The summary on Article in Peer reviewed Journal: "Physiological Markers and Reflex Pattern Progression in Individuals with Neurodevelopmental Deficits Utilizing the MNRI Method

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The purpose of this research was to investigate the impact of the MNRI Reflex Integration Method on four body systems: respiratory, cardiovascular, digestive, and nervous systems. The comparative analysis involved participants with neurological deficits in four groups: Brain trauma including CP, Anxiety including ADD/ADHD, ASD, and post trauma including PTSD. This study examined physiological markers, functionality of reflex patterns; and correlation between physical markers and expression of reflex pattern. The latter may reveal underlying reasons for stress including the regulatory issues within "HPA-alarm system" (over-reactive or hypo-active).
The Autonomic nervous system is designed for optimization of survival via homeostasis between the sympathetic and parasympathetic nervous system. These two systems continuously are being regulated and are regulating the protective systems of the brain, organs, and neurotransmitters.

Abstract: The physiological markers of 310 individuals aged 2 through 19 were evaluated for the effects of the Masgutova Neurosensorimotor Reflex Integration Method on their four body systems: respiratory, cardiovascular, digestive, and nervous systems of individuals with neurodevelopmental deficits—cerebral palsy (CP), seizures, traumatic and acute brain injury, attention deficit and hyperactive disorders (ADD, ADHD), autism spectrum disorders, anxiety, post-trauma and post-traumatic stress disorders. We found that 53.33% of physiological markers and 66.67% of reflex patterns on the pre-test demonstrated to be poorly functioning. Both evaluation results showed statistically significant improvements after 8-days of intensive training using the Masgutova Neurosensorimotor Reflex Integration Method. Data demonstrates that improvement occurred in 60.0% of the physiological markers-correlating with functionality gains in 77.5% of reflex patterns in all four study groups compared to the control group, which did not receive the Reflex Integration training program (p-value < 0.05). The magnitude of improvement depended upon the severity of symptoms indicating the essentiality for individualized training in accordance with the diagnosis and individual neurological deficits. Results of this study show that reflex integrative techniques can lead to a reduction of stress and other negative factors inhibiting homeostasis, limiting perception, and thereby causing dysregulation in behavior and emotions, especially following traumatic events. Positive changes in physiological markers and reflex pattern functions indicate potential benefits for survival and stress resiliency through supporting neuro-physiological and neuro-psychological aspects of overall health and well-being in individuals with neurological deficits.

Brief interpretation: The Parasympathetic system (PNS) primarily utilizes Acetylcholine (Ach) as its main neurotransmitter and communicates to ensure what is called the rest digest state. This state is when one experiences physical emotional and neurological restoration. The body is no longer just surviving but actually thriving. Digestion is restored, tear ducts activated, learning and sexual functions activated and access to higher cognitive functioning.
The Sympathetic system (SNS) is primarily known in regards to its ability to mediate both the neural and hormonal response to both perceived and actual stress, thereby activating the flight fight

response. This catecholamine response of adrenaline and noradrenaline facilitate physical responses in order to secure survival. These responses include but are not limited to:

- Increased heart and respiratory rate, causing expansion the bronchi and bronchioles to facilitate efficient yet shallow activation of pulmonary function.
- Dilation of pupils, leading to tunnel vision (lack of peripheral vision),
- Sharpened hearing activating,
- Dilatation of blood vessels in muscles and increased fat and glucose for action,
- Inhibition of intestinal motility and production of digestive enzymes (digestion slows down, tone of tissues in sphincters increase).

These two systems are not antagonistic towards each other, rather they are imperative cooperative systems designed to coexist to ensure survival. Often, they are referred to as the "accelerator and brake".
During unknown or stressful times, the innate nature of survival is initiated and will not relinquish itself to the PNS until felt safety is realized. This creates initial and long-term repercussions on the health and wellbeing of the person experiencing the situation at hand. This in turn means that digestive, emotional and mental symptoms will occur. This may appear as anxiety, irritable bowel syndrome (IBS), constipation, attention deficit hyperactivity disorder (ADHD), anger or rage, obsessive–compulsive disorder (OCD), and a host of others.

Over the past several years MNRI has been involved in a number of studies to determine its impact on the homeostatic or internal stability of its participants. These studies have involved autism, post-traumatic stress disorder (PTSD), ADD/ADHD, Brain trauma, anxiety disorders, cerebral palsy, and Down syndrome. All of which present with signs indicative of increased prolonged SNS activity demonstrated in neurotransmitter and physical exams. The neurotransmitters associated with the excitatory responses in all diagnosis's were consistently elevated compared to the healthy control groups. However consistent decreases were realized in all groups who received MNRI treatments. These treatments were in the form of 5 to 8-day conference settings in which participants had 6 sessions each day.

We know that prolonged stress equates to elevated inflammation and inhibited immunity. One common example is the pathway of Tryptophan. Tryptophan utilizes iron and biopterin to produce 5-HTP which then utilizes B3, B6, B9, B12 and magnesium to synthesizer Serotonin which uses other elements to create melatonin. Any one of the building blocks along the pathway will interrupt the final synthesis. The initialization of synthesis will however be impaired by oxidative stress. Oxidative stress is known to be pollutants, toxins, food reactivity, infections but more importantly to this subject imbalance of hormones and persistent or ongoing stress. The results of just this one pathway being interrupted is anxiety, restlessness, lack of sleep, digestive disorders, slowed cognitive functions, and impaired immunity.

What was discovered in the external research was that overall, in all diagnosis homeostasis is being restored. There are trends in which epinephrine is reduced and due to its relationship with norepinephrine it can be concluded that cortisol is being pushed from the body thereby lowing inflammatory stress. It is also concluded that glycine (associated with anxiousness, sleep disturbances, and diminished immune and digestive function) levels were brought closer to within norm. Studies overall concluded that not only did MNRI bring reduction in excitatory neurotransmitters but also self-

regulation of (phenylethanolamine N-methyltransferase) PMNT and (monoamine oxidases) MAO. PMNT is found in the adrenal medulla and assists in the conversion of norepinephrine to epinephrine. MAO found bound to mitochondria and help to inactivate excess dopamine, serotonin and epinephrine. COMT (catechol-o-methyltransferase) is involve in metabolizing dopamine. So, by making the body more efficient in its neurotransmitter functions, the body is able to go to restorative Parasympathetic state. Freedom of the PNS and SNS to work in harmony or homeostasis allows for the body to run at optimal immunity levels.

Optimization of stress resiliency in participants is further confirmed by a particular study that looked at the physiological markers of its participants. Here markers include blood pressure, auscultation of the lungs and intestines, pulse, oxygen saturation, PERRLA (pupillary reaction, divergence and convergence assessment) and peak flow breathing measurements. Post test results demonstrated overwhelming reduction of stress related elevated numbers. The Peak flow test (demonstrating lung capacity) increased greatly by statistically significant level. Abdominal auscultation indicates the restoration of intestinal motility. Blood pressure and pulse moved closer to optimal levels; perfusion of vascular system increased substantially in all participants. These markers are indicative of the underlying processes of the neurological system. These findings are further confirmed by objective statements from participants and caregivers that state there is less anxiety, less anger outburst, reduction in OCD tendencies, increased or improved sleep patterns, digestion and excretory function, greater self-awareness and overall sense of wellbeing.
When homeostasis is restored in the body, it now is able to go into restorative functions, immunity optimization, and cognitive planning.

Conclusion: The present findings demonstrate recipients who receive MNRI® treatment have marked improvements in standard vitals. These results are indicative of a trend towards homeostasis, the body's ability to regulate the balance between negative stress and free and relaxed states, and normalization of the work of the HPA stress-axis. MNRI's impact on these body systems shows a trend towards the body's internal changes allowing optimization of body functioning to transpire. These results suggest that the MNRI Program is a safe, advantageous, and non-pharmaceutical therapy that brings marked physiological change to the body's internal systems. Earlier studies also demonstrated similar results showing that the MNRI tools adjunctively improved the therapeutic effectiveness of pharmacological treatments in bronchitis and other
The results of this study indicate that the MNRI reflex integrative techniques may lead to a reduction of perceived stress and negative factors blocking physiological health homeostasis, which decreases protective neurological responses thus limiting perception, and causes dysregulation in behaviors and emotions, especially after traumatic events. Improvements in the functions of reflex patterns positively affect survival mechanisms, increase stress resiliency, and support overall neurophysiological and neuro-psychological aspects of health and well-being in individuals with neurological deficits.

T. Deiss, March 21, 2020