Gross Motor Function Improves in Young Children with Spastic Cerebral Palsy
After Myofascial Structural Integration Therapy

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Introduction

- Cerebral Palsy (CP) is the most prevalent physical disability of childhood.
- Recent research implicates structural changes in the muscle and surrounding connective tissue in maintaining stiffness associated with spastic CP.1,2
- Lifetime prevalence for children with spastic CP to receive massage is 80%; point prevalence is 50%.3
- In prior studies, massage has been shown to improve gross motor and adaptive functions in children with spastic CP.4,5
- Myofascial Structural Integration (MSI) is a deep muscle and soft tissue massage striving to reposition the muscles, bones, and joints.
- It was developed by Ida P. Rolf and is therefore known as Rolfing.

Objective

To assess whether myofascial structural integration, when used as a complementary treatment, improves the gross motor skills of young children with spastic CP.

Study Design

- Randomized controlled trial with open label extension
- Initial treatment versus waitlist control group

Methods

Participants

<table>
<thead>
<tr>
<th>Type of Spastic Cerebral Palsy</th>
<th>Initial Treatment (n = 8)</th>
<th>Waitlist Control (n = 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Motor Function</td>
<td>Mean Age (years)</td>
<td>Male, n (%)</td>
</tr>
<tr>
<td>Classification System</td>
<td>3.08</td>
<td>3 (37.5)</td>
</tr>
<tr>
<td>Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1: n = 2</td>
<td></td>
<td>Level 1: n = 1</td>
</tr>
<tr>
<td>Level 2: n = 1</td>
<td></td>
<td>Level 2: n = 2</td>
</tr>
<tr>
<td>Level 3: n = 1</td>
<td></td>
<td>Level 3: n = 0</td>
</tr>
<tr>
<td>Level 4: n = 4</td>
<td></td>
<td>Level 4: n = 5</td>
</tr>
<tr>
<td>Hemiplegia = 1</td>
<td>Hemiplegia = 3</td>
<td></td>
</tr>
<tr>
<td>Diplegia = 2</td>
<td>Diplegia = 2</td>
<td></td>
</tr>
<tr>
<td>Quadriplegia = 5</td>
<td>Quadriplegia = 4</td>
<td></td>
</tr>
</tbody>
</table>

Primary Outcome: Gross Motor Function Measure (GMFM – 66)

- A validated observational measure which assesses gross motor function in children with CP
- One physical therapist unaware of group assignment assessed all children
- 0-3 rating scale for individual items on different skills (e.g. sitting, standing, running)
- 0-100 point scale for the total score
- Higher scores indicates greater function

Data Analyses:

- Paired t-test analysis of the pooled sample was used to examine any differences in GMFM scores among baseline, pre-treatment, and post-treatment GMFM scores.
- Repeated measures ANOVA was used to compare GMFM scores in the initial treatment group to the waitlist control group at Assessment 3.

Results

- Mean GMFM Change (SD)

<table>
<thead>
<tr>
<th>Pool Sample (N = 16)</th>
<th>Initial Treatment</th>
<th>Waitlist Control</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMFM Change Baseline to Pre-treatment</td>
<td>1.33 (3.68)</td>
<td></td>
<td>1.44</td>
<td>.169</td>
</tr>
<tr>
<td>GMFM Change Pre- to Post-treatment</td>
<td>1.62 (2.98)</td>
<td></td>
<td>2.17</td>
<td>.046</td>
</tr>
</tbody>
</table>

Conclusions

- MSI improves gross motor function in young children with spastic CP
- The quantitative change is small, however, it is measurable above and beyond that observed in development over time with standard of care therapies

Acknowledgements

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References