

## **Autism Spectrum Disorders Common Intervention Techniques**

Parents of children who fall on the Autism Spectrum Disorder are frequently overwhelmed when confronted with the many the many treatment/educational approaches suggested for working with their children. The following is an explanation of some of the most widely used techniques. This list is not exhaustive. Some of these techniques are comprehensive programs, while others are designed to target a specific area of difficulty.

### **Discrete Trial Training**

Discrete trial training is based on applied behavior analysis principles. This method involves breaking down tasks into simple elements and teaching the child through repetition. An individualized program is designed for each child to that the child's specific strengths and weaknesses can be addressed. The goal of the program is to teach the child everything that is required of a normally developing child of the same age, so that the gap between the child's chronological and mental age can be narrowed or eliminated. The content of instruction includes speech and language skills, gross and fine motor skills, academic skills, self-care and social skills.

This program involves from 10 to 40 hours per week of one-to-one discrete trials. Play breaks of 20 to 30 minutes are included between each hour of work. Proponents of this treatment recommend that it start early in life and continue for a long period of time. The individual instruction is usually performed in the home, with trained psychologists assisting parents and "therapists" (trained professionals or paraprofessionals) in administering this program. The program emphasizes the importance of parents in following through with the treatment.

### **Floor Time**

This therapeutic approach seeks to improve developmental skills through analysis and intervention in six areas of functioning. The first area has to do with a child's ability to regulate his or her attention and behavior, while being presented with a full range of sensations. The second area has to do with the child's ability to maintain quality and stability of engagement in relationships. The third area has to do with a child's ability to enter into two-way, purposeful communication. At its most basic level, this program involves helping the child open and close circles of communication. A circle of communication is opened and closed when a child evidences some interest or behavior and the parent responds to that interest in a way that is acknowledge by the child.

The fourth level involves stringing together many circles of communication into larger patterns. This level is very important because many children who have command of a number of words are still unable to maintain a flow of two-way communication, which is necessary for negotiating many of the most important emotional needs of life. The fifth level has to do with the child's ability to create mental representations or emotional symbols through the ability to engage in pretend play or use words, phrases or sentences to convey some emotional intention ("want that," "me mad" etc.). The last level has to do with the ability to build bridges or make connections between different internal representations or emotional ideas (e. g., "I am mad because you are mean.") This capacity is a foundation of higher level thinking, problem solving and such abilities as separating reality from fantasy, modulating impulses and mood, and learning how to concentrate and plan.

**Reinforcers should be:**

- ❖ Contingent upon behavior
- ❖ Administered following any reasonable attempts to respond
- ❖ Related to the desired behavior in a direct way

Pivotal Response Training provides parents, teachers and caregivers with a method of responding to their child with autism/PDD, which provides teaching opportunities throughout the day. It can be used in structured one-on-one teaching or in the "natural setting." Important aspects of training include turn taking, reinforcing attempts at correct responding, frequent task variation, allowing the child a choice of activities, interspersing maintenance tasks, and using natural consequences. This type of training is flexible and allows the teacher, parent or other caregiver to require more difficult responses as the child progresses. It was specifically designed for use by parents and can easily be integrated into everyday life in order to facilitate generalization and maintenance of behavior change.

### **Social Stories**

Many persons with autism have deficits in social cognition, the ability to think in ways necessary for appropriate social interaction. This deficit can be addressed by a technique, which is used to help individuals with autism "read" and understand social situations. This technique, called "Social Stories," presents appropriate social behaviors in the form of a story. There are a number of ways a social story can be implemented. For a person who can read, the author introduces the story by reading it twice with the person. The person then reads it once a day independently. For a person who cannot read, the author reads the story on an audiotape with cues for the person to turn the page as he/she 'reads' along. These cues could be a bell or verbal statement when it is time to turn the page. Once the autistic individual successfully enacts the skills or appropriately responds in the social situation depicted, use of the story can be faded. This can be done by reducing the number of times the story is read each week and only reviewing the story once a month or as necessary. Fading can also be accomplished by rewriting the story or gradually removing directive sentences from the story.

Social stories are useful for helping individuals with autism learn appropriate ways to interact in social situations. They can be individualized to incorporate the specific needs of the person for whom the story is written. Activities are taught using flexible directive statements such as "I will try to stay in my bed until morning," to encourage the individual to try to reach the final goal. They can teach routines, how to do an activity, how to ask for help and how to respond appropriately to feelings like anger and frustration.

### **TEACCH: Treatment and Education of Autistic and Communication Handicapped Children**

TEACCH is a state funded public health program available in North Carolina, which provides services from the level of diagnosis and early counseling for parents and professionals to adult community based centers. Educational strategies are established individually on the basis of a detailed assessment of the person with autism's learning abilities, trying to identify potential for acquisitions rather than focusing on deficits. Educational programs are revised frequently, according to the child's maturation and progress.

A hallmark of the TEACCH program is to provide 'structured teaching.' This technique is based upon the observation that children with autism learn and integrate information differently than other children. Many noncompliant behaviors of children with autism are a result of their

## Sensory Integration/Occupational Therapy

Children and adults with autism, as well as those with other developmental disabilities may have a dysfunctional sensory system. Sometimes one or more senses are either over- or under-reactive to stimulation. Such sensory problems may be the underlying reason for such behaviors as rocking, spinning, and hand flapping. Although the receptors for the senses are located in the peripheral nervous system (which includes everything but the brain and spinal cord), it is believed that the problem stems from neurological dysfunction in the central nervous system--the brain. As described by individuals with autism, sensory integration techniques, such as pressure-touch can facilitate attention and awareness, and reduce overall arousal. Temple Grandin, in her descriptive book, *Emergence: Labeled Autistic* relates the distress and relief of her sensory experiences.

Sensory integration is an innate neurobiological process and refers to the integration and interpretation of sensory stimulation from the environment by the brain. In contrast, sensory integrative dysfunction is a disorder in which sensory input is not integrated or organized appropriately in the brain and may produce varying degrees of problems in development, information processing, and behavior.

Sensory integration focuses primarily on three basic senses--tactile, vestibular, and proprioceptive. Their interconnections start forming before birth and continue to develop as the person matures and interacts with his/her environment. The three senses are not only interconnected but are also connected with other systems in the brain. Although these three sensory systems are less familiar than vision and audition, they are critical to our basic survival. The inter-relationship among these three senses is complex. Basically, they allow us to experience, interpret, and respond to different stimuli in our environment. The three sensory systems will be discussed below.

**Tactile System:** The tactile system includes nerves under the skin's surface that send information to the brain. This information includes light touch, pain, temperature, and pressure. These play an important role in perceiving the environment as well as protective reactions for survival. Dysfunction in the tactile system can be seen in withdrawing when being touched, refusing to eat certain 'textured' foods and/or to wear certain types of clothing, complaining about having one's hair or face washed, avoiding getting one's hands dirty (i.e., glue, sand, mud, finger-paint), and using one's finger tips rather than whole hands to manipulate objects. A dysfunctional tactile system may lead to a misperception of touch and/or pain (hyper- or hyposensitive) and may lead to self-imposed isolation, general irritability, distractibility, and hyperactivity.

Tactile defensiveness is a condition in which an individual is extremely sensitive to light touch. Theoretically, when the tactile system is immature and working improperly, abnormal neural signals are sent to the cortex in the brain which can interfere with other brain processes. This, in turn, causes the brain to be overly stimulated and may lead to excessive brain activity, which can neither be turned off nor organized. This type of over-stimulation in the brain can make it difficult for an individual to organize one's behavior and concentrate and may lead to a negative emotional response to touch sensations.

**Vestibular System:** The vestibular system refers to structures within the inner ear (the semi-circular canals) that detect movement and changes in the position of the head. For example, the vestibular system tells you when your head is upright or tilted (even with your eyes closed). Dysfunction within this system may manifest itself in two different ways. Some children may be hypersensitive to vestibular stimulation and have fearful reactions to ordinary movement

- ◆ **Music therapy requires no verbal interaction** although it may eventually facilitate it.
- ◆ **By nature, music is structured**, and it can facilitate structure in the environment in which it is experienced. Sound stimulus can aid in sensory integration because it involves all the senses. The vestibular system is also stimulated when rhythmic movement is included in the therapy.
- ◆ **Music naturally facilitates play** and therefore enhances learning through play.
- ◆ **Music therapy can aid** in socialization and influence behavior.

In general, music therapists hope to improve various aspects of a client's physical and mental health and to foster desired changes in behavior. A qualified music therapist makes a careful assessment of the individual's present capabilities and, on that basis, defines program goals, both long- and short-term. Music therapy can be carried out in a private setting, but it can also be incorporated into a child's program at school.

## **Auditory Integration Training**

AIT includes a total of 10 hours of listening to modulated music over a 10-20 day period. Before receiving AIT the individual is given an audiogram, a test for hearing at various sound frequencies. A person might hear certain sound frequencies too well, and this may cause processing problems. In an audiogram, the frequencies at which a person hears too well are referred to as "auditory peaks." After the initial audiogram, the individual listens to music through a special machine by means of earphones.

Parents of children who have received AIT have noted a variety of improvements. Some feel it has made little difference in their child's behavior, while others have noted significant changes after their child received AIT. Some positive changes include increases in eye contact, improvement in auditory processing, spontaneous speech, socialization, and attention span, and a lessened sensitivity to certain sounds.

No one is certain how or why AIT reduces hearing hypersensitivity for some people. Theories suggest that AIT may reduce sound sensitivity either by eliminating peaks in hearing through filtration; by providing ear exercise; by massaging the inner ear and stimulating an acoustic reflex in the middle ear; by stimulating the brain; and/or by giving the person a chance to get used to loud sounds. The effectiveness of AIT may also lie in the sensory stimulation it provides to both the auditory system and the brain, and in reducing the distraction of background noise or noise in the ears.

Not all persons will benefit from AIT. However, many families continue to note improvements in their children after they have received the training. The improvement is usually subtle and may take several months to be noticed. Some individuals, after receiving AIT, may exhibit behavior problems that may last anywhere from two days to two months. It is important for parents to employ consistent behavior management strategies during this adjustment period. Often, positive gains in social, emotional, and academic development coincide with the difficult adjustment period. Continuing research will increase our understanding of this intervention.

- ◆ Headaches, dizziness, nausea, car sickness and light sensitivity.

**Obtaining an Evaluation.** Parents interested in a functional or developmental visual evaluation for their child should locate a Behavioral Optometrist. Informative books, such as *The Suddenly Successful Student*, *Your Child's Vision*, and *20/20 Is Not Enough* are also helpful. A comprehensive evaluation should take between 45-60 minutes. In the evaluation, the doctor should be interested in the child's symptoms, general physical health, developmental history and specific visual demands. In addition, the doctor should examine not only the clarity of eyesight and health of the eyes, but eye movements, skills, focusing ability, depth perception and binocularity (eyes working together as a team).

## Anti-yeast Therapy

The possible link between *Candida albicans* and autism, as well as other learning disabilities, is a topic of debate in the medical community. *Candida* is a yeast-like fungus that is normally present in the body to some degree. Certain circumstances, however, may lead to an overgrowth of yeast that a normal, healthy immune system would otherwise suppress. The more severe symptoms of yeast overgrowth may include long-term immune system disturbances, depression, schizophrenia, and possibly autism.

### **Medical Complaints Associated with the Candida Complex:**

- ◆ Intestinal problems (constipation, diarrhea, flatulence)
- ◆ Distended stomach
- ◆ Cravings for carbohydrates, fruits and sweets.
- ◆ Unpleasant odor of hair and feet, acetone smell from the mouth
- ◆ Skin rashes
- ◆ Fatigue, lethargy, depression, anxiety
- ◆ Insomnia
- ◆ Behavior problems
- ◆ Hyperactivity

*Candida* overgrowth is often attributed to long-term antibiotic or hormonal treatments. It has been reported that some children whose autistic tendencies surfaced at 18-24 months had been continually treated with antibiotics to control chronic ear infections. Other possible causes of *Candida* overgrowth: immunosuppressant drug therapy, exposure to herpes or chicken pox, exposure to toxins that might disrupt the immune system.

Treatment for *Candida* overgrowth usually includes prescription of an antifungal medication. In addition, certain herbal formulas are showing promising results in the control of yeast overgrowth. Along with antifungal medications, a diet which eliminates sugar, yeast, and many other foods is a critical part of the treatment. Symptoms may grow worse at the onset of treatment but may gradually improve if *Candida* overgrowth is in fact contributing to the patient's problems.

Finally, it is important to note that *Candida albicans* is not the only yeast that may cause problems. Stool analysis may reveal various species of yeast. A yeast overgrowth of any kind may cause serious problems in various functions of the body. Also, since yeast overgrowths can interfere with the body's ability to regulate the absorption of essential fatty acids, it may be prudent to request an analysis of short- and long-chain fatty acid absorption when testing for yeast overgrowth by means of stool culture.

## **Vitamin Therapy**

### **B6/Magnesium Supplements**

In the early 1960s, parents reported improvements seen in their children after taking certain vitamins. Scientists investigated these claims and developed a vitamin and mineral therapy, which is now considered an effective treatment for some individuals with autism.

The goal of vitamin therapy is to normalize body metabolism and improve behavior. Studies have shown that vitamin B6 helps to normalize brain waves and urine chemistry, control hyperactivity, and improve overall behavior. It may also help in reducing the effects of allergic reactions by strengthening the immune system. Although improvements vary considerably among individuals, other possible improvements from B6/magnesium therapy are:

- ◆ **Speech improvements**
- ◆ **Improved sleeping patterns**
- ◆ **Lessened irritability**
- ◆ **Increased span of attention**
- ◆ **Greater desire for learning**
- ◆ **Decrease in self-injury and self-stimulation**
- ◆ **Overall improvement in general health.**

Vitamin B6 and magnesium are water-soluble and there are not stored in body fat. It is important to take vitamin B6 in combination with other vitamins and minerals in order to help metabolize the B6 and magnesium.

### **Dimethylglycine (DMG) Supplements**

Despite its technical name, Dimethylglycine (DMG) is a food substance. Its chemical make-up resembles that of water-soluble vitamins, specifically vitamin B15. Anecdotal reports from parents giving their child DMG indicate improvements in the areas of speech, eye contact, social behavior, and attention span. Occasionally, if too much DMG is given, the child's activity level has been noted to increase; otherwise, there are no apparent side effects.

### **Medications for Treating Autistic Symptoms**

No primary medication is used to treat autism. Medications are usually prescribed to decrease specific symptoms associated with autism. These symptoms may include self-injurious behavior, aggressive behavior, seizures, depression, anxiety, hyperactivity, or obsessive-compulsive behavior. Medications alone are not a solution to the problems associated with autism. Individuals with autism need well-rounded intervention, including behavior management strategies, environmental modifications, and positive support services. Parents wishing to try medications for their children should be given the support and knowledge necessary to maintain a safe level of treatment. Parents need to be aware of potential risks and harmful side effects, and should carefully weigh them against possible benefits before treatment begins. Dosage should be carefully considered and monitored. There must be good communication between parents, physicians, service providers, and school personnel to monitor treatment with any medication. Accurate data on the effects of medication are also essential.