The Effects of Aquatic Therapy on Motor Skills and Executive Functions in Children with Autism Spectrum Disorder

Poster Presentation

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Abstract

Introduction: Research has extensively demonstrated the positive effects of different types of physical activity for children with Autism Spectrum Disorder (ASD). Aqueous environments can enrich motor learning by manipulating training conditions that implicitly enhance learning mechanisms based on sensory feedback, motor control, cognition, and motivation. As such, the purpose of this study was to examine the effect of a response-oriented approach using aquatic exercise for children with ASD on motor skills and executive function.

Methods: In this quasi-experimental design, 40 children aged between seven and 10 years were randomly divided into two groups; a response-oriented aquatic exercise (ROA) group (n=20) and a control (CON) group (n=20). The ROA group participants participated in three times weekly, 45-minute aquatic exercises for eight weeks.

Results: The Bruininks-Oseretsky Test of Motor Proficiency – Short Form (BOTMP) was used to assess motor skill, while the Wisconsin Card Sorting Test (WCST) was used to assess executive function. Significant differences were found between the ROA and CON groups in receiving (F=38.94, p=0.001), throwing (F=33.05, p=0.001), static balance (F=44.89, p=0.002), dynamic balance (F=48.51, p=0.010), correct responses (F=3.60, p=0.010), conceptual responses (F=0.34, p=0.010) and perseverative errors (F=1.57, p=0.040). The aquatic exercise was found to be an effective and safe intervention for children with ASD in that it decreases motor failures and improves executive function.

Conclusion: This study provides families, teachers, and other specialists with an alternative to traditional land-based modes of exercise that is more exciting and motivational to children with ASD due to its response-oriented approach.

Keywords

aquatic therapy; motor skill; autism; Function