

# The Effectiveness of the Masgutova Neurosensorimotor Reflex Integration MNRI® Method on the Occupational Performance of Individuals with an Acquired Brain Injury

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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.” 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 [1]. The MNRI® Method contains a vast amount of programs that target the neurosensorimotor reflex integration [1]. A significant amount of peer reviewed journal articles supporting the effectiveness of the method in neurodevelopment and rehabilitation exists. However, limited awareness and utilization of the methods across the US health care community exists [1]. 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 [2]. 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 MNRI® Method on the occupational performance of individuals with an acquired brain injury?

## Method

### Design

Single subject mixed method exploratory case study [2].

### Participants

Convenience sampling (n=1) [3].

### Procedure

Participants consented and voluntarily participated in case study.

Administration of standardized assessments & Subjective reporting and patient/caregiver interview.

### Data analysis

Analysis of Pre & Post standardized assessment results.

Theoretical thematic analysis to identify common themes and interpret the results [4].

### Medical history

68 yr. old married male, retired Lawyer.

### PMH & DX

- Anoxic brain injury in 2006, secondary to cardiac arrest MNRI results 2/19: White matter volume loss & trace cerebellar encephalomalacia
- Chronic microvascular ischemic changes
- Dystonia
- Secondary Parkinsonism
- Non-ambulatory
- 24hour care provided by spouse

## Assessment

### Quantitative data collection

#### Postural Assessment Scale for Stroke Patients (PASS)

- Normative
- Valid & reliable clinical assessment [5]
- Higher score indicating higher function

#### Duröz Hand Index (DHI)

- Excellent test-retest reliability & internal consistency [6].
- Lower scores reflecting higher function respectively a higher score is indicative of a higher level of hand dysfunction.

### Qualitative data collection

- Subjective reporting throughout intervention period
- Pre & Post Interview
- Pre & Post Video recording observation

### Intervention

- Provision of Occupational therapy interventions while implementing the MNRI® Dynamic And Postural Reflex Integration Protocol [7].
- 10 Weeks, × 15 Sessions, 76 min average session.
- 1150 Min. total treatment time
- Babinski, Foot Tendon Guard, Galant, & Trunk Ext [Graph 1].

## Results

### Quantitative results

Thematic analysis of patient & Caregiver subjective reporting and the pre & post interview data video recording.

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

#### Theme 1: Decrease in Caregiver Assistance

Significant change in caregiver assist level provided during all functional mobility.

Increased amount of unsupervised periods

Increased overall increase in functional performance

#### Theme 2: Autonomic Nervous System regulation

Significant change in perspiration decreasing shirt changes from 2 to 0.

Improved quality of sleep.

#### Theme 3: Increased Postural Control

Increased static postural control while standing

Decrease of involuntary movements

Increased ability to maintain midline while seated in w/c. [Table 1 and 2, Figure 1]

## Discussion and Conclusion

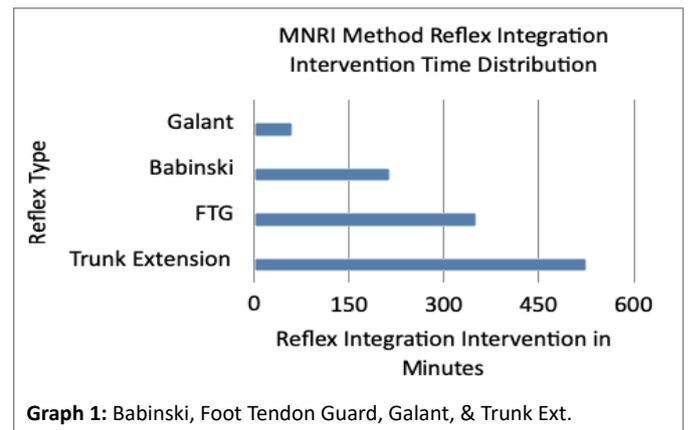
The interpretation of the PASS Pre & Post test results indicate improvement in the patient's ability to maintain postural control.

The pre & post test results of the DHI indicate improvement in the patient's overall hand function.

**Themes that emerged:** Decrease in caregiver assistance, autonomic nervous system regulation, and increased postural control.

Therapist training required for MNRI® Method utilization.

The MNRI® Method appears to be an extremely effective method in the promotion of physical, cognitive and emotional health. However; further research is recommended to explore the full scope of functional outcomes when incorporating the MNRI® Method into the occupational therapy process.



**Table 1:** Quantitative results.

Assessment	Domain	Pre-Score	Post-Score	Range
Postural Assessment Scale for Stroke Patients (PASS)	Maintaining Post.	4	7	(0-15)
	Changing Post.	6	6	(0-21)
	<b>Total</b>	<b>10</b>	<b>13</b>	<b>(0-36)</b>
Duröz Hand Index	C1 Kitchen	15	15	(0-40)
	C2 Dressing	4	3	(0-10)
	C3 Hygiene	1	3	(0-10)
	C4 Office	5	3	(0-10)
	C5 Other	8	4	(0-20)
	<b>Total</b>	<b>33</b>	<b>28</b>	<b>(0-90)</b>

**Table 2:** Exemplary quotes.

Theme	Exemplary Quote
1	"I do not have to help that much anymore; He is so much more stable." "I can leave him alone for a little bit now" "It is so much easier for me now to help him move." "This gives us hope."
2	"His shirt would be drenched in sweat by 12 pm; we used to have to change shirts twice a day." "I sleep much better throughout the night" "He is much calmer."
3	"He doesn't lean to the right that much anymore." "He has not been able to stand for this long in a very long time."

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