

Cognition and Bimanual Performance in Young Children with Unilateral Cerebral Palsy

PI – Dr. Heather Roberts
Co-PI Dr. Wendi Johnson

Final Report

Major Accomplishments

Publications

Paulman, B., Roberts, H., Shierk, A., Johnson, W. (2022). Cognitive Profiles of Preschool Children with Unilateral Cerebral Palsy: Brief Report. *National Association of School Psychologists Communique*. (please see article attached)

Shierk, A., Roberts, H., Dubberly, K., Clegg, N., Fagan, M., Baldwin, D., Reyes, F., VanPelt, J., Delgado, MR. (2021) Therapy together: A caregiver led constraint induced movement therapy program for preschool aged children utilizing a virtual environment due to COVID 19.

Journal of Occupational Therapy, School, and Early

Intervention, DOI: [10.1080/19411243.2021.2003738](https://doi.org/10.1080/19411243.2021.2003738) (please see article attached)

Posters

Roberts, H., Shierk, A., Arellano, B., Fagan, M., Baldwin, D., Reyes, F., Delgado, M. Caregiver Perceptions and Ability to Implement an Intensive Upper Limb Therapy Program in the Home Environment. Accepted to be presented 9/2023 in Las Vegas, NV 76th Annual Meeting American Academy for Cerebral Palsy and Developmental Medicine

Research Findings

- 8 children participated in the Therapy Together Motor and Cognition program
- 8 children participated in the Therapy Together Motor only program
- Primary outcome measure was the Developmental Assessment of Young Children (DAYC-2) measured pre-intervention and post-intervention. DAYC-2 scores were analyzed using a multivariate analysis for effects within each group and group comparison.
- The results demonstrated that both interventions caused statistically significant growth in cognition ($F(1,14) = 9.518, p = .008$), communication ($F(1,14) = 10.133, p = .007$), physical development ($F(1,14) = 22.00, p < .001$), and adaptive behavior ($F(1,14) = 5.928, p = .029$). Statistically significant growth was not observed in the social emotional domain for either group ($F(1,14) = .679, p = .424$), and a statistically significant difference between the TIM and TTMC groups was not found in any of the DAYC-2 domains.
- The TTM or TTMC programs are encouraging P-CIMT intervention programs that statistically and clinically improve school readiness skills in preschool aged children with UCP. Overall, the engagement in high intensity, motor based therapeutic activity is associated with improvements in school readiness for preschool aged children with UCP regardless of an inclusion of cognitive development skill training.

Budget

- The majority of the grant supported to doctoral level graduate students one in the psychology department and one in the occupational therapy department
- A small portion provided summer salary for Dr. Johnson
- Please see detailed budget attached

Next Steps

- This grant provided us with pilot data that was presented to the Early Childhood Intervention Services (ECI) program (serves children birth - 3 years of age). They are interested in utilizing our Therapy Together program with in the ECI framework of Texas. We are currently planning a pilot study for fall of 2022.
- This grant also provided us with the pilot data to submit a larger implementation grant to AOTF (100K) to be submitted in fall 2022.