

Deafness and autistic spectrum disorders (ASD)

Autism spectrum disorder (ASD) is characterized by: social deficits, communication difficulties, difficulties relating themselves to people, repetitive behaviors and interests, their desire for routine and often cognitive delays. Many illnesses can cause both ASD and deafness including: rubella, cytomegalovirus, herpes, chicken pox, toxoplasmosis, syphilis, mumps, prematurity, and hemophilic influenza. Deaf students with autistic spectrum disorder are often difficult to diagnose due to not being able to test them psychometrically. ASD includes: autistic disorder, Asperger disorder, Rett disorder, childhood disintegrative disorder, and pervasive developmental disorder. In the past autistic children were often misdiagnosed with schizophrenia, mental retardation or with other disorders.

ASD is considered a learning disability under IDEA, which requires all schools to provide a free appropriate public education until the age of 21. In the last decade the diagnosis of ASD has doubled in school aged children. Schools were greatly impacted, not having the financial resources to support their students.

Vernon, McCay, and Anthony Rhodes. "Deafness and Autistic Spectrum Disorders." *American Annals of the Deaf* 154.1 (2009): 5-14. ProQuest. Web. 24 Mar. 2013.

Use of ASL

St Joseph's School for the Deaf in NYC recently completed a study of ASD and deafness. Four percent of the students attending the school were both deaf and autistic totaling 46 children, 16 girls and 30 boys. The study revealed that many children who were both deaf and autistic improved academically using ASL after not being successful in other settings. Autism often impairs the temporal lobes which controls processing spoken language. This could explain why sign language more successful than other settings. However, autism also impacts a child's spatial intelligence through cognitive mechanism which cause struggles with acquisition with ASL phonological structures such as palm orientation, movement and location. The article "[The Signing of Deaf Children With Autism: Lexical Phonology and Perspective-Taking In the Visual-Spatial Modality](#)," looks at how children with autism develop ASL skills. Children with Autism often struggles with eye gaze, visual attention and interpreting facial expressions which are important parts of American Sign Language. In addition, ASL requires that in conversation the message receiver must be able to understand the signer perspective in order to correctly understand the message, the ability to understand another perspective is theory of mind (ToM), which is often delayed in autistic children. Another barrier in developing sign language skills is the child's ability to replicate body movements (mapping) which involves motor control, which can be impaired in certain forms of ASD.

Vernon, McCay, and Anthony Rhodes. "Deafness and Autistic Spectrum Disorders." *American Annals of the Deaf* 154.1 (2009): 5-14. ProQuest. Web. 24 Mar. 2013.

Dittrich, Winand and Rhonda Tutt. "Educating Children with Complex Conditions." pg. 29-30.

Early Intervention

Diagnosing and Evaluating Autism

Autism and related disabilities, such as PDD-NOS (Pervasive Developmental Disorder – Not Otherwise Specified), and Asperger's Syndrome are difficult to diagnose, especially in young children where speech and reasoning skills are still developing. It is essential that the process of diagnosing Autism & related disabilities include the assessment and evaluation of a child's development, communication, and social skills. Evaluation and assessment are ongoing processes. Once a diagnosis has been reached, this process should be repeated periodically. We included brief descriptions of some medical tests and evaluations that may be ordered for children suspected of having autism or a related disability.

Medical Tests

The following medical tests may help with diagnosis and possibly suggest changes in the intervention or treatment strategy.

Hearing: Various tests such as an Audio gram and Tympanogram can indicate whether a child has a hearing impairment. Audiologists, or hearing specialists, have methods to test the hearing of any individual by measuring responses such as turning their head, blinking, or staring when a sound is presented.

Electroencephalogram (EEG): An EEG measures brain waves that can show seizure disorders. In addition, an EEG may indicate tumors or other brain abnormalities. An electroencephalogram (EEG) is a recording which shows the variations in electrical potentials at a number of scalp sites.

Inside the brain, neurons produce their own electrical fields. The electric fields are measured in units of micro volts. It is thought that an unhealthy brain will have large changes in the electrical potential compared to the potentials produced by a healthy brain.

However, in order to observe an unhealthy brain it must be compared to the same brain when it was healthy. So, for example, to measure the difference between a brain undergoing a seizure, the EEG must last long enough for seizure to occur. Often a video EEG is done over a period of a day or a week.

This form of measuring brain activity is noninvasive (doesn't require any surgical cuts) and it is relatively inexpensive. This method gives numerical results. The patterns of the numbers are then used to determine whether or not the brain is healthy. The results can also be used to determine which section of the brain is causing problems. Additional tests will likely be needed to make an accurate diagnosis of these conditions.

Metabolic Screening: Blood and urine lab tests measure how a child metabolizes food and its impact on growth and development. Some Autism spectrum disorders can be treated with special diets.

Magnetic Resonance Imaging (MRI): An MRI involves using magnetic sensing equipment to create an image of the brain in extremely fine detail. Sometimes children are sedated in order to complete the MRI.

Computer Assisted Axial Tomography (CAT SCAN): An X-Ray tube rotates around the child taking thousands of exposures that are sent to a computer where the X-rayed section of the body is reconstructed in great detail. CAT Scans are helpful in diagnosing structural problems with the brain.

Genetic Testing: Blood tests look for abnormalities in the genes which could cause a developmental disability.

SOURCE: <http://www.autism-pdd.net/autism-symptoms-checklist/>

Classroom Strategies

The best resource we have available to us, is the child themselves. Figuring out what works for that individual child. However, research has shown that "autistic individuals are found to have relatively intact visuospatial abilities... good auditory short term and rote memory skills, ... [and] remarkable memory for specific kinds of information." (Ameli, Courchesne, Lincoln, Kaufman, Grillon, & Grillon, 1988). As educators and parents, we can use this research, to guide our teaching methods, not only in the classroom but at home as well. Using Pecs or the Picture Exchange Communication System, helps "facilitates expressive communication through pictures that teachers and students use together to help students express their wants and needs" (Bradley, Krakowski, & Thiessen). The goal of PECS is to initiate communication.

Works Cited

Ameli, R., Courchesne, E., Lincoln, A., Kaufman, A. S., Grillon, C., & Grillon, C. (1988). Visual memory processes in high-functioning individuals with autism. *Journal of Autism and Developmental Disorders*, 18(4), 601 - 615.

Bradley, L. A., Krakowski, B., & Thiessen, A. With leittle research out there it's a matter of learning what works in teaching students with deafness and autism. (G. University, Ed.) *Odyssey; Directions in Deaf Education*, 9(1), 16 - 18.