EFFECT OF PLIABLE YOGA MODULE ON DEXTERITY AMONG AUTISM CHILDREN

Dr.D.Uma Maheswari[1], Dr.S.Murugesan[2], Dr.V.Subbulakshmi[3], Mr.A.Annadurai[4], Dr.C.Selvi[5], Dr.G.Raghuram[6], Ms.T.P.Akila[7]

Abstract

The purpose of the study was to find out the effect of pliable yoga module on dexterity among autism children. The study was conducted on 20 autism adults. Totally two group's namely pliable yoga module group and control group consisting of 10 autism children in each group who underwent twelve weeks of pliable yoga module whereas the control group did not undergo any type of training. The dexterity was measured before and after the experimentation using the standardized test and investigations and analyzed by Analysis of Covariance (ANCOVA) and it was concluded that the pliable yoga module had significant ($P < 0.05$) effect on the dexterity.

[1]Assistant Professor, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.
[2]Principal, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.
[3]Associate Professor, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.
[4]Assistant Professor, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.
[5]Assistant Professor, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.
[6]Assistant Professor, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.
[7]Ph.D Scholar (Full Time), Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education & Research (MAHER), Chennai.

1. Introduction

Autism spectrum disorder (ASD) is a developmental disability caused by differences in the brain. Autism children often have problems with social communication and interface, and limited or rhythmic performance. Autism children may also have different ways of learning, moving, or paying attention. Symptoms like difficulty with communication and interaction with other people, restricted interests and repetitive behaviors. These symptoms affect their ability to function in school, work, and other areas of life. ASD begins before the age of 3 years and can last throughout a person's life, although symptoms may improve over time. Some children show ASD symptoms within the first 12 months of life. In others, symptoms may not show up until 24 months of age or later. Some children with ASD gain new skills and meet developmental milestones until around 18 to 24 months of age, and then they stop gaining new skills or lose the skills they once had.
Symptoms and characteristics of Autisms

● Difficulty with social communication and interaction. Some children are unable to communicate verbally
● Delayed motor skills
● Issues with sensitivity especially to noise and light
● Hyperactivity
● Repetitive behavior such as flapping or head banging
● Language delays or echoing what other people say, known as echolalia
● Low muscle tone
● Impaired coordination
● Anxiety and poor sleep
● Likes routine and finds it difficult to adapt to change

Yoga is rapidly mounting as a coping tool to help children with autism as it is appropriate and effectual activity that directly addresses both their emotional and physical symptoms. Children with Autism often do not naturally know how to behave in relation to the world around them, they can often feel or be made to feel as though they are doing something wrong. Yoga offers a structured, focused activity with no right or wrongs. Yoga directly impacts on the characteristics of Autism in children

Social Communication and Interaction – the relaxation and calming techniques children learn in yoga can be a useful tool to help them self-regulate in social situations. This helps to build their self esteem and confidence which in turns helps them with interacting with other children and adults. The child is likely to form a bond of trust and friendship with the teacher which may also aid in shaping relationships with other adults or children

Delayed Motor Skills – Practicing asana helps increases 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 CD's 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. For ch respond to routines, Yoga offers an orderly and consistent activity which can become part of the schedule. Repeating postures in the same order every week will increase confidence as they grow to sequence.

Statement of the Problem

The present study has been planned to find out the effect of pliable yoga module on dexterity among autism children.

Review of Literature

● **Bohan Wan (2021)** studied that Is the "Yoga For Kids" an Effective Way to Help Children with Autism Spectrum Disorder?. The study related to Autism Spectrum Disorder (ASD), Yoga for Kids program, and Cognitive Behavioral Therapy (CBT) among children with ASD from infancy(sixth month) to middle childhood (12 years old) (Domain). The research topic-- "is yoga for kids an effective way to help children with ASD-- is inspired by the real case of a 7- year-old child's reaction to a 2-week yoga for kids program--he no longer avoids interaction with other adults and is more attached to his mother. Five articles are examined to prove that yoga for kids, which can be categorized as a part of Cognitive Behavioral Therapy (CBT), is an

effective treatment for kids with ASD by enhancing their social engagement and preventing the future possibility that the children with ASD experience high levels of anxiety.

- **Shirley Telles et al., (2012)** investigated on finger dexterity and visual discrimination following two yoga breathing practices. Practicing yoga has been shown to improve motor functions and attention. Though attention is required for fine motor and discrimination tasks, the effect of yoga breathing techniques on fine motor skills and visual discrimination has not been assessed. To study the effect of yoga breathing techniques on finger dexterity and visual discrimination. The present study consisted of one hundred and forty subjects who had enrolled for stress management. They were randomly divided into two groups, one group practiced high frequency yoga breathing while the other group practiced breath awareness. High frequency yoga breathing (kapalabhati, breath rate 1.0 Hz) and breath awareness are two yoga practices which improve attention. The immediate effect of high frequency yoga breathing and breath awareness (i) were assessed on the performance on the O′Connor finger dexterity task and (ii) (in) a shape and size discrimination task. There was a significant improvement in the finger dexterity task by 19% after kapalabhati and 9% after breath awareness (P<0.001 in both cases, repeated measures ANOVA and post-hoc analyses). There was a significant reduction (P<0.001) in error (41% after kapalabhati and 21% after breath awareness) as well as time taken to complete the shape and size discrimination test (15% after kapalabhati and 15% after breath awareness; P<0.001) was also observed. Both kapalabahati and breath awareness can improve fine motor skills and visual discrimination, with a greater magnitude of change after kapalabhati.

- **Shantha Radhakrishna et al., (2010)** explored the integrated approach to yoga therapy and autism spectrum disorders. A specially designed Integrated Approach to Yoga Therapy module was applied to Autism Spectrum Disorders over a period of two academic years. Despite low numbers (six in each arm), consistency and magnitude of effects make the findings significant. Parental participation, allowing firm guidance to be given to each child, resulted in significant improvements in imitation and other skills, and in behavior at home and family relationships. We hypothesize that guided imitation of therapist body positions stimulated mirror neuron activation, resulting in improved sense of self.

- **Manjunath and Shirley Telles (1999)** inspected the factors influencing changes in tweezer dexterity scores following yoga training. Yoga has already been shown to improve perceptual-motor skills, but the factors which inf1uence its effects are not well defined. This study correlates age, gender, and motivation to learn yoga with the performance in a dexterity task following yoga. Tweezer dexterity was recorded in eighty subjects belonging to four groups. Two groups were given a month of yoga training. One group consisted of subjects who had volunteered to join for the training and the other group was deputed for the training as part of their job. The two remaining groups did not receive yoga training and were selected to match the respective groups receiving yoga, for age and sex, but not for their motivation to learn yoga. The test involved using a tweezer to place metal pins in evenly spaced holes in a metal plate within four minutes. Following yoga the scores of the volunteers who learnt yoga increased significantly, whereas there was no change in scores of deputed subjects and non-yoga groups. For reasons described in detail, factors such as age and gender did not appear to contribute to the difference in performance. Hence motivation to learn yoga appeared to inf1uence the magnitude of increase.

2.   Methodology

For the present study 20 autism children were selected as the subjects from Special School, Chennai. All the subjects were assigned to Pliable yoga module group underwent pliable yoga practices for sixteen weeks for six days per weeks consisting 10 subjects and control group were no practice given consisting 10 subjects. The pliable yoga module was included asanas, pranayama and relaxation techniques which were modified according to the autism children. The dexterity was measured by Minnesota Manual Dexterity Test by Desrosiers J (1997).

3.   Results and Discussions

The data pertaining to the variables collected from the two groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance. The following tables illustrate the statistical result of the effect of pliable yoga module on dexterity among autism children.

TABLE - I
COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE-TEST, POSTTEST AND ADJUSTED POST-TEST ON DEXTERITY OF PLIABLE YOGA MODULE AND CONTROL GROUPS
(Scores in seconds)

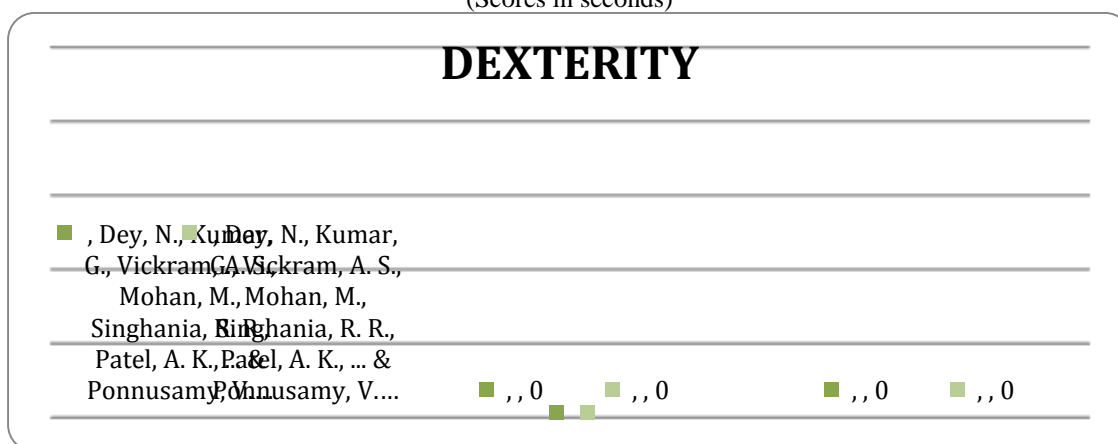|	Pliable Yoga Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test							
Mean	257.7	257.1	**Between**	1.8	1	1.8	0.02
			Within	1747	18	97.05	
Post Test							
Mean	239.7	257.8	**Between**	1638.05	1	1638.05	**51.22***
			Within	575.7	18	31.98	
Adjusted Post Test							
Mean	239.76	257.73	**Between**	1613.17	1	1613.17	**55.36***
			Within	495.33	17	29.13	

* Significant at 0.05 level Table F-ratio at 0.05 level of confidence for 1 and 18 (df) = 4.41, 1 and 17 (df) = 4.45

TABLE - II
SCHEFFE'S POST-HOC TEST F-RATIO OF PLIABLE YOGA MODULE AND CONTROL GROUPS ON DEXTERITY
(Scores in seconds)

Pliable Yoga Module	Control Group	Mean difference	Required C.I
239.76	257.74	**17.97***	3.98

* Significant at .05 level

FIGURE - 1
BAR DIAGRAM ON ORDERED ADJUSTED MEANS OF DEXTERITY
(Scores in seconds)

Results of Dexterity

The analysis of covariance of dexterity data between pre-test and post-test of the two groups have been presented in Table I. Table I shows the analysis of covariance of dexterity. The pre-test means of pliable yoga module group and control

group were 257.7 and 257.1 respectively. Since the obtained F-ratio of 0.02 is lower than the table value, F-ratio of 4.41, the pre-test means were not significant at 0.05 level of confidence with the degrees of freedom 1 and 18. The post test means of pliable yoga module group and control group were 239.7 and 257.8 respectively. The obtained F-ratio of 51.22 is seen to be higher than the table F-ratio of 4.41. Hence, the differences among the post-test means were significant at 0.05 level of confidence with degrees of freedom 1 and 18. The adjusted post-test means of pliable yoga module group and control group were 239.76 and 257.73 respectively. Since the obtained F-ratio of 55.36 is higher than the table F-ratio of 4.45the adjusted post-test mean difference amount the two groups were significant at 0.05 level of confidence with the degrees of freedom 1 and 17. Scheffe's post-hoc test was resorted-to, to find out the significance of ordered adjusted final means difference among the groups. Table II shows the Scheffe's post-hoc test results. The ordered adjusted dexterity means, differences between means and Scheffe's Post Hoc test F-ratio of pliable yoga module group and control group were tested for significance against Scheffe's post-hoc test F ratio.

4.   Conclusion

Based on the results obtained, the following conclusion was drawn: It was concluded that pliable yoga module group was effective than the control group in improving dexterity among autism children.

5.   References

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