

### 8.1 Summary of the Findings

This study was conducted for a large group of ASD children involving one of the parents. This was a control group study. Probably this was the first study of its kind where three problematic areas of ASD children considered prepared interview schedule and a structured *Yoga* module. We have a *Yoga* program designed to be used in special schools and is an intensive program for overall development of children as well as parents to reduce their stress level by practicing *Yoga* regularly along with the child. We conducted a pilot study before conducting the main study to find the feasibility of such a study of a large group of ASD children and methods to be followed. In the pilot study, we recruited seven children for two weeks program at an ATG (Assessment, Training, and Guidance) center and found that the *Yoga* module we proposed use was very intensive and required more time for ASD children to practice at a stretch. Since most of the children required physical help in performing *Yoga* that takes more time, hence we divided entire *Yoga* module into two groups. Each of the *āsana* assigned with number 1 or 2 and some of the *āsana* assigned with both 1 and 2 numbers. *Āsana* with number 1 and 2 practiced on alternative days and *āsana* with both the numbers assigned practiced at all, the day like *Surya Namaskar* (Sun Salutation) for example. Even though it was of short duration we have seen improvements in physiological symptoms like sleep and digestion related problems as per feedback received from parents. At the end of the pilot study, we decided that it will be possible to conduct such *Yoga* intervention for a large group of ASD children and decided to involve some of the teachers also in the future program to maintain discipline among children during practice.

The main study with a large group of children n=32 each group (*Yoga* and control group) with one of the

parent and teacher's volunteer participants. This study was mainly to develop a *Yoga* module to be used in special schools for the overall development of ASD children. It was designed to see changes in both physiological and psychological levels. We have chosen three main problematic areas of ASD children like Sleep disorder, gastrointestinal (food habits and digestion) problems and behavior problems which were highlighted in recent researches. A set of the 61 interview schedule prepared and used to collect data from parents administered by teachers. It was the first study of its kind to test the efficacy of *Yoga* intervention based on these problematic areas of ASD children. The uniqueness of this program was that the involvement of both parents and teachers. Since most of the families of ASD children suffer from high levels of stress in managing children, we have measured stress level of parents also before and after *Yoga* intervention. We requested teachers also to practice along with the group and taken data about their stress level pre and post *Yoga* intervention in managing ASD children in the classroom. The presence of teachers in the program helped in the smooth conduction of the intervention.

As per the feedback received from the parents, positive changes were seen among most of the children in physiological conditions like sleep and digestion related problems. Most of the children started having a good sleep and the long span of sleep. With children having good sleep parents and the entire family had relief in making a child sleep, wake up or waking up in between sleep etc. Gastrointestinal disorder-related problems like digestion problems and food habits also parents have observed changes. Many children relieved from fecal and urinary incontinence problems, changed food habits like quantity of food intake or frequency, etc. All these changes we started seeing within a month of *Yoga* intervention. Most of the children started imitating in performing postures and parents were also practicing along with children. After two months of practice, parents saw changes in behavior problems also. Children were calm compared to earlier days and following instructions or imitation postures during practice. At the end of the three-

month intensive course, most of the parents have seen positive changes in all the three areas of problems we wanted to see through this *Yoga* intervention. Children were practicing asana with ease learned practice *Pranayama*, relaxation techniques, chanting *Slokas* with parents, etc. We requested parents to continue practicing same *Yoga* module at home after the intervention program to see more and more changes in children to transform totally and lead near to normal life.

## **8.2 Conclusion**

This control group study showed it is possible to conduct *Yoga* intervention for a large group of ASD children involving parents and can see positive results in targeted problems. With three months of intensive *Yoga* intervention, we have seen a lot of physiological changes in ASD children. By one month of practice, we received good feedback from parents about sleep and digestion related problems. Since parents were also practicing *Yoga* along with the child's stress level of caretakers has come down. There seems to be marked enhancement of quality of life among family members and also increased confidence in managing the child. Other members of the family also have seen such changes in children. They have seen improvements in communication as well as social behavior. We requested parents continue to practice *Yoga* at home, even after the intervention period to see more improvements. We also requested school authorities to add *Yoga* as the part of the school curriculum.

## **8.3 Implications of the Study**

This *Yoga* intervention study was proved that through regular and consistent *Yoga* practice either we can

bring down the severity of the symptoms of autism to the maximum extent or even eliminate it totally to bring the ASD children into the mainstream. Before this study, most of the people in the field were thinking about difficult or impossible to do any intervention to ASD children because of lack of social communication and interaction and other social behaviors. Some people think of only drugs to calm down children which do not help in a long way. Ultimately, parents and entire family suffer due to situations in managing ASD children. Through this parent-based program, we have proved that *Yoga* intervention brings positive changes in both physiological and psychological conditions of ASD children and lifestyle of the entire family can be changed through the practice of *Yoga*. We have prepared this *Yoga* module keeping in mind the special school where it should be made curriculum of the school program and practice every day at the start of the school. This calm down the children to the maximum extent and children can be managed with ease by teachers. Children can be attentive and following teacher's instructions and make it easy for them to do well in academic programs also. Schools should also concentrate on the parents by involving in practicing *Yoga* along with children to reduce the stress level in managing children at home and also avoid getting affected by some of the non-communicable ailments like hypertension, diabetic and arthritis etc. at their early age.

#### **8.4 Application of the Study**

This *Yoga* intervention module was designed keeping in mind the entire family of the ASD children particularly immediate caretaker. ASD children suffered from both physiological and psychological problems and in managing children immediate caretaker subsequently entire family

members prone to high levels of stress. In schools also teachers have been subjected to a high level of stress, managing the children since most of the ASD children require individual attention to do any activity. If this *Yoga* intervention program adopted in special schools and made part of school curriculum the children can be transformed both at physically and mentally. The special schools should be encouraged to adopt this kind of *Yoga* intervention program with the minimum resourced burden on parents.

### **8.5 Strength of the Study**

The strength of the study was to conduct this type of intervention for a large group of ASD children with a caretaker. Managing these many numbers of ASD children at one place and conducting successful intervention involving parents was a unique in its own way. A dropout from the study was minimum as school authorities monitored the project. This was the first study clubbing three areas of problems of ASD children and conducting *Yoga* intervention with the development of *Yoga* module. It was amazing to see parents were consistently involved throughout the intervention. This study proved that *Yoga* intervention can be conducted for a large group of ASD children with parent's involvement.

### **8.6 Limitations of the study**

Finding sample size of this number is very difficult. For data, collection researcher has to totally depend on parent or caretaker due to a communication problem with ASD children. Without active involvement

by the school, it is very difficult to conduct this type of interventions. Probably this will be first of its kind of study done considering three problem areas of the ASD children for which standard assessment scale could not be found. Most of the children attached to their mothers it is difficult to conduct such studies without them. For assessment, teachers, involvement was necessary to administer interview schedule. A number of teachers involved in administering the interview schedule to the parents, their depth of understanding about children and mothers vary apart from mothers themselves understanding the interview schedule and presenting appropriate response. Some parents may hesitate to disclose some information about the children due to the social stigma attached to it, in such cases counseling has to be done. Many parents were hesitant to participate initially saying that it is the responsibility of the schools to do such training to their children. The parents express their helplessness about participating in such an intervention because of their family nature as they stay in joint families and need to take care of elders back home. Parents are subjecting themselves to a high level of stress because of multiple tasks they are involved in the family. It took 5 to 6 meetings to convince caretakers to participate in the intervention.