth practitioners.

Prior to Dr. Masgutova's techniques, I worked as a speech pathologist at a very cognitive level with my caseload, expecting that the right input and the right number of repetitions would provide a lasting result. Much to my dismay, there were patients that I could not fully reach and improve their communication abilities to the level I felt they were capable of. I did not understand that in order for the cortex to function and learn appropriately, the brainstem must be free of protection and automatisms. If that protection is too strong, learning and cognition can not take place utilizing a strong foundation. Instead, the foundation is unstable, resulting in speech and language that is not available in a stressful situation. What would seem perfect in my safe speech clinic at times would not be seen in the classroom or out on the playground or at a work place. I knew something was missing in my technique repertoire, but I did not know what it could be. Then I met Dr. Masgutova. Due to her instruction, I have completely changed my practice to begin my work on the brainstem level of functioning, and not jump to the cortex level of functioning. I have learned how to build that strong foundation so learning is effortless and enjoyable for my patients. My patients have faith in their abilities to perform outside of my clinic, and their families feel empowered by the techniques in their Home Programs. Dr. Masgutova's methods are not taught in the undergraduate and graduate schools of America. I am hoping to help change this by bringing the Masgutova Method® to as many families and professionals as I can.

Dr. Svetlana Masgutova holds her Doctorate in Developmental and Educational Psychology from Russia. She has worked as a lecturer at various Universities and as a scientific researcher at the Russian Educational Academy. She is currently a lecturer of the Early Intervention Faculty of the Wroclaw Medical Academy (Po-



Lori Burgess, SLP



land), Director of the International Dr. Svetlana Masgutova Institute for Movement Development and Reflex Integration, and Director of the Svetlana Masgutova Educational Institute for Neuro-Sensory-Motor and Reflex Integration (USA). Her work focuses on the concepts of Developmental Movement and Reflex Integration processes to facilitate sensory processing, motor-physical and sensory-motor rehabilitation, emotional recovery, as well as learning and developmental enrichment.

The innate primary movements and reflex patterns that are genetically inherent to every human being are key elements of human development. Dr. Masgutova and her MNRI® team of researchers postulate that many of these reflexes are essential to survival, especially during periods of stress and danger. They are also the fundamental neurological building blocks for all learned movements and skills, from first lifting your head, to crawling, to writing to talking. They crucially influence the development of the brain and many cognitive and intellectual processes as we mature. If the brain is 'stuck' at the brainstem level, the brain is constantly in survival mode – only wanting to protect itself. Therefore, higher levels of learning can not occur. For example, if I learned as an infant that swallowing causes me to choke, I learn that feeding is life threatening, so my brainstem sends a signal to my swallowing reflex to not allow food in so the body is not endangered. The result is that the child comes to a speech pathologist for feeding difficulties and the child may end up with a feeding tube. Through the use of Dr. Masgutova's methods, I now understand where the difficulty more than likely lies due to a thorough assessment of the primary reflexes, including Oral-Facial Reflexes. I now work at a level that is functionally 'safe' and natural, which allows the child to be free to learn and understand how to swallow and enjoy feeding. Dr. Masgutova's methods allow us to train the brain to experience safety, and then build on that experience to grow and develop more efficient pathways that lead to natural development and maturation.

I feel one of the most important aspects of Dr. Masgutova's work, that is missing in most other therapies, is the concept of precise timing and use of a gentle touch that is based on the genetically prescribed reflexes that we all inherently own in our bodies – we just need to learn how to use them appropriately, and then develop them to their highest potential. The patients in my practice enjoy the gentle learning process that does not involve drill, drill, and more drill. In fact, it is just the opposite. I do not drill a specific speech and language concept. Instead, I work on the body at the brainstem level, focusing on the reflexes that are assessed to be pathological or dysfunctional, and through the use of specific techniques, work to bring that reflex into integration which leads to maturation of the limbic system and cortex. Dr. Masgutova's work involves making clear connections between a stimulus, the correct response, and then developing the best pathway to the brain. I use these techniques for all my patients – it doesn't matter their age, type of disability, or behaviors – I work at the brainstem level to bring them out of protection and survival and into growth and development. One of the most significant parts of the Masgutova Method is that the techniques – while not hard to perform are very specific to the reflex. Therefore, family members and care givers can learn to empower their loved ones by working with them at home, so they too feel that they are a part of their family member's improvement.

Dr. Masgutova has developed classes for both therapists and parents, and has Family Conferences for intensive therapy sessions. She empowers you with information on how to specifically assist your child in his or her development. We have highly trained professionals who are MNRI® Core Specialists who continue to learn from Dr. Masgutova, and we have the 'mom down the street' who is learning the method for her child. Everyone benefits from Dr. Masgutova's expertise. Another important aspect – especially in these economic times – is the cost and time saving factor for the families and the providers. Due to the empowering nature of the MNRI® method, families can be trained to provide a lot of the work at home, under the supervision of a Core Specialist. This leads to less time away from home, less therapy time in a center or clinic, less cost to the family in benefits, insurance costs, and gas for traveling to and from the clinic, and more quality family time at home, working to bring about the true potential of a loved one. This approach is gentle, noninvasive and natural – anyone can be trained, and everyone can benefit.

In conclusion, I feel very strongly that the Masgutova Method® is an exciting, natural and proven developmental approach to the enrichment of human potential. We all have the same innate potential – but this is the method that truly defines the purpose and gives us the tools to bring each person to their highest abilities, where ever that may lie. The possibilities are endless.



## Introducing MNRI®: A Simple AND Profound Gift to the World

Pamela Curlee, Co-Founder, Svetlana Masgutova Educational Institute®,  
MNRI® Instructor and Trainer, Denver, CO, USA



**B**ackground: MNRI® Masgutova Neurosensorimotor and Reflex Integration  
The Masgutova Method® is simple; and simple is truly profound. The techniques are easily reproducible and are repeatedly effective. The work is aimed at integrating primary infant reflexes by providing a precise stimulus (sensory or proprioceptive) to activate the reflex, followed by an in-depth motor experience of the reflex pattern, thereby activating, awakening, or creating a more efficient neurological pathway.

This inspirational body of knowledge created by Dr. Svetlana Masgutova is enthusiastically embraced and used around the world. In the 1980's Dr. Masgutova developed a strong interest in reflex maturation and development during her university education in Russia. This fascination became the motivation for her graduate thesis, *Unconditioned Reflexes, Unconscious Processes and Personalities*. Dr. Masgutova's thesis drove her to investigate all available historical information about reflexes, significant portions of which remained available only in Russian until the late 1900's. Her investigation led her to study the work of reflex and development pioneers, whom she now attributes as providing the theoretical basis of MNRI®. These researchers include I. Sechenov, C. Sherrington, L. Vygotsky, A. Luria, A. Leontyev, P. Anokhin, N. Bernstein, and others.

Having completed her Doctorate degree in Developmental Psychology in Moscow, Dr. Masgutova was just beginning her career as a post-graduate professor and researcher when a pivotal train wreck tragedy happened in Ufa, Russia. She travelled there to volunteer her professional services, and when faced with the overwhelming task of helping physically and emotionally traumatized children, Dr. Masgutova quickly concluded that a cognitive approach was insufficient to reach these traumatized children because they were stuck in protection and survival, a function of the brain stem. Her typical psychological therapies of time, space, and the spoken language were functions of the higher brain. The activity of these children's primary reflex functions remained in the past traumatic event which blocked their higher level cognitive, emotional, and physical skills. Dr. Masgutova understood that the only 'language' of the brain stem was actually touch and movement. At Ufa, she was able to develop real-time techniques that included touch and movement to drop the protective guard present in each child's body. Her approach paid off as the children began to reconnect with the world.

Dr. Masgutova remained with the children for months (working 16 hour days) as each child proceeded through their difficult recovery. Their progress was so noticeable that other people in the hospital became interested in her work. Dr. Masgutova's emerging burgeoning integration techniques were thereafter used with adult survivors as well. (See more information about this in the article, *You Are a Winner* in the PTSD section.)



Pamela Curlee

From this initial work with PTSD victims from various places (that included Chernobyl, the Baku War, the Armenian earthquake, and the Chechen War), she began to wonder if the same processes would work with children/adults who had experienced birth trauma, accidents, and illnesses. She worked successfully with children with cerebral palsy and later also expanded her work to include individuals with a variety of 'Reflex Integration Disorders' such as behavioral, sensory, and motor disorders, thereby impacting cognitive, emotional, and mental skills for individuals as well as physical development.

Genius and compassion are a rare combination which have enabled Dr. Masgutova to take the work of these original "neurological giants" mentioned above and connect the dots with US neuroscience while bridging this scientific knowledge with an unprecedented volume of clinical observations and experiences to serve as a foundation for the development of the MNRI® program.

This work is a new pathway that now offers heretofore undiscovered levels of enrichment to people worldwide by bringing these primary reflexes into or back to a state of integration. She has created techniques to uniquely impact the sensorimotor integration for the growth of nerve nets, myelination, activation of genetic blueprints, and the awakening and revival of motor memory.

Dr. Masgutova is delivering a gift of new wisdom to the world that has the unique ability to enrich lives of children and adults from the range of developmental challenges up to enrichment of the highest athletic levels and gifted individuals. This broad spectrum of influence is due to the common denominator of working with the complete circuit of the most basic primary reflex level of the physiology. Many people have worked with the enrichment of the nervous system. And some have worked exclusively with the development of the sensory system. Others have focused on function and motor development. But the uniqueness of the Masgutova Method® is that Dr. Masgutova has brilliantly brought all three pieces together in a simple, reproducible scientific program.

This MNRI® program offers in-depth training for professionals as well as education for parents who have the desire to become part of our dynamically successful team. We are all working with one goal: to awaken innate intelligence to open new doors of opportunity. As of the beginning of 2015, this program has been used by professionals and parents in over 25 countries based in all five continents.

It all began with one woman who simply wanted to find a way to help people to move beyond survival and to uncover or recover their potential. As you will see from these stories, these discoveries and this program has provided us all with the 'missing link.' We whole heartedly invite you to come join us and discover for yourself first hand the profound benefits of working with the Masgutova Neurosensorimotor Reflex Integration® Program. You'll be glad you came!

# *An Introduction to the Masgutova Method®*

*Jane Smith*



**I**nfant reflexes are protective motor responses by the brainstem to internal or external stimuli. Scientific investigation continues to reveal the complexities of their development and how hugely important they are to our ability to exist.

One or a combination of four basic conditions can cause primary infant motor reflex dysfunction or pathology: congenital disorders; disease; birth, physical or emotional trauma; and prolonged, intermittent or chronic stress. Each of these conditions can cause the central nervous system, sensory system, or motor system to become compromised.

When one of the four conditions is present in utero, at birth, or during infancy prior to the their maturation, the neurosensorimotor circuits necessary for primary infant motor reflexes to emerge and function may be blocked or damaged. Depending upon the magnitude of impairment, a reflex may: 1) emerge, mature and integrate with little or no problem, 2) emerge, fail to mature, and remain dysfunctional, 3) emerge pathologically or 4) fail to emerge.

If one of the four conditions occurs after integration of the primary reflex system, the autonomic nervous system can still trigger reflexes to re-surface as an adaptive strategy in service of survival. When a primary infant motor reflex re-surfaces, it often remains present in a dysfunctional way.

The autonomic nervous system generates two different bodily states based on its two subsystems: the sympathetic and parasympathetic systems. During non-alarm states, the parasympathetic system normalizes bodily function (supporting rest, digestion, and healing) to ensure long-term growth and development. When the body is threatened, the sympathetic system mobilizes resources (fight, flight, or freeze) to ensure short-term protection or survival.

These two autonomic subsystems function in a symbiotic fashion alternating control depending on the body's internal alarm state. In cases of chronic low-level trauma, the sympathetic nervous system sometimes dominates without allowing the parasympathetic nervous system to restore normal function. Then, not only can the body sustain internal physiological damage, but its overall ability to function effectively and maintain emotional and behavioral stability weakens. Sympathetic dominance during the first two years of life can disrupt the process of emergence, maturation, and integration in the developing reflex system. If the sympathetic system becomes dominant after primary infant motor reflexes have integrated, then low-level trauma, normally managed effectively, can result in hyper-arousal and trigger reflex patterns to re-surface. In other words, prolonged intermittent or chronic stress can reactivate primary infant reflexes or compromise their maturation and integration.

The importance of fully matured integrated reflexes for optimal motor, cognitive, and social development goes way beyond their role in infants and toddlers. Maturation and integration of the reflex system is especially relevant for building the control, motivation, abstract thinking, creativity, and skillful intentional behavior necessary for academic achievement.

If one of the four basic conditions is present, the question becomes how have the underlying neurosensorimotor systems necessary for primary infant motor reflex integration been impacted? An individual's sensory system may be hyper-reactive, hypo-reactive, or non-reactive. A person with a hypersensitive system may find moderate amounts of stimulation irritating or intolerable. A scratch can feel like a deep cut, a light touch like an aggressive push, an everyday sound like nails on a chalkboard, or simple eye contact like a glaring stare.

In contrast, a hypo-reactive sensory system may fail to respond to a small or even moderate amount of stimulation. A deep cut can feel like a simple scratch, an aggressive push like a light touch, nails on a chalkboard like any mild sound, or a glaring stare like simple eye contact. In either case, the sensory system is misinterpreting the environment and sending unreliable signals to the central nervous system.

The central nervous system (CNS) regulates and directs internal and external responses based on the input it receives. To the outside world, an individual with a challenged sensory system can appear emotionally and behaviorally disregulated, when in fact the evoked emotional or behavioral responses may exactly reflect the level of stimulation registered by the challenged sensory system. Hyperactive senses cause the sympathetic nervous system to over-engage its 'alarm state.' Individuals with such an over-reactive sensory system may tend to withdraw protectively and be too fearful to take the normal risks necessary for new learning.

In contrast, a hypoactive sensory system requires a higher level of stimulation for arousal. While the long-term purpose of the parasympathetic 'non-alarm state' is to support restoration and growth, if a body fails to register dangerous or life threatening sensory stimuli it will not engage necessary protective strategies. People with an under-reactive sensory system can be at risk for harm during dangerous and life-threatening situations and are more likely to engage in high-risk activities.

A motor response from a compromised system can range from a very low level of development to dysfunctional or pathological. A dysfunctional motor response can be hyperactive, causing too much muscle tension, high muscle tone, and rigid muscles restricting the functional range of movement; or hypoactive, causing too little muscle tension, low muscle tone, and muscles too soft to control or support the body. A pathological (more severe than dysfunctional) motor response may be: 1) reversed – the opposite of what is expected, 2) incorrect – a response expected for some other stimulus, or 3) a-reflexive – generating no response at all. Dysfunctional and pathological motor responses will not be appropriately integrated and will not support growth and development.

Under normal conditions, the CNS actively generates appropriate and balanced reactions to internal and external sensory stimulation to ensure that basic bodily functions and activities remain well regulated. Due to congenital defects, disease, trauma, or long-term intermittent or chronic stress, CNS impairment can cause incoming sensory information to be blocked or misinterpreted and outgoing motor responses to be dysfunctional or pathological. For this reason the presence of developmentally inappropriate primary infant motor reflexes has long been viewed by medical professionals as symptomatic of neurological issues.

The widely accepted traditional thinking on infant reflexes is that they exist up until about age three, when they normally disappear, having become 'inhibited' or 'extinguished' through normal maturation. Masgutova Neurosensorimotor Reflex Integration originates from a different way of thinking. Svetlana Masgutova, Ph. D., has based her method on research done by Russian physiologists, neurophysiologists, and psychologists from the 1920's to 1950's (Anokhin, 1973; Bernstein, 1997; Pavlov, 1927, 1960; Sechenov, 1961, 1995; Vygotsky, L.[no date]; Ukhtomsky, 1950-1952). These scientists placed reflexes in the frame of both higher and lower nervous system activity. They viewed infant reflexes not only a protective or survival response to stress or danger, but also the neuro-physiological foundation for physical, emotional and cognitive development.

Innate motor reflex programs are part of our genetic human inheritance regardless of what challenges may be present. Alexander Luria (1966) demonstrated that blocked and damaged neural pathways could be reactivated and restored through functionally related circuits in the brain's reflex system. This is the essence of MNRI®.

Our goal is healthy development in which the reflex system is ready when needed for protection and sur-

vival and, at the same time, provides a solid foundation for physical, motor, emotional, and cognitive development. Welcome to Masgutova Method!

### References

- Anokhin, P.K. (1973). Biology and neurophysiology of the conditioned reflex and its role in adaptive behavior. *International Series of Monographs in Cerebrovisceral and Behavioral Physiology and Conditioned Reflexes*. USA.
- Bernstein, N. (1997). *Bio-mechanics and physiology of the movement*. Moscow, Russia: Moscow-Voroniez.
- Luria, A.R. (1966). *The human brain and cognitive processes*. University of Moscow. Transl. New York and London, UK: Harper & Row Publishers.
- Pavlov, I. (1927). *Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex*. Translated and edited by G.V. Anrep. London: UK: Oxford University Press.
- Pavlov, I. (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 Inc.
- Sechenov, I. M. (1961). *Reflexes of the brain*. (Russ.). Moscow, Russia. p. 28-54.
- Sechenov, I. M. (1995). *Physiology of behavior*. Scientific Works/Ed.: Moscow, Russia: M.G. Jaroshevsky. 319 p. 26-130.
- Vygotsky, L. (1986). *The child psychology. The problems of child development*. In 6 Books. Book – 4. Moscow, Russia: Pedagogika.
- Ukhtomsky, A.A. (1950-1952). *The study of dominance*. Collected works in 6 books. Book 6. Leningrad, Russia.