

Chapter 21

Yoga: A Multi-Dimensional Therapeutic Approach to Autism Spectrum Disorder

Kankan Gulati

National Institute of Mental Health and Neurosciences, Bengaluru, India

Praerna H. Bhargav

National Institute of Mental Health and Neurosciences, Bengaluru, India

Shalu Elizabeth Abraham

National Institute of Mental Health and Neurosciences, Bengaluru, India

Hemant Bhargav

National Institute of Mental Health and Neurosciences, Bengaluru, India

ABSTRACT

Autism spectrum disorder (ASD), a neurodevelopmental disorder, manifests as impairment in social communication an interaction with restrictive and repetitive patterns of behaviour. Yoga therapy, a mind-body intervention, employs a multi-dimensional approach to reduce psychological distress and bring balance and harmony at the levels of body, breath and mind through physical postures, breathing practices, chanting, and relaxation techniques, respectively, thus enhancing overall well-being. Various yoga studies have shown promise in improving symptoms of ASD by improvement in sensory processing, gross motor skills, balance and coordination, cognition, imitation skills, and the ability to connect in relationships. This chapter aims to provide an overview of the potential role of Yoga therapy in the management of ASDs with emphasis on future standardized yoga trials with robust methodology and long-term follow-ups to establish the clinical utility of Yoga therapy for the same. Also, a tentative yoga lifestyle module for ASD with necessary contra-indications and practical tips has been provided.

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INTRODUCTION

Autism Spectrum Disorder (ASD), previously termed as pervasive developmental disorder (Towbin, 2005), is a phenotypically heterogeneous group (Jeste & Geschwind, 2014) of neurodevelopmental disorders (Livingston & Happé, 2017). Prior to DSM V (American Psychiatric Association, 2013), ASD was conceptualised as five discrete disorders including Autistic Disorder, Asperger's Disorder, Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS), Childhood Disintegrative Disorder and Rett's Disorder (Phetrasuwan et al., 2009; American Psychiatric Association, 2013). The symptoms are identified in early childhood typically during the second year of life (Wetherby et al., 2004) and persists throughout adult life (Thapar et al., 2017).

Recent clinical consensus has shifted the conceptualisation of the disorder into a continuum model in which heterogeneity of the symptoms is recognised as inherent within the disorder. The core diagnostic impairments are collapsed into two main domains: (1) Impairment in social communication and interaction (Criteria A); (2) Restrictive repetitive patterns of behaviour (Criteria B). Aberrant language development is no longer considered as a defining criterion (Grzadzinski et al., 2013).

PREVALENCE

Autism Spectrum Disorder with a prevalence rate of over 1 percent worldwide (Essa & Qoronfleh, 2020) diagnosed four times more often in boys than in girls (Fombonne, 2006). The latest ASD prevalence estimate, as measured by the Autism and Developmental Disabilities Monitoring (ADDM) Network, is 18.5 per 1,000 children aged 8 years in 2016 which is 175 percent higher than (2.8 times) the first estimates reported by the ADDM Network in 2000 and 2002 (Centres for Disease Control and Prevention, 2016). Another study done on children aged between 0-17 years, diagnosed with ASD, from South Asian countries including Bangladesh, India, Sri Lanka, informed that the percentage prevalence rate ranged from 0.09 percent to 1.07 percent in these countries (Hossain et al., 2017).

CAUSES

ASD is considered to be a multifactorial disease (Akshoomoff et al., 2002) and includes various genetic, biological and environmental risk factors (Hallmayer et al., 2011).

Genetic Factors

Recent neuroimaging studies on ASD has helped to evolve a better understanding of the genetic basis of brain development and also the structural and functional abnormalities associated with it (Berg & Dobyms, 2015). Previous studies on twins and families suggest that genetic factors play a dominant role, like a child having a sibling with ASD is reported to be at higher risk of developing ASD (Korvatska et al., 2002; Spence, 2004). Genetic defects give rise to abnormal molecular brain growth factors causing developmental dysregulation and also result in anatomical abnormalities (Akshoomoff et al., 2002). It has been found that individuals with genetic or chromosomal conditions like fragile X syndrome or tuberous sclerosis are more susceptible to develop ASD (Cohen et al., 2005; Hall et al., 2008).

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