Objective:
To investigate the impact of mastery motivation on occupational performance outcomes immediately following upper limb (UL) training and 6 months post-intervention for school-aged children with unilateral cerebral palsy (UCP).

Design:
This prediction study was a post-hoc analysis of a matched pairs randomized comparison trial (COMBiT Trial Registration: ACTRN12613000181707).

Participants:
Forty six children (31 males; mean age 7 years 9 months, SD 2 years 3 months) with UCP were recruited to participate in an RCT of a novel UL intervention (COMBiT) through a tertiary referral center. Children were classified as Manual Ability Classification System I=23, II=23 with predominant motor type unilateral spasticity.

Methods:
Participants received 45 hours (equal dose) of UL training as either:
- a) An intensive group model (Hybrid Constraint Induced Movement Therapy followed by Bimanual training), or
- b) Distributed individualized occupational therapy (SC)

Measures:
- Occupational performance was assessed using the Canadian Occupational Performance Measure (COPM) at baseline and immediately post-intervention at 13 weeks and then at 26 weeks.
- Caregivers completed the Dimensions of Mastery Questionnaire parent-proxy report (DMQ) and Parenting Scale at baseline.
- Children’s unimanual UL capacity was assessed using the Melbourne Assessment of Unilateral Upper Limb Function (MUUL).
- Bimanual performance was assessed using the Assisting Hand Assessment (AHA).

Statistical Analysis:
To examine the impact of mastery motivation on occupational performance outcomes, data from the two groups were pooled and regression models were fitted using generalized estimating equations to baseline, 13 week, and 26 week measurements (p < 0.05, two-tailed) (SPSS v21.0).

Results:
- 70% of children (n=32) achieved a clinically significant improvement of two or more points on COPM performance scores at 13 weeks following intervention, and 97% (n=31) maintained these gains at 26 weeks.
- There were no clinically significant between group differences on COPM performance or satisfaction at 13 or 26 weeks post-intervention.

Best predictors of COPM performance:
At 13 weeks following intervention, better bimanual performance (AHA β = 0.03, p < 0.001), greater object-oriented persistence (DMQ, β = 0.45, p = 0.01) and allocation to the standard care group (Standard Care β = 0.53, p = 0.05) were positively associated with COPM performance. These factors were retained at 26 weeks (Table 1).

Best predictors of COPM satisfaction:
Greater object-oriented persistence (p < 0.001) was associated with COPM satisfaction scores at 13 weeks. Greater total motivation (DMQ, p = 0.02) and better bimanual performance (AHA p = 0.07) were significant contributors to the model at 26 weeks post-intervention.

Table 1: Best predictive models COPM performance baseline to 26 weeks

<table>
<thead>
<tr>
<th>Covariables</th>
<th>β</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHA</td>
<td>0.03</td>
<td>0.02 to 0.04</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DMQ object oriented persistence</td>
<td>0.31</td>
<td>0.00 to 0.63</td>
<td>0.05</td>
</tr>
<tr>
<td>Treatment (Standard Care)</td>
<td>0.24</td>
<td>0.13 to 1.06</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Implications for Rehabilitation:
- Children’s object persistence and bimanual performance both impact upper limb training outcomes.
- Working with children’s motivational predispositions may optimize engagement and therapy outcomes.
- Supporting positive parenting styles may enhance a child’s mastery motivation and persistence with difficult tasks.

Acknowledgments:
NHMRC Scholarship (LM)
University of Queensland Research Scholarship (LM)
NHMRC Career Development Award (RB).
Project funding support from NHMRC Grant (COMBiT project grant: 1003887)

Australian Catholic University
International Conference Travel Grant
Email: laura.miller@acu.edu.au