



## A Hasty review on Autistic Yoga

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### ABSTRACT

Autism is a complex neurobehavioral condition that includes impairments in social interaction and developmental language and communication skills combined with rigid, repetitive behaviours. Autism spectrum disorder (ASD) characteristics include markedly abnormal or impaired development in social interaction and communication, and restricted activity and interest repertoires. ASD children typically display decreased co-ordination, body awareness, and sensory integration; competitive physical outlets are frustrating. Yoga is a physical, mental and spiritual practice that originated in ancient India. Yoga is most often associated with the physical practice of asanas, particularly stretching exercises to build flexibility and relax the body. It is also thought to be therapeutic for many physical and mental conditions. In addition to benefits typically associated with Yoga - improved strength and flexibility increasing sense of peace - autistic children also experience a reduction of pain, anxiety, aggression, obsessive behavior and self-stimulatory activities. This review article enumerates the therapeutic benefits of Yoga for Autism.

### Keywords:

Autism, Yoga, therapeutic benefits.

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## INTRODUCTION

Autism is one of the most common life-long neuro-developmental disorders diagnosed in early childhood. It is characterized by restricted, stereotyped repetitive activities, Impaired social interaction, difficulty in communication, forming relationships and find it hard to understand and make sense of the world around them<sup>1</sup>. Autism Spectrum Disorder (ASD) varies in severity and impact from individual to individual, ranging from those with no speech and severe learning disabilities to people with intelligence quotients (IQ) in an average range and who can hold a job or start a family. Children with ASD are unable to understand and process information that they receive from the environment. They also have deficits in imitation Skills necessary for learning complex behaviours<sup>2</sup>. In world-wide, the latest estimate of 1.7 percent (1 in 59) is higher than the previous ADDM (Autism and Developmental Disabilities Monitoring) estimate released in 2016, which found a prevalence of 1.5 percent or 1 in 68 children. In India, ASDs prevalence rate ranges 0.15% to 1.01%.<sup>27</sup>

The increase in prevalence of ASD has led to a corresponding surge in demand for novel, effective, and safe clinical interventions. Evidence-based treatment options for ASD are limited, resulting in a high utilization rate of complementary and alternative medicine (CAM) treatments<sup>3</sup>. Yoga is a CAM therapy practiced by over 20 million people all over the world. It has been investigated as a possible effective treatment intervention for patients with ASD<sup>4</sup>. Patients with ASD could potentially benefit from yoga either directly, through the targeting of core ASD symptoms, or indirectly through the improvement of commonly occurring co-morbid psychiatric conditions<sup>5</sup>. Deep breathing, meditation and yoga have been recognised as complementary and alternative medicine therapies with deep breathing and yoga as the most commonly used interventions with children<sup>6</sup>.

Yoga is a physical, mental and spiritual practice. Bhagavat Gita states that, "Yoga is the remover of misery and destroyer of pain. Yoga is the supreme secret of life". Yoga's traditional knowledge concerns physiological and psychological processes that change physiological parameters through respiratory manipulation (breathing technique), postures (asanas), and cognitive controls (relaxation and meditation). Yoga is ideally a lifetime practice, far more than an adjunctive therapy, generally discontinued after particular conditions have been corrected. Children with ASD require lifetime Yoga practice. Yoga, in particular, is noninvasive and has no side effects.

## IMPACT OF ASD

Children with Autism see the world as a mass of people and places that they find very difficult to make sense of. They struggle to or cannot understand other peoples emotions and may not be able to express their own, causing a lot of frustration which can lead to outbursts. The emotional impact of autism is often difficult and sometimes devastating for people with autism and the families of those affected, but they cope well with the additional challenges it brings. Many argue that people with autism should be regarded simply as different rather than disordered, there is no doubt of the real distress that autism can cause. People with autism and learning disabilities may have no speech or may have other complexities and may need full-time care.

## AUTISTIC YOGA

Basic Jathis and Kriyas are given as a part of warm up practices with Surya Namaskar to help improve flexibility, create awareness and enhance energy circulation throughout the body. Asanas are psycho-physiological practices in which mind is totally focused on incoming and outgoing breaths helping harmonise mind and body. Asanas work on muscles and joints, help increase circulation and improve flexibility. Physical functioning becomes more integrated and less stressful.

Ardhasherasanana (half inverted position), Ardachakrasana (half wheel position), and trikonasana (triangular position) stimulate vestibular and proprioceptive sense. Parivrittatrikonâsana (modified triangular position) and its variations seem to stimulate parasympathetic activity, calming the nervous system<sup>7</sup>. Postures like Viparitkarani, (topsy-turvy posture) Sarvangasana (shoulder-stand), Matsyasana (fish posture), Halasana (plough posture), alternating with standing postures such as Padahasthasana (hand to foot posture), Trikonasana (triangle posture), Padangushtasana (clasping big toe like a hook) helps increasing blood flow to the head region and help activate the brain cells. Balancing postures such as Vrikshasana (tree posture), Ardachakrasana (half-wheel posture) and Natarajasana (posture of Lord Nataraja) enable them to achieve stability, but they have to be supported initially.

Back bending postures such as Bhujangasana (serpent posture), Ushtrasana (camel posture), Chakrasana (wheel posture), Dhanurasana (bow posture) opens shoulders and chest region are useful for enhancing vital capacity as well as improving self confidence and body posture. Simhasana (lion posture) improves stammering, stuttering and some ear, nose and throat defects of the children. Starting from simple movements and dynamic postures, they can be slowly led on to static postures<sup>8</sup>. Simple warm ups counting fingers, side stretching, seated twists, tapping the body all over to awaken awareness of the body.

Pranayama Breathing techniques will slowly start to strengthen the nervous system and improve concentration, increase breathing and lung capacity and serve as a useful tool outside of the yoga classroom to calm the system.

- Lions Breath roar like a lion.
- Kaphalabhati breathing
- Simple Anuloma viloma
- Brahmari buzz like a bee

Standing Poses- Warrior 2 and Utthita Trikonasana are great for strengthening the legs and ankles and making a child feel strong and grounded.

Forward Bends Seated forward bend (pashimotanasana), Standing forward bend (uttanasana) or child's pose (balasana) forward bends help to quiet the system and are calming. Particularly good for calming the nervous system of a hyperactive child and also for anxiety.

Backbends Cobra (bhujangasana) and Bow Pose (dhanurasana) can be very accessible and fun. Backbends open the heart centre, increase positive moods and open the lungs help increase lung capacity. The teacher can support the child in these postures as they may not initially have the strength to come up themselves and will they feel safer and help to build the feeling of trust.

Balancing tree pose, excellent for helping the child to find balance and to increase concentration. If in a group class the students can be encouraged to stand in a circle and hold hands adding an element of working together. Spinal Twists seated twists and supine spinal twists to tone the spine and detoxify the organs and increase mobility of the spine. Savasana deep relaxation, may be good to include massage and soothing music.

Pranayama controls and regulates breathing and is very beneficial in ASD. Sounds of animals make it interesting for them to perform. Kukkuriya Pranayama (dog panting breath), Vyagraha Pranayama with Sharabha Kriya and Kapalabhati are very useful. Nada Pranayama such as Pranava Pranayama helps alleviate stress as well as sublimate suppressed and regressed emotions. Mukha Bhastrika is also known as cleansing breath helps remove old, stagnant air from lungs and cleanses bloodstream of excess carbon dioxide. Its practice also decreases response time and enhances memory and comprehension. Research also suggests that it is useful in combating learning disorders, Attention Deficit Disorder and mental retardation<sup>9</sup>.

Some of the Shatkarmas such as Trataka, Kapalabhati are useful for developing concentration and also act as tranquillizers. These children suffer from numerous eye related problems and Trataka and Neti are highly beneficial along with a diet rich in vitamins A and C.

Bhujangini Mudra and Brahma Mudra, working with breath and sound vibration induces a sense of relaxation and reinvigorates head and neck region reducing stress. Hasta Mudras and Kaya Mudras (Yoga Mudra, Manduka Mudra) helps drive away depression, bringing out a sense of joy and happiness. Unrealistic expectations at home and outside add powerful peer pressures on them. Shava Asana (corpse posture) with Kaya Kriya and Spanda-Nishpanda relaxes all aspects of the musculo-skeletal system thereby promoting complete relaxation and harmonisation of mind, body and emotions. Prayer and chanting of simple mantras makes them less aggressive, purifies speech, calms the mind and helps reduce distraction. Hence chanting Pranava Mantra AUM can benefit these children. It helps to maintain their concentration, improves alertness with rest and relaxation, helps gain emotional and mental strength as well as produces a calming and healing effect on nervous system and psyche<sup>10, 11</sup>.

### Benefits of Yoga:

**Delayed Motor Skills** Practicing asana helps increase muscle tone, develops balance and stability and improves over all body awareness and self regulation. Sequences and transitions between poses could also help with coordination and the development of motor skills.

**Hyperactivity** the breathing techniques and deep relaxation that a child learns in yoga can help to bring calm. Children can use the techniques to calm themselves and self regulate in situations outside of the yoga class. Again relaxation and deep breathing directly help with anxiety issues which may in turn allow for improved sleep. Mantra CDs can be used in relaxation and also to help aid sleep as the sounds will be associated with calm and peaceful relaxation.

Chanting can help a child find their voice and encourage improvements in Language delays. Children respond to music and singing. Chanting opens the throat and encourages deeper controlled breathing and once a child learns a particular chant their confidence will increase.

**Enhanced self-regulation** – Learning self-control through breathing techniques, yoga postures and movement improves self-confidence. When children realize they are able to control their breathing, their body movements, and hold balance poses longer they develop a greater sense of confidence and self-control. This ability allows them to improve attention, control emotions and focus on the present moment.

**The use of sensory integration** – yoga creates a calming and therapeutic environment that encourages the use of the senses by stripping out the noise of life. By creating a calm exterior environment (i.e. dim lights, limited sounds/soothing music) internal sensory connection and focus improves in many children. Yoga involves multiple senses working together; for instance, the tactile sense of the bottom of a foot on the mat, the balancing that requires the vestibular sense to modify and adjust ones position, and the vision that helps to focus on a still point and others. Asanas work increase muscles and joints circulation and physical functioning becomes more integrated and less stressful.

Pranayama and Asanas work hand-in-hand to balance and integrate different physiological functions, dissolve emotional blockages and negative habitual patterns. Yoga harmonises mind-body-emotion complex building up, helps to develop social relationships, promotes positive outlook, self-confidence and self sufficiency. It also improves loco-motor skills, psycho-motor coordination, eye-hand coordination, attention span, immunity, appetite, sleep and promotes overall health.

Co-relation of Yoga, not only for autism childrens, it's also an need for their family members too. These family members living with these autistic child, suffer from anxiety, depression and lack of interest in life. For this yoga is suggested for their family members too, since it keeps their mind calm and healthy.

## RESEARCH FINDINGS

Yoga is increasingly used in classrooms across the globe to have an impact on and also to enhance students behavioural and academic functioning, such as their attention, concentration or focusing ability, impulse control, strength, motor coordination, and socialskills<sup>12-17</sup>. In a controlled experimental study carried out by Chan et al, low-achieving children with behavioural problems who participated in yoga intervention showed significant reductions in behavioural problems including withdrawn behaviours and attention problems<sup>18</sup>.

Students who participated in a yoga program demonstrated significant improvement in anger control with less fatigue and improvement in anxiety, mood, perceived stress, and resilience, whereas the control group, who participated in regular physical education classes, showed a worsening on all mental health outcome measures. Khalsa et al found that yoga may exhibit protective or preventive role among adolescents with mental health variables<sup>19</sup>. Koenig et al concluded that students diagnosed with ASD, receiving yoga intervention showed a reduction in behaviours including irritability, lethargy, social withdrawal, hyperactivity, and noncompliance<sup>20</sup>.

Improvements in sensory integration, attention, sensory defensiveness, and increased verbal receptivity for commands related to spatial perception are reported<sup>21-23</sup>. In one study, heart rate was measured pre- and post-yoga sessions, and correlated with improved test scores in certain skill areas: turn taking, receptive language following verbal directions, body awareness and proximity, following routines, regulating, and self-monitoring<sup>24</sup>. Another reported increased concentration, focus, organization, and relaxation after 25 yoga sessions<sup>25</sup>, consistent with the hypothesis based on many years observation that ASD children have frontal lobe deficits involving cortical and subcortical

regions, as suggested by ASD's pervasive nature. Working to improve brain function directly through Yoga may improve behavior better than focusing on the problem.

Improvements were noted in receptive skills to verbal commands concerning spatial relationship during trikonasana (triangle position) and uttanasana; imitation skills; self-stimulatory activity; and self-injurious behaviors.

## CONCLUSION

In comparison to the treatment given to such children, yogic therapy has been found to be more beneficial. Yoga is a conventional long established and time-tested art and therapeutic science that has positive contribution to maintenance of general wellbeing and happiness of all. Yoga is a great boon to civilized man having preventive, curative as well as rehabilitative potential. It is a spiritual science for the integrated and holistic development and helps manifest our potentialities<sup>26</sup>.

Yoga seems to be a promising therapy as it directly addresses the symptoms of Autism in children. It helps to increase body awareness, improve motor skills, helps with transition and to develop self esteem and communication skills. All of these skills are vital in encouraging children on the Autistic Spectrum to integrate better in to the world around them.

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