**Title:** Be a Lifesaver: The Effectiveness of Skilled Intervention on Reducing Drowning Risk for Children with Mild to Severe ASD

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**Introduction:** For most families in America, swimming and water play are becoming increasingly popular activities (Little, Sideris, Ausderau, & Baranek, 2014). However, drowning is the number one cause of accidental death in children with Autism Spectrum Disorder (ASD) (Shavelle et al., 2001). Few studies have examined the effectiveness of swim instruction for improving water safety skills in children with moderate to severe ASD. This study examines the feasibility and effectiveness of an aquatic therapy program on water safety in children with mild to severe ASD.

**Method:** We utilized an experimental design with a pre-test/ post test model. The study population included children with mild to severe ASD between the ages of 3 to 7 years of age (n=7). Participants engaged in a one hour, individual testing session with an occupational therapist prior to beginning session one and again after session eight, session 16 and session 24. Testing was videotaped and the Aquatic Skills Checklist was completed by video review. Goal attainment scaling (GAS) was also utilized to evaluate outcomes. GAS is a criterion-referenced method of measuring change that involves collaboration between the therapist and client to create goals that are meaningful to the client (McDouggall & Wright, 2009; Miller, Coll, & Schoen, 2007). Families were interviewed using a written questionnaire to elicit their priorities for intervention. The primary investigator assigned each participant 3 swim goals that were individualized to the subject and particularly relevant to the subject’s family. GAS goals were assigned at the beginning of each eight week phase of intervention. GAS scores were obtained by video review of post testing completed by a research intern who was not involved in the intervention.

**Results:** We provide preliminary evidence that children with mild to severe ASD can improve water safety skills, which are important for drowning prevention after only eight hours of intervention. Significant improvement in the overall swim skills score was observed over time (p = 0.0002). This improvement in the overall swim skills score was noted after the initial eight weeks of intervention, (p=0.03) and again at 16 and 24 weeks (p=0.03). When examining the individual swim skills, the participants advanced most consistently with breath control. Breath control goals improved at final testing to a T score of 50 and a standard deviation of 10 (p=0.016).

**Discussion:** There is an increasing body of evidence indicating that children with mild to moderate ASD respond positively to aquatic based intervention (Aleksandrovic et al. 2015). We provide preliminary evidence that children with severe impairments can also achieve water safety skills that are important for drowning prevention. Furthermore, we establish response to treatment with as little as eight hours of group intervention, with peak performance observed after 16 hours of intervention. Aquatic based occupational therapy is a promising, and possible life saving intervention for children with varying severity levels of ASD. Randomized controlled trials of the impact of aquatic occupational therapy on larger samples of children with mild to severe ASD are highly recommended. In addition, future studies should conduct follow up after cessation of intervention to determine skill maintenance and generalization.

**References/Citations:**