The Relationship Between Motor Capacity and Performance in Children with Cerebral Palsy: A Systematic Review
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BACKGROUND
- Assessments of motor capacity tell us what a child is capable of accomplishing.
- The Gross Motor Function Measure (GMFM) is a valid and reliable tool for measuring motor capacity in children with CP.
- Assessment measures of motor performance describe what a person actually does in his daily environment.
- Pediatric Evaluation of Disability Inventory (PEDI) is a tool that uses parent-guardian reports to assess a child's function.
- It contains 3 domains: Mobility, Self-Care and Social; each assessed with 2 subscales, Functional Skills (FS), Assessment subscales, and Caregiver Assistance (CA), assessing performance.
- Clinicians looking to assess change are often hindered in their ability to perform multiple measurement assessments.
- A better understanding of how capacity and performance scores relate to each other will help clinicians interpret the results from one measurement tool in relation to another.

PURPOSE
This study aims to systematically review the literature reporting changes in capacity, capability, and performance in children with CP aged 2-18 by employing the relationship between scores in the different domains of GMFM and PEDI assessments.

METHODS

Extensive literature search was conducted in Pubmed, Embase, CINAHL, Sport Discus, and CINHAL. Search terms: Central pain, capacity, performance, Gross Motor Function Measure, Pediatric Evaluation of Disability, and Mobility scores. Results: January 2006-December 2017

Inclusion Criteria
- At least 50% of participants were children with CP aged 2-16 years.
- Pre and post GMFM and PEDI dimension scores were provided.
- Pre and post PEDI scores were provided.
- Study was a quasi-experimental design.
- Full research articles were available in English.

RESULTS
- Fifteen articles were selected for the review, resulting in 31 study groups, including 605 children, for the data synthesis.
  - Total GMFM-BP: 17 groups, all positive mean change (1.2 to 11.4).
  - PEDI Mobility: Functional Skills: 21 groups, 20 positive, 1 negative (-0.5 to 13.7); Caregiver Assistance: 10 groups, all positive (0.8 to 5.1).
  - PEDI Self-Care: Functional Skills: 15 groups, 13 positive, 2 negative (-0.7 to 10.3); Caregiver Assistance: 10 groups, all positive (0.6 to 12.2).

Correlations (N) Between Mean Change GMFM

<table>
<thead>
<tr>
<th>Dimension</th>
<th>PEDI Mobility</th>
<th>PEDI Caregiver Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMFM-90 (BP)</td>
<td>0.60 (0.25)</td>
<td>0.60 (0.25)</td>
</tr>
<tr>
<td>GMFM-90 (CSS)</td>
<td>0.60 (0.25)</td>
<td>0.60 (0.25)</td>
</tr>
</tbody>
</table>

DISCUSSION
- The findings suggest a strong correlation between GMFM and PEDI scores, which may help clinicians interpret the results from one measurement tool in relation to another.
- The results support the use of both tools in assessing motor capacity and performance in children with CP.
- Clinicians can use the correlation to better understand the relationship between capacity and performance in these children.
- Further research is needed to explore the underlying factors that contribute to the observed correlations.

CONCLUSIONS
- In children with CP, correlations exist between measures of capacity and measures of capability and performance.
- Correlations are higher in children with more severe dysfunction.
- The findings suggest that clinicians need to be more sophisticated in their interpretation of changes in motor capacity and performance to move towards meaningful change in clinical practice.

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