

WORKSHOP G-6

The Key to Understanding Autism: The Latest in Brain Development and Information Processing

CARA DAILY, PhD

Daily Behavioral Health and Building Behaviors Autism Center

SUGGESTED AUDIENCE: *Adult Service Provider, Employer, Transition Coordinator; Clinical & School Psychologists; Educators & School Administrators; Medical (Physicians, Nurses & Physician Assistants); Occupational Therapists; Parents & Family Members; Self-Advocates; Speech-Language Pathologists*

TRACK: *Adult Services*

Workshop Abstract:

The amount of new research on brain development and autism has increased significantly in the past five years. There is now evidence to support which parts of the brain are enhanced and impaired in individuals with autism. This research supports the use of techniques that have been used for years with this population, including the picture exchange system and applied behavioral analysis. Participants will leave this workshop with a clear understanding of how the brain functions and strategies to increase communication and information processing with individuals with autism. The presenter will provide a hands-on exercise, based on her theory of understanding autism, which integrates research in brain development and applied behavioral analysis.

Session Objectives:

1. Participants will be able to discover how the brain of an individual with autism works based on the latest research.
2. Participants will be able to describe the connection between information processing deficits and autism.
3. Participants will be able to engage in hands-on exercises to understand the difficulties individuals with autism experience during tasks.

Cara Daily, PhD

is a licensed pediatric psychologist with over 20 years of clinical, research, and teaching experience specializing in autism. Cara is the president and training director of Daily Behavioral Health, a leading behavioral health provider in northeast Ohio specializing in assessment, consultation, and treatment of autism, anxiety, and disruptive behavior disorders. She is also the founder and executive director of the Building Behaviors Autism Center, which has received numerous grants to provide free and reduced cost Applied Behavior Analysis services to individuals with autism. Cara received her PhD in School Psychology at the University of South Carolina, and completed an internship in Pediatric Psychology at the Children's Hospital of Philadelphia and a postdoctoral fellowship in Pediatric Psychology at the Cleveland Clinic.

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AUTISM SPECTRUM DISORDER CONFERENCE

Milestones **AUTISM Resources**

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Speaker Disclosure Information

Cara Daily, PhD is a Training Director and Executive Director at Daily Behavioral Health and Building Behaviors Autism Center and is speaking at the Conference on a voluntary basis. Dr. Daily receives salary and consulting fees from Daily Behavioral Health, Building Behaviors Autism Center, and Rethink Autism for employment and consulting. She has no relevant non-financial relationships to disclose.

Building Behaviors
Autism Center
www.buildingbehaviorscenter.org

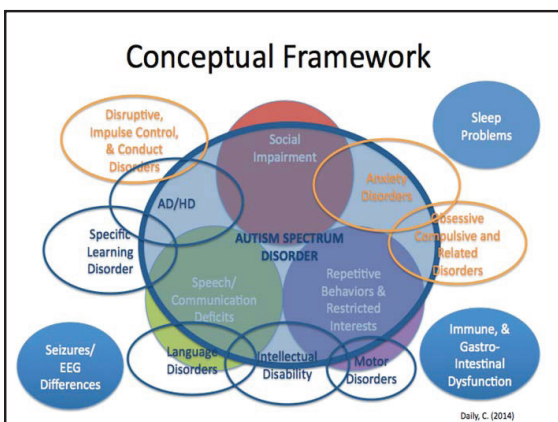


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Outline

- A. Conceptualization of Autism
- B. Etiology
- C. Brain Development and Function
- D. Information Processing Model
- E. Key Theory to Autism
- F. Integrating Strategies



Autism Spectrum Disorder (ASD): Prevalence & Etiology

- 1 in 6 children diagnosed with a neurodevelopmental disorder.
- 1 in 68 children diagnosed with autism.
- Growing at rate of 30%
- 5 times more common in boys
- Biologically based neurodevelopmental disorder
- No known etiology?
- Highly heritable

(CDC, 2014; National Center on Birth Defects and Developmental Disabilities, 2006)

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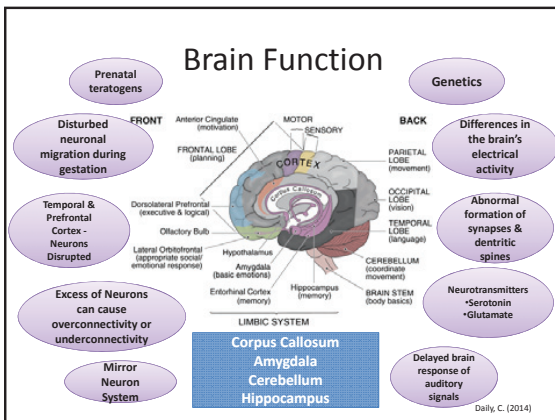
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Autism Spectrum Disorder (ASD): Etiology

- Genetics
 - 70% concordance in monozygotic twins, 90% if a broader phenotype is used (Bailey and colleagues, 1995).
 - Rate of autism among siblings of a child with ASD is 2-18% (Rutter, 1999; Ozonoff and colleagues, 2011).
 - X, 2, 3, 7 (7q31-35) – *speech deficits*, 15, 17, and 22 – most promising in the research (see Muhle and colleagues, 2004 for a review).
 - Maternally derived 15q duplications common (15q11-q13 region – Prader-Willi, Angelman Syndrome, MR).
 - X-linked gene MECP2 mutations (encodes methyl-CpG binding protein-2) – Rett's Disorder.
 - <10-15% associated with medical condition or known syndrome (e.g., Fragile X, Neurocutaneous disorders, PKU, Fetal Alcohol Syndrome, Angelman Syndrome, Rett Syndrome, Smith-Lemli-Opitz syndrome) (Frombonne & Chakrabarti, 2001; Johnson, Myers, & the Council on Children with Disabilities, 2007).

Autism Spectrum Disorder (ASD): Etiology

- Correlation with maternal and paternal age (Croen and colleagues, 2007; See Kolevzon and colleagues, 2007, for a review).
- Teratogens related to autism risk in first trimester (see Arndt, Strodgell and Rodier, 2004, for a review):
 - Maternal rubella infection
 - Ethanol
 - Thalidomide
 - Valproic acid
 - Misoprostol



Brain Function: What It Means

- Intact or Enhanced Abilities:
 - Basic attention
 - Elementary motor
 - Sensory perception
 - Simple memory
 - Formal language (phonological and grammatical elements)
 - Rule-learning
 - Visuospatial processing

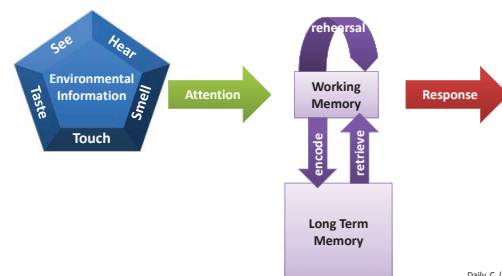
(Williams & Minshew, 2010)

Brain Function: What It Means

- Deficits:
 - Executive functioning
 - Integrative processing
 - Complex sensory, motor, memory, and language skills
 - Concept and Prototype Formation (facial recognition, emotional expression, organization of information into different categories, detecting patterns)
 - Differential processing of human speech and the integration of complex auditory information
 - Processes auditory information in the right-hemisphere (visually) instead of left-hemisphere

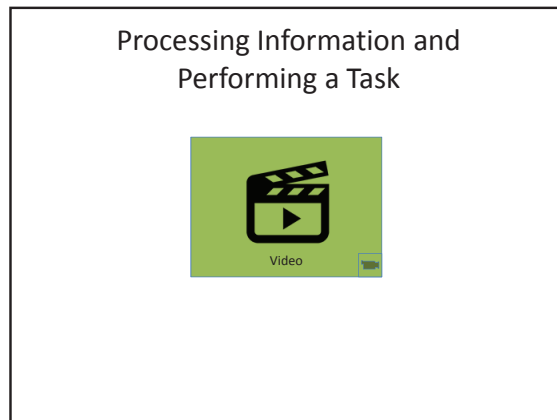
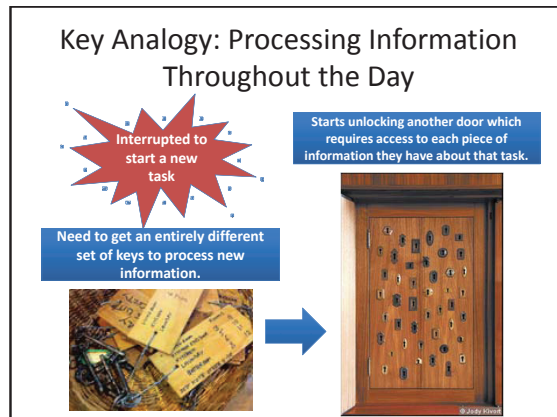
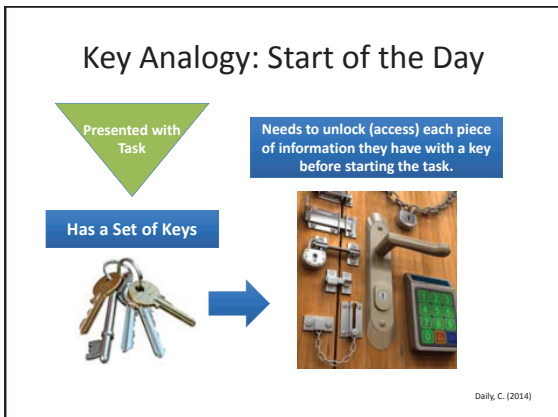
(Williams & Minshew, 2010)

Information Processing



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- ### Integrating Strategies
- Eliminate distractions.
 - Focus on proximity.
 - Identify the goal and prompt.
 - Visuals/PECS
 - Assess your verbal and non-verbal communication.
 - Allow time for processing.
 - Provide missing information.
 - Make it positive.