



Assessing Autism at School

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Lecture Outline

- Assessment: Causes
- Assessment: Diagnosis
- Assessment: Psycho-educational Evaluation



Causes of Autism

- While Kanner initially suggested ASD to have a biological basis, most early efforts to identify the causes of autism focused on inadequate nurturance by emotionally cold and indifferent parents.
- Today it is now accepted that the behavioral manifestations of autism are a consequence of abnormal brain development, structure, and function.



Causes

Cerebellar cortex - is the lower part of the cerebellum, located on the surface of the cerebellum. It is made up of six layers of cells. It is involved in motor control, coordination, and balance.

Basal ganglia - are a group of subcortical structures that are involved in motor control, learning, and decision-making.

Major Brain Structures Implicated in Autism

Brain stem - is the lower part of the brain, located between the cerebrum and the cerebellum. It is involved in basic life functions such as breathing and heart rate control.

Corpus callosum - is a band of nerve fibers that connects the two hemispheres of the brain. It is involved in communication between the two sides of the brain.

Stroock, M. (2004). *Autism spectrum disorders (Pervasive developmental disorders)*. [NIH Publication No. NIH-04-5511] Bethesda, MD: National Institute of Mental Health, National Institutes of Health, U.S. Department of Health and Human Services. Retrieved 12-19-04 from www.nimh.nih.gov/publicat/autism.cfm

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Causes

- While it is clear that autism has an organic etiology, the underlying causes of these neurological differences, and exactly how they manifest themselves, is much more controversial.
- The etiology of autism is complex and multifaceted; likely resulting from the interaction of genetic, neurological, and environmental factors.
- It has been suggested that some combination of...
 1. genetic predisposition(s) and
 2. gene by environmental interaction(s)
 3. result in the brain abnormalities, which in turn are the causes of the range of behaviors we currently refer to as autism spectrum behaviors.

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Causes Flowchart (read from top down)

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    graph TD
      G[Gene X Environment Interactions] --> GF[Genetic Factors]
      G --> EF[Environmental Factors]
      GF <--> EF
      GF --> NP[Neurobiological Pathologies]
      EF --> NP
      NP --> AB[ASD Behaviors]
  
```

Genetic Factors: e.g. *MECP2* mutation


Environmental Factors: e.g. air pollution, viral infection, bacteria, etc.

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Causes

- **Genetics**
 - ASD runs in families
 - Identical Twins (60 to 90 percent concordance)
 - Siblings (3 to 6% increased risk)
 - However, with the exception of Rett's Syndrome, there is no conclusive evidence that ASD is associated with a specific genetic deficit.
 - Thus, multiple genetic factors likely cause most cases of autism.
 - The variability of ASD manifestations among even identical twins argues strongly that simple models of inheritance do not account for this spectrum of disorders.


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Causes

- **Environment**
 - To the extent the environment does have a role in causing autism, it has been suggested that it does so by interacting with certain genes. In other words, a certain gene or gene combinations may generate a susceptibility to autism that is in turn triggered by a certain environmental factor or factors.
 - Environmental factors currently being considered include obstetric suboptimality, prenatal, and postnatal factors.

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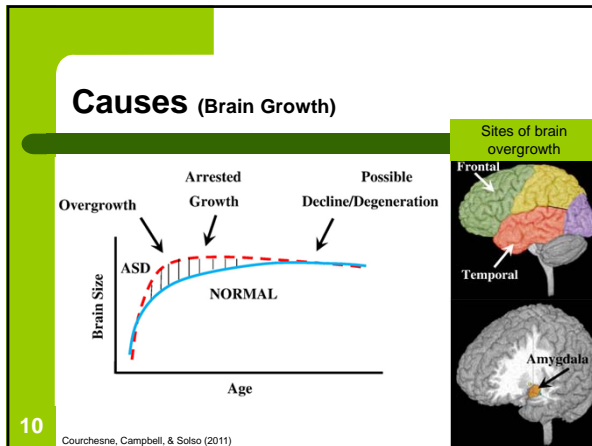
Causes

- **Neurobiology**
 - **Brain Size**
 - Rapid and excessive increase in head circumference during the first year
 - MRI data suggests brain size discriminates ASD children from typically developing peers
 - More rapid growth/larger brain size is associated with more severe ASD.

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Courchesne, Campbell, & Solso (2011)





Causes

- Neurobiology
 - Brain Structure
 - Postmortem and MRI research that has documented most major brain structures are affected. These areas include the hippocampus and amygdala, cerebellum, cerebral cortex, limbic system, corpus callosum, basal ganglia, and brain stem.
 - Individuals with autism differed from normally developing people in the size, number, and arrangement of minicolumns in the prefrontal cortex and in the temporal lobe.
 - Minicolumns are considered to be the basic anatomical and physiological unit of the brain; it takes in, processes, and then responds to stimuli. They have been compared minicolumns to information processing computer chips.

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Causes

- Neurobiology
 - Brain Chemistry
 - Abnormal serotonin levels.
 - Serotonin is involved in the formation of new neurons in the brain ("neurogenesis"), and is thought to be important in the regulation of neuronal differentiation, synaptogenesis, and neuronal migration during development.
 - Supporting the hypothesis that abnormal serotonin metabolism is common among individuals with ASD, is the finding that depletion of tryptophan (a precursor of serotonin) in the diet worsens the behavior of a substantial percentage children of children with ASD.

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Autistic Disorder Diagnostic Criteria

A. A total of six (or more) items for (1), (2), and (3), with at least two from (1), and one each for (2) and (3):

(1) qualitative impairment in social interaction, as manifested by at least two of the following:

- a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
- b) failure to develop peer relationships appropriate to developmental level
- c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by lack of showing, bringing, or pointing out objects of interest)
- d) lack of social or emotional reciprocity






Autistic Disorder Diagnostic Criteria

A. A total of six (or more) items for (1), (2), and (3), with at least two from (1), and one each for (2) and (3):

(2) qualitative impairments in communication as manifested by at least one of the following:

- a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
- b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
- c) stereotyped and repetitive use of language or idiosyncratic language
- d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level






Autistic Disorder Diagnostic Criteria

A. A total of six (or more) items for (1), (2), and (3), with at least two from (1), and one each for (2) and (3):

(3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

- a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
- b) apparently inflexible adherence to specific, nonfunctional routines or rituals
- c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
- d) persistent preoccupation with parts of objects



Autistic Disorder Diagnostic Criteria

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.



High functioning student with autism

A. <http://aolsvc.news.aol.com/sports/article.adp?id=20060223160809990007&ncid=NWS0001000000001>



Other ASDs

- Asperger's Disorder
 - The criteria for Asperger's Disorder are essentially the same as Autistic Disorder with the exception that there are no criteria for a qualitative impairment in communication.
 - In fact Asperger's criteria require "... no clinically significant general delay in language (e.g., single words used by 2 years, communicative phrases used by 3 years)".



Other ASDs

- Childhood Disintegrative Disorder (CDD)
 - Criteria are essentially the same as Autistic Disorder.
 - Difference include that in CDD there has been ...
 - (a) "Apparently normal development for at least the first 2 years after birth as manifested by the presence of age-appropriate verbal and nonverbal communication, social relationships, play, and adaptive behavior;" and that there is
 - (b) "Clinically significant loss of previously acquired skills (before age 10 years) in at least two of the following areas:
 1. expressive or receptive language;
 2. social skills or adaptive behavior;
 3. bowel or bladder control;
 4. play;
 5. motor-skills."



Other ASDs

- Rett's Disorder
 - Both Autistic Disorder and Rett's Disorder criteria include delays in language development and social engagement (although social difficulties many not be as pervasive).
 - Unlike Autistic Disorder, Rett's also includes
 - (a) head growth deceleration,
 - (b) loss of fine motor skill,
 - (c) poorly coordinated gross motor skill, and
 - (d) severe psychomotor retardation.



Symptom Onset

- Autistic Disorder is before the age of three years.
 - Before three years, their must be "delays or abnormal functioning" in at least one of the following areas: (a) social interaction, (b) social communicative language, and/or (c) symbolic or imaginative play.
- Asperger's Disorder may be somewhat later.
- Childhood Disintegrative Disorder is before the age of 10 years.
 - Preceded by at least two years of normal development.
- Rett's Disorder is before the age of 4 years.
 - Although symptoms are usually seen by the second year of life.


Developmental Course

- **Autistic Disorder:**
 - Parents may report having been worried about the child's lack of interest in social interaction since or shortly after birth.
 - In a few cases the child initially developed normally before symptom onset. However, such periods of normal development must not extend past age three.
 - Duration of Autistic Disorder is typically life long, with only a small percentage being able to live and work independently and about 1/3 being able to achieve a partial degree of independence. Even among the highest functioning adults symptoms typically continue to cause challenges.


Developmental Course

- **Asperger's Disorder:**
 - Motor delays or clumsiness may be some of the first symptoms noted during the preschool years.
 - Difficulties in social interactions, and symptoms associated with unique and unusually circumscribed interests, become apparent at school entry.
 - Duration is typically lifelong with difficulties empathizing and modulating social interactions displayed in adulthood.
- **Rett's and Childhood Disintegrative Disorders:**
 - Lifelong conditions.
 - Rett's pattern of developmental regression is generally persistent and progressive. Some interest in social interaction may be noted during later childhood and adolescence.
 - The loss of skills associated with Childhood Disintegrative Disorder plateau after which some limited improvement may occur.





Associated Features

- Asperger's Disorder is the only ASD not typically associated with some degree of mental retardation.
- Autistic Disorder is associated with moderate mental retardation. Other associated features include:
 - unusual sensory sensitivities
 - abnormal eating or sleeping habits
 - unusual fearfulness of harmless object or lack of fear for real dangers
 - self-injurious behaviors
- Childhood Disintegrative Disorder is associated with severe mental retardation.
- Rett's Disorder is associated with severe to profound mental retardation.





Age Specific Features

- Chronological age and developmental level influence the expression of Autistic Disorder.
 - Thus, assessment must be developmentally sensitive.
 - For example, infants may fail to cuddle, show indifference or aversion to affection or physical contact, demonstrate a lack of eye contact, facial responsiveness, or socially directed smiles; and a failure to respond to their parents' voices.
 - On the other hand, among young children, adults may be treated as interchangeable or alternatively the child may cling to a specific person.



Gender Related Features

- With the exception of Rett's Disorder, which occurs only among females, all other ASDs appear to be more common among males than females.
 - The rate is four to five times higher in males than in females.


Differential Diagnosis

Rett's Disorder	<ul style="list-style-type: none"> • Affects only girls • Head growth deceleration • Loss of fine motor skill • Awkward gait and trunk movement • Mutations in the MECP2 gene
Childhood Disintegrative Disorder	<ul style="list-style-type: none"> • Regression following at least two years of normal development
Asperger's Disorder	<ul style="list-style-type: none"> • Expressive/Receptive language not delayed • Normal intelligence • Later symptom onset


Differential Diagnosis

Schizophrenia	<ul style="list-style-type: none"> • Years of normal/near normal development • Symptoms of hallucinations/delusions • Loss of fine motor skill • Awkward gait and trunk movement • Mutations in the MECP2 gene
Selective Mutism	<ul style="list-style-type: none"> • Normal language in certain situations or settings • No restricted patterns of behavior
Language Disorder	<ul style="list-style-type: none"> • No severe impairment of social interaction • No restricted patterns of behavior




Differential Diagnosis

ADHD	<ul style="list-style-type: none"> • Distractible inattention related to external (not internal) stimuli • Deterioration in attention and vigilance over time
Mental Retardation	<ul style="list-style-type: none"> • Relative to developmental level, social interactions are not severely impaired • No restricted patterns of behavior
OCD	<ul style="list-style-type: none"> • Normal language/communication skills • Normal social skills
Reactive Attachment Disorder	<ul style="list-style-type: none"> • History of severe neglect and/or abuse • Social deficits dramatically remit in response to environmental change




Developmental and Health History

- Prenatal and perinatal risk factors
 - Greater maternal age
 - Maternal infections
 - Measles, Mumps, & Rubella
 - Influenza
 - Cytomegalovirus
 - Herpes, Syphilis, HIV
 - Drug exposure
 - Obstetric suboptimality



Developmental and Health History

- Postnatal risk factors
 - Infection
 - Case studies have documented sudden onset of ASD symptoms in older children after herpes encephalitis.
 - Infections that can result in secondary hydrocephalus, such as meningitis, have also been implicated in the etiology of ASD.
 - Common viral illnesses in the first 18 months of life (e.g., mumps, chickenpox, fever of unknown origin, and ear infection) have been associated with ASD.
 - Chemical exposure?
 - MMR?




Developmental and Health History

- Developmental Milestones
 - Language development
 - Concerns about a hearing loss
 - Social development
 - Atypical play
 - Lack of social interest
 - Regression



Developmental and Health History

- Medical History
 - Vision and hearing
 - Chronic ear infections (and tube placement)
 - Immune dysfunction (e.g., frequent infections)
 - Autoimmune disorders (e.g., thyroid problems, arthritis, rashes)
 - Allergy history (e.g., to foods or environmental triggers)
 - Gastrointestinal symptoms (e.g., diarrhea, constipation, bloating, abdominal pain)




Developmental and Health History

- Diagnostic History
 - ASD is sometimes observed in association other neurological or general medical conditions.
 - Mental Retardation (up to 80%)
 - Epilepsy (3-30%)
 - May develop in adolescence
 - EEG abnormalities common even in the absence of seizures
 - Genetic Disorders
 - 10-20% of ASD have a neurodevelopmental genetic syndrome
 - Tuberous Sclerosis (found in 2-4% of children with ASD)
 - Fragile X Syndrome (found in 2-8% of children with ASD)

Developmental and Health History


- Family History
 - Epilepsy
 - Mental Retardation
 - Genetic Conditions
 - Tuberous Sclerosis Complex
 - Fragile X Syndrome
 - Schizophrenia
 - Anxiety
 - Depression
 - Bipolar disorder
 - Other genetic condition or chromosomal abnormality



Developmental and Health History


- Autism Diagnostic Evaluation:
 - Health, Family, Developmental, & Behavioral History Interview Form
 - Available

http://www.csus.edu/indiv/b/brocks/Courses/EDS%20243/student_materials.htm



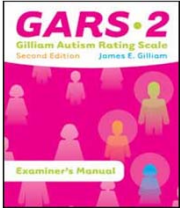
Diagnostic Assessments

- Indirect Assessment
 - Interviews and Questionnaires/Rating Scales
 - Easy to obtain
 - Reflect behavior across settings
 - Subject to interviewee/rater bias
- Direct Assessment
 - Behavioral Observations
 - More difficult to obtain
 - Reflect behavior within limited settings
 - Not subject to interviewee/rater bias




Diagnostic Evaluation: Indirect Assessment

- The *Gilliam Autism Rating Scale 2nd ED.*
Gilliam, J. E. (2005). *Gilliam autism rating scale (2nd ed.)*.
Austin, TX: Pro-Ed.




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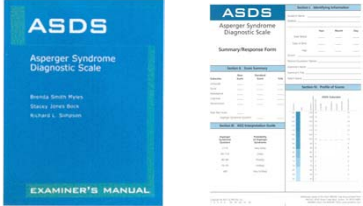
Diagnostic Evaluation: Indirect Assessment

- The *Gilliam Autism Rating Scale, 2nd Ed. (GARS-2)*
 - New normative group: 1,107 individuals ages 3 to 22 reported to have autism
 - 42 items, 3 Subscales and an Autism Index (AI) Score
 - Subscales: Social Interaction, Communication, and Stereotyped Behaviors assess current behavior
 - A structured parent interview form replaces the Early Development subscale to investigate parent perceptions and observations.
 - GARS-2 items have been rewritten for clarity and operationally defined in manual.
 - New guidelines for interpreting scales and index.
 - Includes "Instructional Objectives for Children Who Have Autism" to use GARS-2 for developing goals.



Indirect Assessment: Rating Scales

- The *Asperger Syndrome Diagnostic Scale (ASDS)*




The image shows the cover of the 'ASDS Examiner's Manual' and a 'Sample Response Form' for the Asperger Syndrome Diagnostic Scale. The manual cover is blue and white, and the response form is a grid with columns for 'ASDS', 'ASD', and 'ADHD' and rows for various items.

Indirect Assessment: Rating Scales

- The *Asperger Syndrome Diagnostic Scale (ASDS)*
 - Age range 5-18.
 - 50 yes/no items.
 - 10 to 15 minutes.
 - Normed on 227 persons with Asperger Syndrome, autism, learning disabilities, behavior disorders and ADHD.
 - ASQs are classified on an ordinal scale ranging from "Very Low" to "Very High" probability of autism. A score of 90 or above specifies that the child is "Likely" to "Very Likely" to have Asperger's Disorder.

Indirect Assessment: Interview


- The *Autism Diagnostic Interview-Revised (ADI-R)*
 - Rutter, M., Le Couteur, A., & Lord, C. (2003). *Autism diagnostic interview-revised (ADI-R)*. Los Angeles, CA: Western Psychological Services.



The image shows the cover of the 'ADI-R Autism Diagnostic Interview-Revised' manual, which is blue and white.


Indirect Assessment: Interview

- The *Autism Diagnostic Interview-Revised (ADI-R)*
 - Semi-structured interview
 - Designed to elicit the information needed to diagnose autism.
 - Primary focus is on the three core domains of autism (i.e., language/communication; reciprocal social interactions; and restricted, repetitive, and stereotyped behaviors and interests).
 - Requires a trained interviewer and caregiver familiar with both the developmental history and the current behavior of the child.
 - The individual being assessed must have a developmental level of at least two years.





Indirect Assessment: Interview

- The *Autism Diagnostic Interview-Revised (ADI-R)*
 - The 93 items that comprise this measure takes approximately 90 to 150 minutes to administer.
 - Solid psychometric properties.
 - Works very well for differentiation of ASD from nonautistic developmental disorders in clinically referred groups, provided that the mental age is above 2 years.
 - False positives very rare,
 - Reported to work well for the identification of Asperger's Disorder.
 - However, it may not do so as well among children under 4 years of age.
 - According to Klinger and Renner (2000): "The diagnostic interview that yields the most reliable and valid diagnosis of autism is the *ADI-R*" (p. 481).




Direct Assessments: ADOS

- The *Autism Diagnostic Observation Schedule (ADOS)*
 - Lord, C., Rutter, M., Di Lavore, P. C., & Risis, S. (). *Austims diagnostic observation schedule*. Los Angeles, CA: Western Psychological Services.


Direct Assessments: ADOS

- A standardized, semi-structured, interactive play assessment of social behavior.
 - Uses "planned social occasions" to facilitate observation of the social, communication, and play or imaginative use of material behaviors related to the diagnosis of ASD.
- Consists of four modules.
 - Module 1 for individuals who are preverbal or who speak in single words.
 - Module 2 for those who speak in phrases.
 - Module 3 for children and adolescents with fluent speech.
 - Module 4 for adolescents and adults with fluent speech.



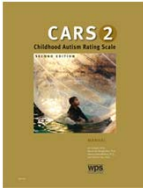
Direct Assessments: ADOS

- Administration requires 30 to 45 minutes.
- Because its primary goal is accurate diagnosis, the authors suggest that it may not be a good measure of treatment effectiveness or developmental growth (especially in the later modules).
- Psychometric data indicates substantial interrater and test-retest reliability for individual items, and excellent interrater reliability within domains and internal consistency.
- Mean test scores were found to consistently differentiate ASD and non-ASD groups.




**Diagnostic Evaluation:
Direct Assessment**

- The *Childhood Autism Rating Scale, 2nd ed.* (CARS2)
 - Schopler, E., Van Bourgondien, M. E., Wellman, G. J., & Love, S. R. (2010). *The Childhood Autism Rating Scale (CARS)*. Los Angeles, CA: Western Psychological Services.




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**Diagnostic Evaluation:
Direct Assessment**


- Consists of two 15-item rating scales completed by the practitioner and a Parent/Caregiver Questionnaire.
 - The Standard Version Rating Booklet (CARS2-ST) used with children younger than 6 years of age and those with communication difficulties or below-average cognitive ability. 15 items duplicate those on the original CARS.
 - The High-Functioning Version Rating Booklet (CARS2-HF) is used for assessing verbally fluent children and youth, 6 years of age and older, with average or above IQ. 15 items reflect characteristics of higher functioning autism.
 - The Questionnaire for Parents or Caregivers (CARS2-QPC) is an unscored questionnaire designed to obtain pertinent developmental information from parents or caregivers.

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- Assessment: Psycho-educational Evaluation




Psycho-educational Assessment

- Purposes
 - Develop goals and objectives (which are similar to those developed for other children with special needs).
 - To make progress in social and cognitive proficiencies, verbal and nonverbal communication abilities, and adaptive skills.
 - To minimize behavioral problems.
 - To generalize competencies across multiple environments.




Psycho-educational Assessment

- Principles
 - Developmentally based assessments provide a source of information for program planning.
 - Need to understand child's strengths and weaknesses across developmental areas. Children's profiles are heterogeneous.
 - Children with autism present particular challenges and programming needs.




Psycho-educational Assessment

- Principles
 - Assess multiple areas of functioning.
 - Recognize variability of skills.
 - Recognize variability of behavior across settings and consider the impact of a social disability on behavior.
 - Examine functional adjustment/adaptive skills and consider behavioral difficulties as they affect daily functioning and suggested interventions.
 - Maintain a developmental perspective.




Testing Accommodations

- The core deficits of autism can significantly impact test performance.
 - Impairments in communication may make it difficult to respond to verbal test items and/or generate difficulty understanding the directions that accompany nonverbal tests.
 - Impairments in social relations may result in difficulty establishing the necessary joint attention.
- Examiners must constantly assess the degree to which tests being used reflect symptoms of autism and not the specific targeted abilities (e.g., intelligence, achievement, psychological processes).




Testing Accommodations

- It is important to acknowledge that the autistic population is very heterogeneous.
- There is no one set of accommodations that will work for every student with autism.
- It is important to consider each student as an individual and to select specific accommodations to meet specific individual student needs.



Testing Accommodations


- Prepare the student for the testing experience.
- Place the testing session in the student's daily schedule.
- Minimize distractions.
- Make use of pre-established physical structures and work systems.
- Make use of powerful external rewards.
- Carefully pre-select task difficulty.
- Modify test administration and allow nonstandard responses.



Powerful Testing Reinforcers


<ul style="list-style-type: none"> • Bubbles • Tickle • Vibrating toys (Bumble Ball, Squiggle Writer) • Tape • Spinning Toys (Top) • Light-up things (flashlight) • Anything Tomas the Tank Engine 	<ul style="list-style-type: none"> • Slinky • Mini-fan • Squishy toys (stress ball, Koosh) • Noisy toys (speak-n-say) • Gross Motor Stimulators (spinning or rocking office chair) • Mirror
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From Vanessa Gatewood



Behavioral Observations


- Students with ASD are a very heterogeneous group, and in addition to the core features of ASD, it is not unusual for them to display a range of behavioral symptoms including hyperactivity short attention span impulsivity, aggressiveness, self-injurious behavior, and (particularly in young children) temper tantrums.
- Observation of the student with ASD in typical environments will also facilitate the evaluation of test taking behavior.
- Observation of test taking behavior may also help to document the core features of autism.



Choice of Assessment Instruments


- Child's level of verbal abilities.
- Ability to respond to complex instructions and social expectations.
- Ability to work rapidly.
- Ability to cope with transitions during test activities.

- In general, children with autism will often perform best when assessed with tests that require less social engagement and verbal mediation.




Cognitive Functioning

- Assessment of cognitive function is essential given that, with the exception of Asperger's Disorder, a significant percentage (as high as 80 percent) of students with ASD will also be mentally retarded.
- Severity of mental retardation can also provide some guidance regarding differential diagnosis among ASDs.
- IQ is associated with adaptive functioning, the ability to learn and acquire new skills, and long-term prognosis.
 - Thus, level of cognitive functioning has implications for determining how restrictive the educational environment will need to be.




Cognitive Functioning

- A powerful predictor of ASD symptom severity.
- However, given that children with ASD are ideally first evaluated when they are very young, it is important to acknowledge that it is not until age 5 that childhood IQ correlates highly with adult IQ.
 - Thus, it is important to treat the IQ scores of the very young child with caution when offering a prognosis, and when making placement and program planning decisions.
 - However, for school aged children it is clear that the appropriate IQ test is an "...excellent predictor of a student's later adjustment and functioning in real life" (Frith, 1989, p. 84).




Cognitive Functioning

- Regardless of the overall level of cognitive functioning, it is not unusual for the student being tested to display an uneven profile of cognitive abilities.
- Thus, rather than simply providing an overall global intelligence test score, it is essential to identify these cognitive strengths and weaknesses.
- At the same time, however, it is important to avoid the temptation to generalize from isolated or "splinter" skills when forming an overall impression of cognitive functioning, given that such skills may significantly overestimate typical abilities.




Cognitive Functioning

- Selection of specific tests is important to obtaining a valid assessment of cognitive functioning (and not the challenges that are characteristic of ASD).
- The *Wechsler* and *Stanford-Binet* scales are appropriate for the individual with spoken language.



Cognitive Functioning

- On the other hand, for students who have more severe language delays measures that minimize verbal demands are recommended (e.g., the *Leiter International Performance Scale – Revised*, *Raven Coloured Progressive Matrices*)



IQs of Children Aged 8 with ASD


State	Gender	Cognitively Impaired (<70)	Borderline IQ (71-85)	Average or above IQ (>85)
Alabama	Male	45%	35%	20%
	Female	55%	25%	20%
Arizona	Male	40%	25%	35%
	Female	50%	20%	30%
Colorado	Male	30%	35%	35%
	Female	30%	30%	40%
Georgia	Male	40%	20%	40%
	Female	35%	25%	40%
North Carolina	Male	40%	20%	40%
	Female	50%	15%	35%
South Carolina	Male	50%	20%	30%
	Female	60%	15%	25%

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*Sites with psychometric test data on 75% of identified cases of ASD were included. <http://www.cdc.gov/ncbddd/autism/data.htm>


Functional/Adaptive Behavior

- Given that diagnosing mental retardation requires examination of both IQ and adaptive behavior, it is also important to administer measures of adaptive behavior when assessing students with ASD.
- Other uses of adaptive behavior scales when assessing students with ASD are:
 - Obtain measure of child's typical functioning in familiar environments, e.g. home and/or school.
 - Target areas for skills acquisition.
 - Identifying strengths and weaknesses for educational planning and intervention
 - Documenting intervention efficacy
 - Monitoring progress over time.




Functional/Adaptive Behavior

- Profiles of students with ASD are unique.
 - Individuals with only mental retardation typically display flat profiles across adaptive behavior domains
 - Students with ASD might be expected to display relative strengths in daily living skills, relative weaknesses in socialization skills, and intermediate scores on measures of communication abilities.
- To facilitate the use of the *Vineland Adaptive Behavior Scales* in the assessment of individuals with ASD, Carter et al. (1998) have provided special norms for groups of individuals with autism




Functional/Adaptive Behavior

- Other tools with subtests for assessing functional/adaptive behaviors:
 - Brigance Inventory of Early Development.
 - Early Learning Accomplishment Profiles.
 - Scales of Independent Behavior-Revised.
 - AAMD Adaptive Behavior Scale.
 - Learning Accomplishments Profile.
 - Developmental Play Assessment Instrument.




Social Functioning

- Tools that provide an overview of social functioning (i.e., social needs and current repertoire)
 - Vineland Adaptive Behavior Scales.
 - Scales of Independent Behavior-Revised.
- More specific information may be obtained from:
 - Preschool curriculum assessments that contain social subscales.
 - Battelle Developmental Inventory.
 - Learning Accomplishment Profile.
 - Michigan Scales.
 - Assessment, Evaluation, and Programming System.




Language Functioning

- *Peabody Picture Vocabulary Test – Third Edition*
- *Expressive One-Word Picture Vocabulary Test*
 - When interpreting the results of such measures, it is important to keep in mind that these tests may overestimate language abilities as they do not require sentence production or comprehension, nor do they assess social language or pragmatics.
 - Also, in many higher functioning students with ASD receptive language may be lower than expressive language.




Psychological Processes

- Helps to further identify learning strengths and weakness.
- Depending upon age and developmental level, traditional measures of such processes may be appropriate.
- It would not be surprising to find relatively strong rote, mechanical, and visual-spatial processes; and deficient higher-order conceptual processes, such as abstract reasoning.
- While IQ test profiles should never be used for diagnostic purposes, it would not be surprising to find the student with Autistic Disorder to perform better on non-verbal (visual/spatial) tasks than tasks that require verbal comprehension and expression.
 - The student with Asperger's Disorder may display the exact opposite profile.




Academic Achievement

- Assessment of academic functioning will often reveal a profile of strengths and weaknesses.
 - It is not unusual for students with ASD be hyperverbal/hyperlexic, while at the same time having poor comprehension and difficulties with abstract language. For others, calculation skills may be well developed, while mathematical concepts are delayed.
- For students functioning at or below the preschool range and with a chronological age of 6 months to 7 years, the *Psychoeducational Profile – Revised* may be an appropriate choice.
- For older, higher functioning students, the *Woodcock-Johnson Tests of Achievement* and the *Wechsler Individual Achievement Test* would be appropriate tools.




Emotional Functioning

- 65% present with symptoms of an additional psychiatric disorder such as AD/HD, oppositional defiant disorder, obsessive-compulsive disorder and other anxiety disorders, tics disorders, affective disorders, and psychotic disorders.
- Given these possibilities, it will also be important for the school psychologist to evaluate the student's emotional/behavioral status.
- Traditional measures such as the *Behavioral Assessment System for Children* would be appropriate as a general purpose screening tool, while more specific measures such as *The Children's Depression Inventory* and the *Revised Children's Manifest Anxiety Scale* would be appropriate for assessing more specific presenting concerns.



Concluding Comments

- The increasing incidence of ASDs, combined with the importance of early identification create the need for school psychologists to become better prepared to identify these disorders.
- With appropriate intervention there is hope that the students will be able to achieve significant degrees of independence. These interventions, however, can only be provided if the student with ASD is identified.
- It is hoped that this paper has provided information that will assist school psychologists in the important identification tasks.
- Sample [Psycho-educational Report recommendations](#)
- <http://www.csus.edu/indiv/b/brocks/Courses/EDS%20243/Reader%20Material/Autism/Sample%20Psycho-ed%20recommendations.doc>
- http://onegoodmove.org/1gm/1gmarchive/2006/02/hot_as_a_pistol.html



Next Week

- Read Thomas & Grimes Chapters 86 & 87.
- Recommended readings:
 - CDE (1997) & CDE (2000)
- Deaf/Hearing Impaired group project/lecture due.
- Blind/Visually Impaired group project/lecture due.

