Exploring Aquatic and Behavior Adaptations for Individuals on the Autism Spectrum of Disorders by Carolyn R. Sprehe, B. S. in Exercise Science

In order to explore aquatic and behavior adaptations for individuals on the Autism Spectrum of Disorders, the diagnosis must first be delved into further. The Autism Spectrum of Disorders encompasses a variety of diagnoses including, but not limited to Autistic Disorder, Pervasive Development Disorder – not otherwise specified (PPD-NOS), Asperger Syndrome, Rett Syndrome, Childhood Degenerative Disorder, and many other diagnoses. The diagnosis may be difficult to analyze symptoms due to the change in criteria from the DSM-IV-TR(TM) or the Diagnosis and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (Association); to the DSM 5. The DSM 5 defines Autism as “deficits in social communication and social interaction across multiple contexts” (David Lohr, 2013). The individual must have deficits in all three areas of “social-emotional recipricosity, nonverbal communicative behaviors used for social interaction, and deficits in developing, maintaining, and understanding relationships” (David Lohr, 2013). The person with Autism must also have two of four symptoms for restricted and repetitive behaviors, which includes sensory symptoms (David Lohr, 2013). Lastly, the individuals may have symptoms by early onset of childhood (David Lohr, 2013).

The diagnosis of Autism Spectrum of Disorders now falls into two areas of social communication and social interaction, but still comprises social impairment, communication difficulties, and repetitive and stereotyped behaviors as described in the National Institute of Health’s Parents Guide to Autism. (Health). Most individuals on the Autism Spectrum of Disorders have challenges in several areas of development including gross and fine motor skills; social skills; communication; emotional skills; sensory issues; and even possible behavioral concerns. The aquatic environment can benefit all of the areas of development for an individual on the Autism Spectrum of Disorders challenged through creative treatment adaptations offering an opportunity for an enjoyable physical activity for a lifetime.

Swimming and water exercise are lifetime physical activities. The October 2012 excerpt from Advanced Analysis of Motor Development by Kathleen Haywood, Mary Roberton, and Nancy Getchell summarized “research shows children with autism spectrum disorders exhibit some motor skill deficiencies” (Kathleen Haywood). As a child grows, the physical development of gross and fine motor skills can be improved through repetitive movement. The avenue of aquatic exercise and developing swimming skills can increase opportunities for acquiring developmental milestones for gross and fine motor skills such as standing, walking, grasping, writing, cutting, and catching. Learning swim strokes incorporates both gross and fine motor skills, as well as, vestibular movement. For example, swimming elementary backstroke includes tolerating floating on your back, fine motor movement of your fingers and toes to increase propulsion, motor planning and coordination of upper and lower extremity movement, and cardiovascular endurance to continue the movement for lengths of the pool. The 2010 article on the “Effects of Constant Time Delay Procedure on the Halliwick's Method of Swimming Rotation Skills for Children with Autism” by Yilmaz, Konuckman, Birkan, Ozen and Yanardag, and Camursoy concluded that “constant time delay was an effective way of increasing and maintaining Halliwick's method of swimming rotation skills of children with Autism” (Yilmaz). Many children on the Autism Spectrum of
Disorders have vestibular issues and repetition of rotational movement may progress a child’s vestibular system. Complex motor skills, such as, surface dives, hand stands, and somersaults in the water with other children advance a child’s vestibular system and ability to play with others.

Consequently, physical development is not the only area of growth aquatic exercise promotes for a person on the Autism Spectrum of Disorders. Social skills may progress via simple interaction with others in the pool area. For example, a person on the Autism Spectrum of Disorders may practice greeting another swimmer in the pool by saying, “hello” or “may I swim in your lane with you”. Encouraging children and teenagers to create and play games, such as baseball or obstacle courses with other children in the pool may advance social skills, too. The abstract, “Effects of Water Exercise Swimming Program on Aquatic Skills and Social Behaviors in Children With Autism Spectrum Disorders” By Pan, Chien-Yu; *Autism*, Vol. 14, No. 1, pp. 9-28 in January 2010, concluded “the WESP (Water Exercise Swimming Program) improved aquatic skills in the participants and holds potential for social improvements”. (Pan)

A person on the Autism Spectrum of Disorders, therefore, may desire continued development of social skills, but expanding emotional and behavior skills are also imperative. Emotions such as, joy and sadness, can be experienced in the pool. When an adult on the Autism Spectrum of Disorders learns to kick on his or her stomach with a noodle independently, the instructor, parent, or sibling, may cheer for the adult causing the adult to smile or state that he/she is proud of oneself. The adult may also learn to verbally express disappointment when a water skill is not attained. Many children on the Autism Spectrum of Disorders are impulsive and elope. When encountering a body of water, a child may run and jump into the water. Teaching water safety including not running and learning to swim may save lives for individuals on the Autism Spectrum of Disorders. “In 2011, nine children with an ASD died between the months of February and September. Based on media reporting, each death was ruled as an accidental drowning following wandering/elopement” (W.) In the July-Sept. 2012 volume of Research in Autism Spectrum Disorders, the abstract “The Effect of Peer-Sibling-Assisted Aquatic Program on Interaction Behaviors and Aquatic Skills of Children with Autism Spectrum Disorders and Their Peers/Siblings” concluded “all children with ASD and their TD peers/siblings significantly increased their aquatic skills after the program”. (Chu and Pan) For some children and adults on the Autism Spectrum of Disorder, just being able to move freely, and safely in the water can decrease behaviors later in the day encouraging a healthy balanced lifestyle. A number of individuals on the Autism Spectrum of Disorders may have repetitive movements or self destructive behaviors such as hitting oneself or others. The hydrostatic pressure of the water may offer a calming effect reducing self inducing or other destructive behaviors. Aquatic exercise may also be utilized as positive reinforcement offering opportunities for safe repetitive movement, reducing self destructive behaviors and increasing sleep for individuals on the Autism Spectrum of Disorders. April Uffner reported in “Swimming as an Autism Therapy”, that her “son was involved in a study at a college where they measured how swimming affects sleep habits in children with Autism. The evenings he swam, it usually did help”. (Uffner)
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The importance of reducing behaviors, increasing sleep, and expressing emotions assists individuals on the Autism Spectrum of Disorders in social situations and with improved tolerance for sensations. Remember, when instructing individuals on the Autism Spectrum of Disorders in aquatic exercise or swimming skills consider taste, touch, sound, sight, and smell. The American Red Cross 2009 Swimming and Water Safety Manual, cautions "that many individuals have sensory challenges that may make things, such as loud noises, physical contact, and bright lights upsetting or confusing" (Cross). Most pool environments are loud and have echoing sounds when numerous activities are occurring in the pool at once. By offering water exercise or a swimming lesson to an individual on the Autism Spectrum of Disorders when the pool is quiet is a simple solution to decrease bombarding sensations. The tolerance for the amount and type of touch for an individual on the Autism Spectrum of Disorders may also vary. Some individuals may prefer a deep touch to help reorganize thoughts or enhance learning. Other individuals may respond well to spinning to improve concentration. Various individuals on the Autism Spectrum of Disorders may be distracted by the refraction of the light in the pool while other individuals may learn better under the water. Simply changing a person’s routine in a swim lesson may disrupt or encourage growth of an individual on the Autism Spectrum of Disorders. Likewise, learning to tolerate water on the face or even the hydrostatic pressure of the water can improve tolerance for sensations.

When a person on the Autism Spectrum of Disorders progresses with learning and expands tolerance for sensations, communication advances. Offering choices, using picture/story boards, encouraging eye contact, or utilizing sign language, are just a few ways to increase communication in the pool. In the abstract presented by Daniels and Mahmic on “Aquatic Therapy Program for Young Children with Autism Spectrum Disorder” at the Autism Practitioners Conference in 2008; research demonstrated, “enhanced communication skills to a parent being able to enjoy activity with their child”. (Mahmic)

Adapting creative aquatic treatment options will improve fine and gross motor skills, communication, emotional skills, social skills, sensory and behavior issues for an individual on the Autism Spectrum of Disorders. The February 2006 issue of the Journal of Physical Education, Recreation and Dance, Early Intervention, incorporated the abstract “Aquatics: A Program for Children with Autism and Their Families” written by Andrea Prupas, William J. Harvey, & Janet Benjamin “concluded that aquatics is an excellent form of physical activity that people with autism and their families can enjoy for a lifetime”. (Andrea Prupas) So, jump into aquatic exercise and swimming!
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Bibliography


