

Autism: Early Intervention and the Effects on Behaviors  
By: Trevor Kattre

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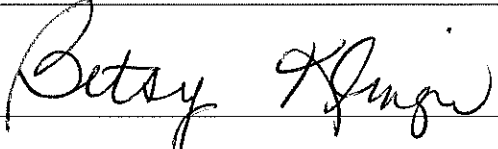
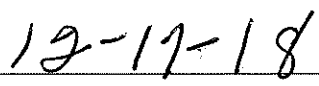
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**Abstract**

The effects of early intervention on children diagnosed with Autism Spectrum Disorder have been explored to see if there is a positive effect on communication and behaviors. The interventions that are being explored have been tested on children up to the age of five. If the effects of early intervention are having a positive effect, at what age is the most appropriate for an intervention? If a child is diagnosed with ASD, what are the appropriate and effective interventions that should be used with these children? These are the questions being explored through this research study.

## **Chapter 1 Introduction**

Within recent years, children diagnosed with Autism Spectrum Disorder (ASD) continues to increase. According to the Center of Disease and Control, a new estimate shows that Autism prevalence as now increased from 1 in 68 children two years ago to 1 in 58 children being diagnosed with ASD in 2018. The increase in prevalence is part due to the knowledge and recognition we now have in the medical field, along with knowledge of parents, caregivers, and teachers that work directly with children. Early diagnosis and intervention is critical to the development of children diagnosed with Autism Spectrum Disorder.

Children with autism spectrum disorder (ASD) face significant and persistent challenges with behavior, social-emotional reciprocity, communication and often struggle to develop, maintain, and understand relationships (Jones, S., Bremer, E., & Lloyd, M. 2017). Health professionals can reliably diagnose ASD in children as young as 16 months old. They rely on behavioral observations, medical screenings and a child's developmental history for their diagnosis (Barna, M. 2017). From there, families and professionals create a plan for treatment that can include many kinds of therapies/interventions. Intervention services are available in a variety of ways depending on the services needed by the individual child. Some of the possible services include occupational therapy, speech and language therapy, sensory integration, physical therapy, auditory integration therapy, and social skills therapy.

### **Statement of the Problem**

Appropriate treatments/therapies for children diagnosed with ASD are often delayed until the child is going to school. Is this an appropriate time for children to be diagnosed or is it better to be diagnosed at an earlier age, and if so, what age is most appropriate? What are the factors behind families not screening their child for ASD at an earlier age?

### **Significance of the Study**

The significance of this study centers around how important it is to have children under the age of 2 screened for developmental delays so appropriate interventions can take place. The prime stage of cognitive development is from 0-2 years of age. It is at this stage that early sensory, perceptual and motor activities strengthen the intelligence and cognitive growth of the child (Jagan, V., & Sathiyaseelan, A. 2016). Although we might see the numbers of children diagnosed increase, evidence shows that over time, we will see signs and symptoms decrease as children receive appropriate treatments through the early years of their lives.

### **Purpose of the Study**

The main purpose of this study is to confirm that interventions are most effective when we can diagnose ASD in the early years (0-2) and will decrease the developmental delays associated with the disorder. This will improve the overall quality of life for the child diagnosed with ASD.

### **Definition of Terms**

**Autism Spectrum Disorder (ASD)**- neurological and developmental disorder that begins early in childhood and lasts throughout a person's life. It affects how a person acts and interacts with others, communicates, and learns.

**Benchmark**- a standard or point of reference against which things may be compared or assessed.

**Brain Plasticity**- ability of the brain to change throughout an individual's life, e.g., brain activity associated with a given function can be transferred to a different location, the proportion of grey matter can change, and synapses may strengthen or weaken over time.

**Developmental Delays**- Child with a disability for children aged three through nine (or any subset of that age range, including ages three through five), may...include a child who is experiencing developmental delays as defined by the State and as measured by appropriate diagnostic instruments and procedures in one or more of the following areas: Physical development, cognitive development, communication development, social or emotional development, or adaptive development

**Intervention**- taking action or using a treatment to try to improve a particular condition or problem.

**Screening**- the testing of a person or group of people for the presence of a disease or other condition.

### **Overview of the Study**

The purpose of this study is to determine if early interventions from age 0-2 are most appropriate for diagnosing and treating children with ASD and to find out if there are any consequences associated with diagnosing/treating ASD symptoms after the age of 2 years. Included in chapter 1 of the study is an abstract, and introduction, and a list of important terms possibly unknown to the reader. Chapter 2 contains a literature review on the effects of early interventions on behaviors of children diagnosed with ASD. The literature reviews cover the following topics: Background on Autism Spectrum Disorder, Benefits of Early Intervention, Applied Behavior Analysis, Early Start Denver Model, Non-conventional Treatments, and Consequences of Delayed Interventions.

## **Chapter Two: Review of Related Literature**

### **Background on Autism Spectrum Disorder**

Autism is a very complex developmental disorder that begins at any point in childhood, from early infancy onward, and which can last throughout a person's lifetime (Bindlish, N., Kumar, R., Mehta, M., & Dubey, K. T. 2018). The term "autism" is used to designate a group of disorders known as "autism spectrum disorders".

The symptoms of autism can range from mild to severe. In its milder forms, children diagnosed usually live relatively normal lives, but can still have social issues and difficulty making friends (Bindlish et al., 2018). More severe cases of ASD can show extreme withdrawal with very little to no social interaction and demonstrate obsessive routines and behaviors.

The occurrence of ASD is increasing on a yearly basis. People are becoming more educated in the signs/symptoms that autism demonstrates. The first warning sign of a child who might be diagnosed is when they fail to meet their appropriate developmental benchmarks. Another warning sign for diagnosis is when children have difficulty interacting and socializing with other children (Carlson S., Carter, M., & Stephenson, J. 2015). Although there are some warning signs, there is still a lot of uncertainty that encompasses ASD.

According to a periodical done by Fogleman (2012), there is no true explanation for the possible causes of ASD. There are no known means to prevent it and no entirely effective treatments, and no cure at this time.



### **Benefits of Early Intervention**

According to the CDC, early intervention is defined as the supports and services provided by professionals to children with developmental delays or disabilities. These services are designed to help aid and further their maximum development. According to a periodical done by Jagan, he states that “Early intervention encompasses multi-disciplinary services such as sensory integration, occupational therapy, speech therapy, and behavior modification techniques, which are provided from the time of birth until the age of five years” (Jagan et al., 2016). The idea of early intervention is to promote the reduction in developmental delays, aid in correction of existing disabilities, and increase the quality of life for family and all individuals involved.

### **Treatments: Applied Behavior Analysis**

ASD is a very wide spectrum disorder that needs to be tailored to each individual person. Symptoms are different for each person. There are many different types of treatments to help aid in the developmental and behavioral process of the individual, but only two methods have been approved by objective scientific studies (Axelrod, S., McElrath, K. K., & Wine, B. 2012).

ABA, also known as Applied Behavior Analysis, is one of the two methods that has been approved by objective scientific studies. “ABA focuses on the analysis, design, implementation, and evaluation of social and other environmental modifications to produce meaningful changes in human behavior. ABA includes the use of direct observation, measurement, and functional analysis of the relations between environment and behavior” (Axelrod et al., 2012). According to a study done by Corey Fogleman (2012), ABA is based on the fact that an individual’s behavior is determined by past and current environmental events in unison with other variables such as their genetics and physiological variables. When this principle is applied to Autism

Spectrum Disorder, ABA really focuses on treating problems of the disorder by changing the person's learning environments.

### **Early Start Denver Model**

Another method of therapy that has been approved by scientific studies is the Early Start Denver Model. This model is a comprehensive behavioral early intervention approach for children with autism, ages 12 to 48 months. This program is comprised of a developmental curriculum that defines the skills to be taught at any given time and a set of teaching procedures used to deliver this content (Vivanti, G., & Dissanayake, C. 2016). The ESDM program is a one on one delivery method that also offers parent training.

Like other intervention programs, the goal is to target the early learner when brain plasticity is high during early infancy and toddlerhood to help alleviate symptoms of ASD (Jagan et al., 2016). The goal is to provide young children with ASD opportunities to interact socially and practice specific skills to help change and speed up the development of the brain in the early stages of life.

### **Pet Therapy**

Pet interaction therapies are known to be a conventional treatment for individuals with ASD. A variety of studies have been done that support the concept that animals can be effective with children with ASD. When dogs have been introduced to children with ASD, it can result in a reduction of stress, anxiety, and irritation and can also promote a more relaxed environment for those children (Siewertsen, C. M., French, E. D., & Teramoto, M. 2015). Using this type of therapy can also have positive effects on a one's life outside of the therapy setting. There are

known improvements on psychological factors including better social interactions and reductions in severity of ASD when animals are introduced to ASD patients. (Siewertsen, C. M., French, E. D., & Teramoto, M. 2015). ASD has such a wide spectrum of effects varying from person to person. I believe that pet therapy has the potential to improve some or more of the functions that are affected by ASD.

### **Consequences of Delayed Interventions**

One of the biggest questions that we must ask ourselves when dealing with children who show signs and symptoms of ASD is “When do we begin ASD interventions”? What happens if we wait too long in diagnosing a child who might have ASD but we are not quite sure? What is an appropriate age to diagnose for ASD? A study was done by Sally Ozonoff called the Infant Start. It evaluated the impact of a comprehensive intervention on infants ranging from six months to 15 months at the onset of the study. The infants displayed signs and symptoms associated with ASD (Ozonoff, S., Iosif, A. M., Baguio, F., Cook, I. C., Hill, M. M., Hutman, T., & Steinfeld, M. B. 2010). This study has had a huge impact on supporting extensive previous research done that suggests early interventions have a dramatic positive impact on children. Ozonoff and her colleagues published a study demonstrating brain changes in children with ASD who participated in the ESDM. This was the first demonstration that a behaviorally-based comprehensive intervention changed brain function. (Ozonoff, S., Iosif, A. M., Baguio, F., Cook, I. C., Hill, M. M., Hutman, T., & Steinfeld, M. B. 2010).

What do parents need to do if they have any questions or concerns about their child’s development? Education in the early warning signs of ASD is key for parents to demand attention from their general practitioner. Parents can make use of information that can be

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obtained from well-designed screening tools such as The Modified Checklist for Autism in Toddlers, Revised (M-CHAT). The M-CHAT is very easy to use and you can score it online. If the information from the M-CHAT says that your child displays “red flags” for ASD, you need to see your healthcare provider and show them the information and determine if a full diagnostic evaluation is needed. I believe that we must continue to push for diagnosis as early as possible continue to expand access to services for all families who need them.

## **Conclusion and Recommendations**

The studies that have been presented from this research show that we are getting closer to finding new and better ways to manage, combat, and reverse symptoms of ASD. Early intervention programs have shown significant improvements in the developmental process and behaviors associated with ASD. According to the Center for Disease and Control, they state that we do know that early intervention has shown significant improvements in regard to autism symptoms, but currently they cannot predict which children will have those positive responses to the therapies. The research shows that more extensive research will have to be done to determine which therapies will be most beneficial to children diagnosed with ASD, along with possible combinations of therapies that could improve delays caused by ASD.

Identifying that there is a problem to be corrected in the early stages of life is the basis behind early intervention. Collectively we must respect the fact that identifying or diagnosing autism early could potentially change the outcome of a how a child can communicate and learn. I am a firm believer that diagnosing and intervening a child at the early stages in life will have a huge impact on the developmental delays that encompasses autism and create a better life for the child.

## References

- Amer, A. F. (2017). The level of the use of positive behavioral support strategies by teachers of children with autism spectrum disorder in Amman. *College Student Journal*, 51(1), 81-90.
- Anderson, C. M., Smith, T., & Iovannone, R. (2018). Building Capacity to Support Students with Autism Spectrum Disorder: A Modular Approach to Intervention. *Education & Treatment Of Children*, 41(1), 107-138.
- Anderson, S. R., Avery, D. L., DiPietro, E. K., Edwards, G.L., & Christian, W. P. (1987). Intensive home-based early intervention with autistic children. *Education and Treatment of Children*, 10, 352-366.
- Axelrod, S., McElrath, K. K., & Wine, B. (2012). APPLIED BEHAVIOR ANALYSIS: AUTISM AND BEYOND. *Behavioral Interventions*, 27(1), 1-15.
- Barna, M. (2017). Autism Spectrum Disorder. *Discover Magazine*, 38(6), 62-65
- Ben-Itzhak, Esther, & Zachor, Ditzza A. (2007). The Effects of Intellectual Functioning and Autism Severity on Outcome of Early Behavioral Intervention for Children with Autism. *Research in Developmental Disabilities: A Multidisciplinary Journal*, 28(3), 287-303.
- Bindlish, N., Kumar, R., Mehta, M., & Dubey, K. T. (2018). Effectiveness of parent-led interventions for autism and other developmental disorders. *Indian Journal Of Health & Wellbeing*, 9(2), 303-307.

Bontinck, C., Warreyn, P., Van der Paelt, S., Demurie, E., & Roeyers, H. (2018). The early development of infant siblings of children with autism spectrum disorder: Characteristics of sibling interactions. *Plos ONE*, 13(3), 1-19.

Brodzeller, K. L., Ottley, J. R., Jung, J., & Coogle, C. G. (2018). Interventions and Adaptations for Children with Autism Spectrum Disorder in Inclusive Early Childhood Settings. *Early Childhood Education Journal*, 46(3), 277-286.

Brondino, N., Fusar-Poli, L., Rocchetti, M., Provenzani, U., Barale, F., & Politi, P. (2015). Complementary and Alternative Therapies for Autism Spectrum Disorder. *Evidence-Based Complementary and Alternative Medicine*, 2015, 31.

Carlson, S., Carter, M., & Stephenson, J. (2015). Decision-Making Regarding Early Intervention by Parents of Children with Autism Spectrum Disorder. *Journal Of Developmental & Physical Disabilities*, 27(3), 285-305.

Center for Disease Control and Prevention (2016). Data & Statistics. Retrieved July 25, 2018, from <http://www.cdc.gov/ncbddd/autism/data.html>.

Estes, Munson, Rogers, Greenson, Winter, & Dawson. (2015). Long-Term Outcomes of Early Intervention in 6-Year-Old Children With Autism Spectrum Disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 54(7), 580-587.

Ezzamel, N., & Bond, C. (2017). The use of a peer-mediated intervention for a pupil with autism spectrum disorder: Pupil, peer and staff perceptions. *Educational & Child Psychology*, 34(2), 27-39.

Fenske, E. C., Zalenski, S., Krantz, P. J., & McClannahan, L. E. (1985). Age at intervention and treatment outcome for autistic children in a comprehensive intervention program. *Analysis & Intervention in Developmental Disabilities*, 5(1-2), 49-58.

Fogleman, C. (2012). Therapies for children with autism spectrum disorders. *American Family Physician*, 85(9), 878-80.

Jagan, V., & Sathiyaseelan, A. (2016). Early intervention and diagnosis of autism. *Indian Journal Of Health & Wellbeing*, 7(12), 1144-1148.

Jones, S., Bremer, E., & Lloyd, M. (2017). Autism spectrum disorder: family quality of life while waiting for intervention services. *Quality Of Life Research*, 26(2), 331-342.

Kurasawa, S., Tateyama, K., Iwanaga, R., Ohtoshi, T., Nakatani, K., & Yokoi, K. (2018). The Age at Diagnosis of Autism Spectrum Disorder in Children in Japan. *International Journal Of Pediatrics*, 1-5.

Lapa Sussman, J. (2008). What is Autism?. *Total Health*, 30(1), 28-31.

Li, G., Lee, O., & Rabitz, H. (2018). High efficiency classification of children with autism spectrum disorder. *Plos ONE*, 13(2), 1-23.

McGrew, J., Ruble, L., & Smith, I. (2016). Autism Spectrum Disorder and Evidence Based Practice in Psychology. *Clinical Psychology: Science and Practice*, 23(3), 239-255.

Morgan, L., Hooker, J. L., Sparapani, N., Reinhardt, V. P., Schatschneider, C., & Wetherby, A. M. (2018). Cluster Randomized Trial of the Classroom SCERTS Intervention for Elementary



Students with Autism Spectrum Disorder. *Journal of Consulting & Clinical Psychology*, 86(7), 631-644.

Ozonoff, S., Iosif, A. M., Baguio, F., Cook, I. C., Hill, M. M., Hutman, T., & Steinfeld, M. B. (2010). A prospective study of the emergence of early behavioral signs of autism. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(3), 256-266.

Parsons, L., Cordier, R., Munro, N., Joosten, A., & Speyer, R. (2017). A systematic review of pragmatic language interventions for children with autism spectrum disorder. *Plos ONE*, 12(4), 1-37.

Raff, M. (2010). Video Q&A: What is autism? -- A personal view. *BMC Biology*, 842-45.

Siewertsen, C. M., French, E. D., & Teramoto, M. (2015). Autism spectrum disorder and pet therapy. *Adv Mind Body Med*, 29(2), 22-25.

Tachibana, Y., Miyazaki, C., Mikami, M., Ota, E., Mori, R., Hwang, Y., & ... Kamio, Y. (2018). Meta-analyses of individual versus group interventions for pre-school children with autism spectrum disorder (ASD). *Plos ONE*, 13(5), 1-30.

VanderLaan, D., Leef, J., Wood, H., Hughes, S., & Zucker, K. (2015). Autism Spectrum Disorder Risk Factors and Autistic Traits in Gender Dysphoric Children. *Journal Of Autism & Developmental Disorders*, 45(6), 1742-1750.

Vivanti, G., & Dissanayake, C. (2016). Outcome for Children Receiving the Early Start Denver Model Before and After 48 Months. *Journal Of Autism & Developmental Disorders*, 46(7), 2441-2449.

Ward, S. L., Sullivan, K. A., & Gilmore, L. (2018). Combining parent and clinician ratings of behavioural indicators of autism spectrum disorder improves diagnostic classification. *Early Child Development & Care*, 188(6), 748-758.

Yudell, M., Tabor, H. K., Dawson, G., Rossi, J., & Newschaffer, C. (2013). Priorities for autism spectrum disorder risk communication and ethics. *Autism: The International Journal Of Research & Practice*, 17(6), 701-722.