The Effectiveness of the Masgutova Neurosensorimotor Reflex Integration – MNRI® Method on the Occupational Performance of Patients with Neurological Disorders Across the Lifespan

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MNRI® Core in Training
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BACKGROUND

The MNRI ® Method, founded in Russia in 1989 and continuously developed by Svetlana Masgutova, PhD., the method postulates that an integrated neurological sensorimotor reflex pattern serves as the foundation for higher level physical, emotional, and cognitive functioning in addition to its critical function for protection to stress and danger. The method "focuses on the concept of activating a sensory or proprioceptive stimulus for a reflex, followed by performance of the motor response pattern associated with that reflex and all its variants in order to create a more efficient neurological pathway for physical, mental, emotional, and cognitive functioning." [5] The development or existing structure of the neurological sensorimotor reflex pattern can be impacted by congenital disorders, physical or emotional trauma, and prolonged or chronic stress leading to neurological changes resulting in deficits in higher cognitive functioning. [5] The MNRI® Method contains a vast amount of programs that target the neurosensorimotor reflex integration. A significant amount of peer reviewed journal articles supporting the effectiveness of the method in neurodevelopment and rehabilitation exists. [5] However, limited awareness and utilization of the methods across the US health care community exists. In part due to the limited translated evidence that originated in Russia and only in the recent decades has begun to infiltrate the US academic sector. 6 Considering the underlying theoretical similarities between occupational therapy (OT) interventions and the MNRI ® Method such as the theoretical assumption of neurological plasticity, the holistic treatment approach and the vast amount of existing evidence warrants the investigation into the functional outcomes of the method when integrated into the OT process.

RESEARCH QUESTION

What is the effectiveness of the Masgutova Neurosensorimotor Reflex Integration – MNRI ® Method on the occupational performance in individuals with a congenital neurological disorder.

METHOD

Design: Single subject mixed method exploratory case study.[7]
Participants: Convenience sampling (n=1). [3]
Procedure:
- Participant participation through caregiver consent.
- Administration of standardized assessments & Subjective reporting and patient/caregiver interview.
- Video recording observations.

Data Analysis:
- Analysis of Pre & Post standardized assessment results.
- Theoretical thematic analysis to identify common themes and interpret the results. [1]

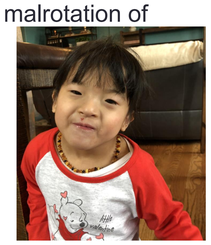
MEDICAL HISTORY

5.4-Year-old female, adopted at 2weeks of age

- Induced labor at 39wks gestation secondary to IUGR & Polyhydramnios. NICU stay, Complex Medical History

PMHs
- Congenital Anomalies, Hep B exposure, IGR, PFO, Hypotonia LADD'S Procedure of malrotation of bowl, G-Tube

DX
- Developmental Delay
- Cortical visual impairment
- Intestinal bowel rotation
- Soft cleft Palate



ASSESSMENT

Quantitative Data Collection

Short Sensory Profile-2
Acceptable test–retest reliability and internal consistency and supports the use of quadrant scores over factor and section scores to analyze children's sensory processing patterns. [5]

Pediatric Evaluation Disability Index (PEDI-CAT
Parent reported questionnaire
Strong relationship between parent-reported and clinically measured motor function. [2]

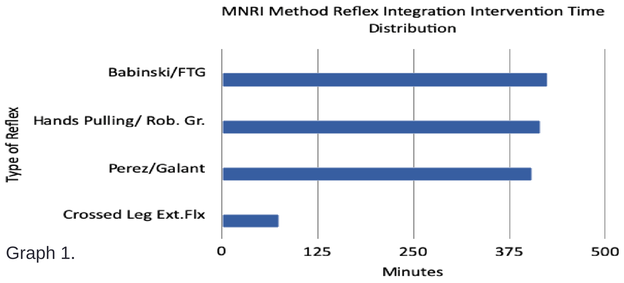
Qualitatively Data Collection

Subjective caregiver reporting throughout intervention period.
Pre & Post Interview & Video recording.

MNRI INTERVENTION

Provision of OT interventions while implementing the MNRI® Dynamic And Postural Reflex Integration Protocol. [4]

- 10 Weeks, x15 Sessions, 88min average session.
- 1320 Min. total treatment time
- Babinski/Foot Tendon Guard, Hands Pulling/Robinson Grasp, Galant Perez, Crossed Leg Ext. Flx.



Graph 1.

RESULTS

Table. 1 Quantitative Results: Sensory Profile -2

	Much less than others	Less than others	Just like the majority of others	More than others	Much More than others	
Quadrant						
Seeking/Seeker	0-6	7-19	20-47 **R1 40** **R2 34**	48-60	61-95	Z. is just as interested in sensory experiences as the majority of others.
Avoiding/Avoider	0-7	8-20	21-46 **R1 32** **R2 38**	47-59	60-100	Z. Reacts to sensory experiences just like the majority of others.
Sensitivity/Sensor	0-6	7-17	18-42 **R2 40**	43-53	54-95 **R1 65**	Z. Detects many more sensory cues than others.
Registration/ Bystander	0-6	7-18	19-43	44-55	56-110 **R1 69** **R2 57**	Z. Misses many more sensory cues than others.

Quadrant	Raw Score 1	Raw Score 2	Raw Score Change
Seeking/Seeker	40	34	**-6**
Avoiding/Avoider	32	38	+6
Sensitivity/Sensor	65	40	-25
Registration/ Bystander	69	57	-12

Table. 2 Quantitative Results: (PEDI-CAT)

	Pre-Assessment			Post-Assessment		
Domain	**Scaled Score**	**Stamd. error**	**Perc.**	**Scaled Score**	**Stamd. error**	**Perc.**
Daily Activities	55	0.62	<5	42	1.25	<1
Mobility	69	0.79	5~25	55	.82	<1
Social/Cognitive	65	0.66	<5	47	1.92	<1
Responsibility	49	0.80	5~25	25	6.58	<1

Qualitatively Results

Themes that emerged from the thematic analysis of the subjective reporting and interview data are as follows:

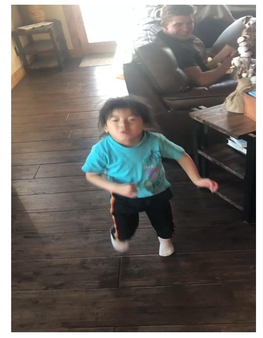
Theme 1. Improved Functional Mobility
- Improved strength, balance, motor planning, and decreased level of assist during functional mobility.

Theme 2. Autonomic Nervous System regulation
- Decrease amount of discomfort expressed.
- Improved self regulation skills.
- Improved sleep

Table 4. Exemplary Quotes

Theme	Exemplary Quote
1	"She is walking without any support for a larger amount of time and is more stable." "She is able to move from sitting to standing much better and controlled." "She is walking now"
2	"She seems to be much happier, not so upset that much anymore." "She calms herself faster."

Pre & Post Video Observation



Discussion

- The pre & post test results of the Sensory Profile-2 indicate a significant impact of the MNRI ® Method on the overall sensory processing pattern. The largest raw score change is noted in the sensitivity/sensory quadrant, possibly indicating major improvement in the ability to attend to significant and ignore insignificant sensory stimuli.
- The results of the PEDI-CAT further indicate significant improvement in all domains including daily activities, mobility, social/cognitive skills and responsibility taking.
- Themes that emerged: Improved functional mobility, autonomic nervous system regulation.
- Therapist training required for MNRI® Method utilization.
- The MNRI® Method appears to have been an extremely effective method in the promotion of overall functional independence in various domains.
- Further research is recommended to explore the full scope of functional outcomes when incorporating the MNRI ® Method into the occupational therapy process.

REFERENCES

A full list of references is available upon request.