

Masgutova Neurosensorimotor Reflex Integration (MNRI) as a New Form of Manual Neuromodulation Technique

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Neuromodulation is a broad term describing techniques that have the ability to directly affect the functional and developmental mechanisms of the brain or central nervous system. Some of these techniques use a trans-cranial mode including a self-regulation technique called neurofeedback and trans-cranial stimulation feature like trans-cranial magnetic or direct electric stimulation. One type of manual neuromodulation technique is the Masgutova Neurosensorimotor Reflex Integration (MNRI) therapy that will be described in more details in an upcoming research paper. Briefly, MNRI was first developed by Dr. Svetlana Masgutova in 1989 in Russia and further in eastern Europe to treat individuals with certain types of sensorimotor or reflex development deficits, behavior disorders, disorders of speech or language development, and learning disabilities. It was introduced to the USA in 1996 and has since been adopted in many other countries. Clinical observations have shown that MNRI[®] facilitates the neurodevelopment in individuals having various neurological deficits and seems to enable them to reroute and improve their early movements, reflexes, coordination systems, and skills to optimize better functioning, development, and learning [1-4]. The MNRI[®] therapy program is based on the supposition that impaired reflex circuits can be reconstructed. This retraining of reflexes appears to result in the awakening of genetic sensorimotor memory in individuals with cerebral palsy (CP) and other types of brain damage. This induces significant positive changes in physical strength, immune activity, and improvement in cognitive, emotional, social, and motor abilities [1,2,5].

MNRI[®] is based on exercises and techniques called “re-patterning”, which means reeducation, recoding, rerouting the reflex nerve pathways specific for dynamic and postural reflex patterns (e.g., Babinski, Automatic Gait, Bauer Crawling, Hands Grasp, and others). The stimulation of those reflex pathways is aimed at strengthening and stabilizing trace genetic sensory-motor memories and the activation of innate defensive mechanisms of the body-brain’s ‘alarm’ system (HPA stress axis or ‘hypothalamus->pituitary gland->adrenals’ cycle activation as described by H. Selye, 1974) [6] in times of stress or danger. MNRI exercises stimulate innate neuro-regulation mechanisms and resilience in the stress and immune systems [3,4,7]. Repatterning activates the extrapyramidal nerve system (peripheral nerves, spinal cord, brain stem, diencephalon) responsible for automatic mechanisms and processes, the extension of links between neurons, the growth of neural nets, myelination, and the creation of new nerve routing, as described by Sechenov (1863/1995), Cannon (1931), Roxo et al. (2011), and Anokhin (1973) [8-11]. MNRI has been shown to be an effective therapy in children with cerebral palsy where clinical findings and quantitative electroencephalography (QEEG) maps improvement after this therapy was noted [2]. Also a significant improvement in brain

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stem transmission in the auditory pathway was observed by brain stem auditory evoked potential (BAEP) examinations as tested before and after MNRI therapy application [1].

Our prior paper showed that QEEG is a very useful tool in evaluation of patients and variety of neurological conditions [12].

In our upcoming study of 53 patients subjected to MNRI therapy, 42 (79%) were noted to have a marked improvement on QEEG maps when comparing before and after MNRI therapy. The main markers chosen for our study including absolute power, coherence and phase lag were found to be improved in majority of the patients. All patients subjected to MNRI therapy were observed to have a clinical improvement. Most of the patients involved in MNRI treatment also were noted to have an improvement on QEEG maps after therapy regardless of their clinical diagnosis. Most of the patients involved in this study were diagnosed with CP and Autistic Spectrum Disorder (ASD). However other patients diagnosed with anoxic brain injury, stroke, and ADD/ADHD also showed clinical improvement after completion of intensive MNRI therapy.

Another form of manual neuromodulation therapy which was also found to be effective in clinical settings is an eye-movement training developed by Dr. Carrick [13]. His method demonstrated (in a multicenter randomized control study) clinical improvement of ischemic stroke patients after eye movement training. Thus, manual neuromodulation opens new conceptual paradigms for creating the neuro-facilitation techniques.

We hope that in the near future MNRI therapy and possibly other manual neuromodulation therapies will be considered as primary options for the treatment of CP, ASD and other neurodevelopmental disorders.

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