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# Examining the Perceived Impacts of Recreational Swimming Lessons for Children with Autism Spectrum Disorder

## **Cover Page Footnote**

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## Abstract

The purpose of this study was to examine the perceived impacts of recreational swimming lesson participation for children with Autism Spectrum Disorder (ASD). Although swimming lessons are a suitable form of physical activity for children with ASD, minimal research has examined the impacts of these lessons. The author conducted semi-structured interviews with an Applied Behaviour Analysis (ABA) certified therapist and a swim instructor, each with experience working with children with ASD in swimming lessons. The participants suggested that swimming lessons encouraged children with ASD to socialise. Both participants agreed that distractions in swimming lessons and barriers in communication created challenges for developing swimming skills. Finally, the participants described techniques they found appropriate for teaching children with ASD. These results aim to provide insights into the perceived impacts of recreational swimming lessons and appropriate techniques for lessons. Hopefully these insights may inspire parents/guardians of children with ASD to include swimming lessons into the routines of their children while also considering the safety risks of aquatic environments.

*Keywords: physical activity, recreational swimming, disability, children, Autism Spectrum Disorder (ASD), Applied Behavioral Analysis (ABA)*

## Introduction

Numerous investigations to date have examined the benefits that physical activity participation produces for children with Autism Spectrum Disorder (ASD). Benefits have included higher sleep quality (Wachob & Lorenzi, 2015), more proficiency in motor skills, and improved cognitive performance than before physical activity participation (Anderson-Hanley, Turek, & Schneiderman, 2011; Pan, Chu, Tsai, Sung, Huang, & Ma, 2017). Despite these published benefits, many persons with ASD still have limited opportunities to participate in physical activities; this is in part due to the social demands often associated with physical activity (Pan & Frey, 2006). A lack of participation is cause for concern, as physical activity has been shown to promote a healthy body weight and improve fitness in youth (CSEP, 2019), which is significant considering children with ASD may be particularly vulnerable to develop obesity (Curtin, Anderson, Must, & Bandini, 2010).

Participation in aquatic-based programs are one specific form of physical activity that have demonstrated several benefits for children with ASD including improved motor performance (Yanardag, Nurgul, & Akmanoglu, 2013), social interactions (Chu & Pan, 2012), eye contact and tolerance to touch (Vonder Hulls, Walker, & Powell, 2006). It would seem that the benefits of aquatic activity

participation for children with ASD are extensive, however, studies which have investigated the impacts of swimming lessons are limited. Aquatic-focused research for children with ASD often has included an additional intervention strategy such as sensory modifications (Lawson & Little, 2017) or aquatic therapy programs (Alaniz, Rosenberg, Beard, & Rosario, 2017), while rarely exploring the potential impact of the recreational swimming lessons themselves. Moreover, the National Autism Association reported that in 2009, 2010, and 2011, 91% of total U.S. deaths in children with an ASD under 15 were caused by accidental drowning (National Autism Association, 2019). This emphasizes the potential lifesaving implications of recreational swimming lessons that extend beyond skill development.

The purpose of this qualitative research note is to explore some of the perceived impacts of recreational swimming lesson participation for children with ASD. In addition, I discuss some potential appropriate techniques for teaching children with ASD in swimming lessons. The two research questions guiding this study are:

- What are the perceived impacts (i.e., benefits and risks) for children with ASD participating in recreational swimming lessons?
- What teaching techniques are potentially appropriate for swimming lessons for children with ASD?

### **Method**

In designing this study, I drew upon a phenomenological approach (Hursell, 2002) to explore the perceptions of an Applied Behavioral Analysis (ABA) certified therapist and swimming instructor in terms of their experiences working with children with ASD in swimming lessons.

### **Participants**

Prior to the beginning of recruitment, ethical approval was received from the author's University research ethics board. Participants were recruited through purposive sampling (Creswell, 2013) such that any participants were required to have worked with at least one child with ASD while they participated in swimming lessons. Although not part of the purposive sampling, both participants were certified in ABA. The first of the two participants, Dallas (pseudonym), had worked as a therapist for an 11-year-old male with ASD at the time of data collection. Second, Tanya (pseudonym) was a current swim instructor who previously had worked with multiple swimmers with ASD. Pseudonyms were assigned to both participants to provide confidentiality.

### Data Collection

Data for this study were collected using a single semi-structured interview with each participant that lasted approximately 30 minutes long. During each interview the participant was prompted to reflect on the essence of their experiences working with children with ASD. Specifically, the following prompts were used:

- What are some of the impacts that the aquatic environment has had on the child while they were learning how to swim (if any)?
- Have you noticed any changes in the child since they began swimming lessons?
- What are some of the challenges associated with swimming lessons (if any)?

The dialogue of the interviews was audio recorded and transcribed verbatim to conduct the analysis.

### Data Analysis

The guide to thematic analysis by Braun, Clarke, and Weate (2016) was used to analyze the participants' experiences. This type of analysis aligns well with the intended goals of this study because it is suitable for researchers who aim to "identify patterns of meaning across a qualitative dataset" (Braun et al., 2016, p.191). Throughout the data reduction process, I continuously consulted and followed the six phases suggested by this analysis guide. Phases 1 and 2 consist of familiarizing with the transcripts and coding the transcripts, phases 3-5 include theme development, theme refinement, and theme naming, and, finally, phase 6 involves writing up the themes in a coherent fashion. I have visually represented the selected initial codes and overarching themes in Table 1.

**Table 1.** Qualitative themes and codes used in case study

Themes	Codes
Improvements	Enhanced Socialisation
Techniques	Physical Assistance Cultivating a Relationship
Challenges	Distractions Communication

### Results

Three main themes resulted from the thematic analysis and are described in the following order: enhanced social interactions, challenges in swimming lessons, and appropriate techniques for teaching children with ASD. The aim was to

explore the perceptions of a swim instructor and therapist to address the guiding research questions.

### **Enhanced social interactions**

One of the most consistent points discussed by the participants was the perceived improvements in the children's level of socialisation after participating in swimming lessons. Children with ASD often have difficulty socialising with their peers and the aquatic setting seemed to provide an environment that fostered the development of these social skills. Tanya explained that, "It's really great to see all of these kids who would normally not interact in a social environment, being in a social environment." Dallas concurred by explaining that the child she worked with was more willing to be closer in proximity to other children when he was in a swimming lesson environment: "He always likes to be where all of the other kids are. So whether it's a public pool or at camp for him, if he sees a group of kids, he'll want to go in [the water] right away." Additionally, Tanya explained that the facilitation of big group activities balanced with smaller group swimming helped to promote socialisation during the lessons, particularly for her teenage swimmers: "We have a team swim, a social club kind of thing. It's really awesome; we split [the swimmers] up into three groups, but they do a full group activity. They split off into their three groups and do their swimming, and then we come back and do another [group] activity."

In contrast to previous studies regarding swimming for children with ASD, these two participants did not discuss much about behavioural or physical improvements from swimming lessons. According to the participants, the children's interest in socialising with their peers was the most noticeable impact of swimming lesson participation.

### **Challenges in swimming lessons**

The focus of this research was to explore the perceived impacts (i.e., benefits and risks) associated with swimming lesson participation by children with ASD. Both participants voiced a specific challenge that had played into the swimmers' skill progression in lessons. This challenge was the fact that there were numerous stimulants in the swimming environment which often acted as a distraction from the activities at hand. Tanya explained that, "The biggest, biggest, biggest, biggest challenge with every child with Autism [who she had worked with] is attention. Getting [the swimmers] to pay attention to what you're saying and how you're saying it, doing visual demonstrations, all of that... can be near impossible." Dallas had a similar view when she described the challenges and potential risks of distractions in a pool setting: "You know attention, being able to focus, or being aware of his surroundings, those are things that we're currently working on with

him in the pool, but he doesn't have it really yet. Like, he'll have no problem swimming in front of the slide if someone else is coming down and getting hit.”

An additional challenge experienced by the participants was communication. Dallas explained that despite the swimmer's strength, it was difficult to communicate swimming specific skills to him and to have him perform those skills: “Have you ever watched him in the pool before even doing breaststroke? It can be very hard for him. He can tread for hours, but to actually do the moves is difficult for him”. Although Tanya faced challenges with communication as well, she found that using “short sentences, very basic sentences” assisted with this barrier.

### **Appropriate techniques for teaching children with ASD**

In order for children with ASD to be successful in swimming lessons and to receive the optimal benefits that the water may provide, it is imperative that the swim instructors use appropriate teaching techniques to keep the swimmers engaged and safe in their swimming lessons. This section explores a few examples of techniques that have worked well for the participants in this study.

The participants were asked to discuss which technique(s) they found that were most appropriate for teaching children with ASD how to swim. Both Tanya and Dallas provided detailed accounts of observations they had made where effective or ineffective teaching took place. Interestingly, the techniques that each participant described as most appropriate were not the same, supporting the understanding that each instructor has an individual teaching style and each child is unique and will be more receptive to techniques that meet their learning needs.

Dallas articulated that fostering a relationship with the swimmer was of utmost importance before working towards more technical swimming skills:

I know Arielle (pseudonym) tried to give him a test and he wouldn't do anything for her and that's why she didn't give him the okay for the deep end pool. And I had said to her, “he's been here for like 6 years and he swims like a fish!” Then she said “he just didn't do anything for me” ... really it shouldn't depend on the person, but with him it does depend on the person. He has to like you, he has to know you in order to do things, right?

Cultivating a relationship was a priority for this particular swimmer and was a necessary first step before transitioning to the lesson.

An important benefit of teaching children physical skills in an aquatic setting is the potential for increased tolerance to touch (Vonder Hulls et al., 2006). As a result, Tanya suggested that a technique for improving a child's swimming

skills was through assistive aids. By using aquatic aids as well as through assisting with hand-over-hand movements, the swimmer's arms or legs could be adjusted to achieve a swimming skill. In the following quote, Tanya described some of the assistive aids she used with her swimmers:

We also have bands that go around their knees for whip kick, to hold the knees together kind of thing. We have different types of flippers that... it starts up here [points to leg], so the flipper goes from here down [points to feet].

By having the opportunity to be physically in contact with the swimmer, the lessons are conducive to improving physical skills. It is important to mention that although this technique worked for Tanya not every child with ASD will be receptive to physical touch and techniques would need to be modified accordingly.

### **Discussion**

The aim of this research note was to collect preliminary qualitative accounts of the perceived impacts that swimming lesson participation may cultivate for children with ASD. In addition, the two participants in this study were encouraged to discuss teaching techniques that had been appropriate in their experiences for teaching children with ASD how to swim.

Children with ASD often experience challenges decoding their peers' social cues which causes a barrier for a successful social interaction to occur (Webb, Miller, Pierce, Stawser, & Jones, 2004). Previous literature had suggested that these social barriers may be mitigated in an aquatic environment through the integration of the siblings or peers of children with ASD into the aquatic-based intervention (Chu, et al., 2012). The results of this study suggested that similar social gains may be achieved by children with ASD during swimming lessons without the additional supports of family or friends. Both participants noticed social advancements in the swimmers that may not have occurred in an alternative non-aquatic environment.

Although previous studies have described that aquatic therapy and other aquatic programs for children with ASD have resulted in improved adaptation to change (Caputo, Ippolito, Mazzotta, Sentenza, Muzio, Salzano, & Conson, 2018) and decreased stereotypical movements (Yilmaz, Yanardag, Birken, & Bumin, 2004), the participants in this study experienced challenges in terms of maintaining the focus of the swimmers. The distractions which were often present during swimming lessons (i.e., water slides, other swimmers) were unlikely to be present during aquatic therapy. As a result, instructors who will be working in a recreational setting are suggested to develop techniques and communication skills



that are most conducive to providing the swimmers with a successful swimming lesson with distractions present.

Finally, the participants described techniques which have been appropriate for meeting the needs of swimmers with ASD in their experiences. Previous literature has explored swim instructors' knowledge building experiences for developing strategies to work with children with ASD (Kraft & Leblanc, 2018), but few studies have investigated practical techniques that are appropriate for guiding recreational swimming lessons (e.g., Kraft, Leblanc, & Culver, 2019). It was observed in one instance that cultivating a relationship with a child with ASD before focusing on skill development was a significant first step. Additionally, using physical assistance and aquatic aids was considered a useful tool for teaching. This finding aligns with previous literature suggesting that children with ASD may be more receptive to physical contact in aquatic environments (Vonder Hull, et al., 2006) making it possible to use this approach.

### **Limitations**

This study acted as a preliminary qualitative investigation of perceptions about the impact of swim lessons on children with ASD. Of course, limitations were present. Interviews were limited to two participants which minimized opportunity to triangulate or cross-reference results and would prevent generalization to other situations. Additionally, the results are based on the participants' perceptions of their experiences. Future inquiries should include larger sample sizes as well as additional data collection measures for a more robust examination of the impacts of swim lessons on children with ASD.

### **Conclusion**

The results of this study hopefully will encourage parents and caregivers to enroll their children in recreational swimming lessons both as a physical activity and as a safety measure considering drowning is a leading accidental cause of death for children with ASD (McDermott, Zhou, & Mann, 2008). Additionally, this research note aims to inspire other researchers to continue exploring and investigating recreational and leisure programs to provide physical activity opportunities for children with Autism Spectrum Disorder.

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