

[Academic Exchange Quarterly](#) Summer 2014 ISSN 1096-1453 Volume 18, Issue 2  
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## **Yoga: Therapy for Children on the Autism Spectrum**

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### **Abstract**

Yoga is a form of alternative therapy for those on the autism spectrum. It is a form of Sensory Integration Therapy that helps these children deal more effectively with the overload of stimuli in their lives. This article describes a pilot study that examined the positive effects of utilizing yoga therapy for children on the autism spectrum.

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### **Introduction**

Yoga is gaining support in helping children on the autism spectrum deal with stress in an increasingly "overwhelming, chaotic world" that describes their lives (Flynn, 2013, pp. 10-11). The calming poses and breathing techniques that the children learn in yoga class can give them the tools they need to help them approach and deal with the stressful and over stimulating environment that make up their lives. We proposed that yoga, considered a natural form of Sensory Integration Therapy, can provide children on the autism spectrum not only tools to help them deal with the stress in their lives, but can also help them build emotional and social skills, attain more focus and concentration, and experience enhanced physical balance and flexibility, all characteristics that children on the autism spectrum experience to some extent (Betts & Betts, 2006). A qualitative pilot study was undertaken in the Spring of 2013 to study the positive effects of yoga therapy for seven participants, all children on the autism spectrum. The study was conducted at the Racket and Fitness Club located in a suburb south of Chicago and involved the authors observing the seven participants once a week for ten weeks in the yoga class and interviewing their parents to determine the positive effects of yoga on their children's behavior and coping skills. This paper discusses Sensory Integration Therapy, yoga therapy and practice, and describe the qualitative pilot study and the results of the observational and interview data collected during it.

### **Sensory Integration Therapy**

Observations dating back to Kanner in 1943 suggest that individuals on that autism spectrum have difficulty reacting to the input of new stimuli that they encounter on a daily basis. As Kanner found, children on the autism spectrum live in a world of sameness and aloneness, one that if any intrusion or disturbance occurs can send them into "a major panic" (Kanner, 1943, p.

246), which won't subside until what is causing the intrusion or disturbance is removed and "sameness and completeness [is] restored, and all [is] well again" (p 246).

This inability to react and process sensory stimuli affects "eighty to ninety percent of children on the autism spectrum (Huebner, 2001). "Their poor sensory processing may contribute to the maladaptive behavioral profile of these children and impact their ability to participate in social, school, and home activities" (Schaaf & Miller, 2005). Because of the behavioral issues children on the spectrum experience, it has been found that treating the sensory processing disorder with Sensory Integration Therapy can help eliminate or at least lessen these negative behaviors (Veague, 2010).

Sensory Integration Therapy was developed more than twenty years ago by A. Jean Ayres, an occupational therapist with advanced training in neuroscience and educational psychology. Ayres defined sensory integration as "the neurological processes that organizes sensation from one's own body and from the environment that makes it possible to use the body effectively within the environment" (Ayres, 1972). Currently, Sensory Integration Therapy is used to treat children on the autism spectrum, those with developmental and learning disorders, and those with functional behavior problems that include Attention Deficit Disorder. Specifically, Sensory Integration Therapy is used by approximately ninety percent of occupational therapists working with children on the autism spectrum (Polenick & Flora, 2012). The intervention is based on the theory that controlled sensory input can affect the individual's functional and adaptive abilities (Wilbarger & Wilbarger, 1991).

### **Yoga Therapy**

The word "yoga" means oneness and unity or being part of something bigger (Faulds, 2006). The unity refers to the link between the body, mind, and spirit (Feldman, 2005). The aim of any yoga practice is to connect a balance between the mind and body through a series of poses and breathing techniques (Feldman, 2005). Yoga uses the effect the mind has to balance the physical performance with the calm and serenity of positive thought patterns. This interconnectedness works to reduce stress and anxiety (Williamson, 2013). This can benefit all individuals but can be essential for individuals on the autism spectrum.

Yoga used as Sensory Integration Therapy has proven to be promising for children on the autism spectrum. Its use has shown to "improve sensory processing and enhance [children's] sense of personal space, improve gross motor skills and the ability to transition from one activity to another" (Bahar, 2006, p. 18). With its emphasis on breathing techniques, yoga has also helped give children a tool to utilize to calm themselves when they become over-stimulated and stressed (Betts & Betts, 2006). This sense of calmness can bring children to "a more centered place... a place where [they] are 'yoked,' body, mind, and spirit. As a result, [they] become more integrated, focused, and relaxed" (Flynn, 2013, p. 15).

Teachers who have utilized yoga as a Sensory Integration Therapy have found that it has helped their students on the autism spectrum improve their social skills. Boyajian (2004) found through yoga her students gained "refined articulation" and "improved eye contact and social skills" (p. 25); Radhardkrishna (2012) found in her students, "changes in non-verbal communication, self-esteem, emotional bonding, focus, tolerance to touch, proximity and sharing of attention," (p,

27); and Bahar (2006) saw her students proudly demonstrate their newly learned poses to their classmates.

### **Yoga Practice**

For children on the autism spectrum, a yoga practice follows a sequence of poses and breathing techniques that is adapted to fit the age of the children participating (Betts & Betts, 2006). For this paper, the sequence Ms. Butler (a pseudonym), the instructor of the yoga class, designed and followed for the children on the autism spectrum will be described. She begins with the “Release of tension poses” (Betts & Betts, 2006, p. 21) that is aimed at releasing the chronic tension so often found in children on the autism spectrum. These poses she guides the participants through include Mountain Pose, Forward Fold or Bend Pose, and Tree Pose (Betts & Betts, 2006; Flynn, 2013).

The yoga practice evolves as the children follow Ms. Butler’s modeling and verbal and non-verbal instructions as they move to the “Strengthening poses” (Betts & Betts, 2006, p. 21) that are designed to increase the children’s core strength, muscle tone, and muscle flexibility. These poses include Seated Spinal Twist Post, Down Dog Pose, Warrior One and Two Poses, and Triangle Pose (Betts & Betts, 2006; Ehleringer, 2010; Flynn, 2013).

The participants move on to the “Calming poses” (Betts & Betts, 2006, p. 21) that are designed to help the children “center and rebalance when energy is too high” (Flynn, 2013, p. 287). The poses include Spinal Twist Pose, Dead Bug or Happy Baby Pose, and Child Pose (Ehleringer, 2010; Flynn, 2013). These poses lead to the last pose of the practice, Corpse Pose (Betts & Betts, 2006). This pose is a total relaxation pose in that it “allows the body and mind to totally relax and let go” and provides a “pause between the yoga practice and reentering the regular world and to rest with no pressures or worries” (Betts & Betts, 2006, p. 89).

### **Methodology**

**Setting.** In the Spring of 2013, the yoga therapy class was conducted on Sunday afternoons from 3:00 to 4:00 pm for ten weeks at the Racket and Fitness Club located in a suburb south of Chicago, Illinois. The yoga room had a window on one side through which observers were able to watch the class without being seen or disturbing it.

**Participants.** There were seven participants in the class ranging in age from nine to fourteen. There were six boys and one girl. Class participants were enrolled by their parents who also paid a small fee for the class. Participants attended each week and only one participant missed a class for one session. Attendance was otherwise perfect. Participants started the yoga practice when directed. The parents of the participants observed their children during the practice and six were interviewed for this study. The instructor, Ms. Butler, a fitness and yoga instructor for twelve years, developed the yoga therapy class for her son and other children on the autism spectrum. As the instructor and a parent, Ms. Butler was not part of the interviews.

**Data collection.** This was a pilot study and was qualitative in that data were collected through direct observations of the yoga class for ten weeks and interviews with the children’s parents. Consent to conduct the observations and interviews was acquired from each parent. After ten weeks of class, the authors interviewed the parents individually in a semi-structured interview

format. The parents were very willing to answer all questions and eager to share their thoughts. The six parents were interviewed once for about forty-five minutes. Five questions were asked of the parents. They were:

1. Why did you enroll your child in the yoga class?
2. What were your original expectations for the class?
3. What improvements did you hope to see in your child?
4. What outcomes did you observe?
  - a. Academics
  - b. Emotional state
  - c. Ability to relax
  - d. Social interactions with peers and adults
  - e. Increased appropriate behavior with peers and adults
5. Is there anything you would like to add or talk about?

Direct observations by the authors occurred during the one hour class. The observations did not interfere with the class nor did the observations seem to distract the participants. The following features of the participants were followed during the observations:

- The ability to relax as measured by the ability to remain still during the final calming pose of the class
- Increased strength as measured by the seconds the participants were able to hold poses
- Increased flexibility and improved skeletal posture as measured by the participants' ability to align and center their body, arms, and head in a straight line in poses
- Improved balance as measured by the number of seconds the participants were able to hold their balance on one foot
- Improved focus and concentration as measured by the number of cues needed to refocus or redirect the participants during class
- Improved ease of transition from one pose to another during class
- Improved social skills as measured by the number of social interactions with other participants at appropriate time (before or after class)

## **Results**

**Interviews.** The data collected during the interviews with the six parents resulted in the following:

Reason for enrollment of children:

- Six parents stated that the main reason that they enrolled their children in the yoga class was to engage them in a safe but physically challenging activity. The main goal was to increase their children's physical fitness.
- Two of the six parents practiced yoga and were aware that there might be other possible benefits of the class but were unsure what they might be.
- All six parents were somewhat aware of the calming state yoga could bring but it did not figure into their decision to enroll their children in the class.

Expectations for/expected improvement from the class:

- While the parents did not have specific expectations concerning the yoga class, they all hoped that their children would have a positive social experience while enjoying a class focused on fitness.

- Three parents stated that their children did not have many social outlets. Their children “were not invited to birthday parties, never asked to join play dates, or invited to a sleep-over.” They hoped the class would bridge the gap in promoting peer interactions and possible friendships.
- One parent reported her expectations focused on the physical activity that would increase her child's muscle agility, strength, and sense of balance. Another parent agreed to that statement.

#### Outcomes observed:

- Three parents reported that their children’s teachers noted an improvement in their social and academic engagement.
- The six parents noted that their children seemed to be more interested in social interactions especially during the yoga class. The participants seemed to bond together during class time. They even started to encourage each other to hold poses longer or to “work through” challenging yoga poses.
- All six reported their children seemed to tolerate more stressful situations, like a changing schedule, which can be upsetting for a child on the autism spectrum.
- All six parents were surprised that their children seemed to be more “verbal” and more interested in sharing verbally.

#### **Observations.** The data collected during the observations of the seven participants included:

- The ability to maintain a relaxed horizontal position and reduce their fidgeting through the final calming pose increased from an average of two minutes to an average of six minutes without sitting up or speaking.
- The strength of the participants increased as they were able to maintain strength poses, such as the Triangle Pose, longer. The average length of the participants holding the Triangle Pose increased from thirty seconds to two minutes.
- Increased flexibility was seen to increase through the participants’ ability to align arms, neck, and head in twisting poses, such as in the Spinal Twist Pose.
- As the participants continued through the classes, their balance increased during the Tree Pose where their ability to balance on one foot increased from five seconds to forty seconds.
- The redirection cues decreased from an average of seven times in the hour class to an average of two. This showed an increase in the participants’ ability to focus and concentrate during class.
- Fidgeting and anxiety during transition times between poses lessened by practicing yoga breathing.
- Impressively and expectedly, the participants increased their conversations and social interactions with each other before and after class.

#### **Conclusion**

Teachers and parents are finding yoga to be a Sensory Integration Therapy that can have a positive effect on the lives of children on the autism spectrum. In this pilot study, we observed over a ten-week, one hour weekly yoga class seven children on the autism spectrum advance from not being able to form or hold yoga poses to successfully performing poses for sustained periods, as well as advance in strength, flexibility, balance, focus, and concentration. Parents reported improvements in social and academic engagement, social interactions, bonding, and a greater tolerance to stressful situations and change. These positive effects are beginnings and

could lead to further positive changes for these children and their families. Encouraged by this, we believe a more formal study of the positive effects of yoga is warranted. We would include in this study a larger sample of children on the autism spectrum and examine the transference of the positive effects to settings outside the yoga class, e.g. school and home.

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