Autism Spectrum Disorder And Yoga: A Clinical Study

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ABSTRACT

Introduction: *Autism spectrum disorder (ASD) is being identified in an growing number of countries,[1] Research to date children with these disorder will have poor fine motor skills and the rate of fall risk are increase among these children, an effective intervention for understudied Autism Spectrum Disorder is needed. Therefore, we investigated to observe the value of Yoga intervention including fine motor skill and fall risk for children with Autism Spectrum Disorder.*

Objectives
- ➢ *To observe the value of fine motor skill for Autism Children*
- ➢ *To discover the fall risk in Autism Children*
- ➢ *To educate and train the Autism children who are prone to fall*

Methods:
*Nine Autism children who are prone to fall were selected for this study. **F**ine **M**otor **A**ssessment scale (**FMA**s) and **M**odified **B**erg **B**alance **S**cale (**BBS - M**) **P**ediatric **B**alance **S**cale were used for the objective measurement of children fall risk. The pre and post therapy values were statistically assessed on the effect of Yoga intervention for Autism children.*

Result
*The statistical analysis of **F**ine **M**otor **A**ssessment scale (**FMA**s) pre- assessment **mean** value is **74.645, SD 6.7695** and post-treatment **mean** value is **111.322, S.D 6.471**, t-test value of FMA is **-7.872** and **p** value is < .00001. The Statistical analysis of **B**erg **B**alance **S**cale between pre-treatment **mean** values is 24.676, **S.D** is 2.1788 and post-treatment **mean** value is 40.222, **S.D** 3.6087, **t**-test value of BBS is 6.**5865** and **p** value is < .00001.*

Conclusion
Yoga can be used effectively as one of the intrusion as an integrated therapy to improve fine motor skills and to prevent falls in Autism children. Rehabilitation professional may consider these interventions when treating ASD.

Key Words: **Y**oga, **F**all prevention, **B**erg **B**alance **S**cale (**BBS-M**) **P**ediatric **B**alance **S**cale, **F**ine **M**otor **A**ssessment scale (**FMA**s), Autism Spectrum Disorder.

1. INTRODUCTION

Autism is a neurodevelopment disorder that is defined by deficits in social reciprocity and communication, and by unusual restricted, repetitive behaviors (American Psychiatric Association 2000). Autism is a disorder that usually begins in infancy, at the latest, in the first three years of life.

Autism is caused by a grouping of genetic and environmental factors. Threat factors include certain infections during pregnancy such as rubella as well as valproic acid, alcohol, or cocaine use during pregnancy. Controversies surround other proposed environmental causes; for example the vaccine hypotheses, which have been disproven. Autism affects information processing in the brain by varying how nerve cells and their synapses connect and organize; how this occurs is not well understood. In the DSM V, autism is included within the autism spectrum (ASDs), along with Asperger syndrome which is less severe, and pervasive developmental disorder, not otherwise specified (PDD-NOS).

The range and degree of autism symptoms falls on a continuum, called the autism spectrum. Therefore, both children with severe deficits as well as those who are mildly affected are considered to have Autism Spectrum Disorder (ASD).

Autism symptoms range in presentation and severity. Children with autism frequently have an intellectual disability, but some children with autism will have normal intelligence. Children with autism may also have seizures, motor abnormalities, anxiety, sleep cycle disturbances, gastrointestinal problems, immune dysfunction and sensory disturbances. Not all the features are present in every child. Instead, a subset of features underlies autism in each individual.

Fine **M**otor **Assessment** scale (**FMA**s) and Modified Berg Balance Scale (**BBS)** **/** Pediatric **B**alance **S**cale as a Standardized screening tool to assess gross motor function and fall in children with Autism Spectrum Disorder, score of less than 0-20 are indicative of a high fall risk that may have limited activities of daily living (ADL) skills and demonstrates increased risk of fall.

The ability to maintain balance during activities of daily living is essential functional independence and safety of these children with Autism Spectrum Disorder.

Yoga is a popular and now common form of exercise for children with Autism; it's helpful for teaching calming techniques, building muscle, and for increasing flexibility, balance, and more. Simple exercise helps children's sensory systems and increase body awareness.

Yoga along with simple exercise / activities has a natural similarity for one another. These disciplines promote improved physical and functional outcomes and used together create a dynamic state of improved wellness.

Yoga has emerged as a possible effective tool to increase a child's ability to focus, as well as quell anxiety and sensory related environmental by Radhakrishna (2010), Rosenblatt (2011). Yoga as an Effective Behavioral Intervention for Children Diagnosed with an Autism Spectrum Disorder by triggers, Porter, Jennifer (2013).

Literatures suggest that fine motor and balance training of both yoga and simple exercise helps to improve fine motor skills and to prevent falls in children with Autism, only a few studies have mentioned about the fall prevention programme and children education for Autism children.

Therefore, in this study, evaluation done on the values of fine motor skills and fall prevention training for autism children.

2. METHODOLOGY

Participants: Participants of this study were selected based on the selection criteria with simple random sample for children diagnosed with Autism. All children were between ages **3-9** [Mean] age **5.97**) and attended **8** week yoga therapy.

A total of **9** patients included, **4** Male Children and **5** Female Children diagnosed with Autism were participated in this study. All children attended intervention phase of the study for yoga program.

Procedure: The participants were randomly assigned for occupational therapy and yoga program, pre and post test were done in front of parents / care givers. Standardized assessment tool which include **F**ine **M**otor **Assessment** scale (**FMA**s) and Modified **B**erg **B**alance **S**cale (**P**ediatric **B**alance **S**cale) to assess Fine Motor function and Fall in children with Autism and intervention were provided for the duration of **8** weeks training program with appropriate basic exercise / activities and yoga program for Autism children.

The entire children received intervention of **40 min** each over a **8 week period**, for both simple exercise / activities and yoga intervention.

Criteria for selection: Children with Autism, both male and female those who are prone to fall and poor fine motor skills were selected for this study.

3. RESULT

The statistical analysis of **F**ine **M**otor **Assessment** scale (**FMA**s) pre- assessment **mean** value is **74.645, SD 6.7695** and post-treatment **mean** value is **111.322, S.D 6.471**, **t**-test value of **FMA** is **-7.872** and **p** value is $< .00001$. The Statistical analysis of **B**erg **B**alance **S**cale between pre-treatment **mean** values is 24.676, **S.D** is 2.1788 and post-treatment **mean** value is 40.222, **S.D** 3.6087, **t**-test value of BBS is 6.**5865** and **p** value is $< .00001$.

This table shows Mean and SD value of Pre and Post-assessment values of **F**ine **M**otor **Assessment** scale (**FMA**s) for Autism Children.

	Mean value	SD
Pre -Therapy Value	74.645	6.7695
Post-Therapy Value	111.322	6.471

This table shows t and **p** value of Pre and Post-therapy values of **F**ine **M**otor **Assessment** scale (**FMA**s) for Autism Children.

t-value	p-value
-7.872	$< .00001$

This table shows Mean and SD value of Pre and Post-assessment values of **B**erg **B**alance **S**cale (**BBS**) for Autism Children.

	Mean value	SD
Pre -Therapy Value	24.676	2.1788
Post-Therapy Value	40.222	3.6087

This table shows T and **P** value of Pre and Post-therapy values of **BBS** score for Autism Children

t-value	p-value
6.5865	< .00001.

This statistical analysis shows that, there is significant difference between pre and post-therapy values of both **FMAS** and **BBS** score. Therefore, it is recommended that, the fine motor skills were improved as well the rate of fall was comparatively reduced for children with Autism.

4. RECOMMENDATIONS

❖ The period of treatment might increase and
❖ Further studies may be warranted to increase in the sample size.

5. CONCLUSION

Through this study, it is concluded that, the basic exercise and yoga may be used effectively as one of the basic training to improve fine motor skills and to prevent fall in children with Autism. Rehabilitation professional may consider this intrusion while delicacy of Autism children.

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REFERENCES

❖ Jennifer Phillips.Mendy Minjarez Emma Mercier Autism Spectrum Disorder
❖ Cox, A., Hopkinson, K., & Rutter, M. (1981). Psychiatric interviewing techniques: II. Naturalistic study: Eliciting factual information. *British Journal of Psychiatry*, *138*, 283-291.Google Scholar

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❖ Volkmar, F. R., Cicchetti, D. V., Bregman, J., & Cohen, D. J. (1992). Three diagnostic systems for autism: DSM-III, DSM-III-R, and ICD-10. Journal of Autism and Developmental Disorders, *22*, 483-492.PubMedGoogle Scholar

❖ Yoga India Teaching Manual Level 1 & 2   Bharah Shetty

❖ Autism and Developmental Disabilities Monitoring (ADDM) Network, http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm?s_cid=ss6302a_

❖ Fong, L., Wilgosh, L., & Sobsey, D. (1993). The experience of parenting an adolescent with autism. International Journal of Disability, Development, and Education, *40*, 105-113.Google Scholar

❖ Ron Leaf, John McEachin, Jaisom D. Harsh A Work in Progress: Behavior Management Strategies and a Curriculum for Intensive Behavioral Treatment of Autism

❖ Sally J. Rogers, Ph.D., Geraldine Dawson, Ph.D., and Laurie A. Vismara, Ph.D. An Early Start for Your Child with Autism: Using Everyday Activities to Help Kids Connect, Communicate and Learn

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