

12 Hour Autism Spectrum Masterclass

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Speaker Disclosure Information

Dr. Cara Daily is a licensed pediatric psychologist and Board Certified Behavior Analyst with Daily Behavioral Health and the Building Behaviors Autism Center and a consultant for Rethink Autism. She has no other relevant financial or non-financial relationships to disclose.

APA Disclosure

Materials that are included in this course may include interventions and modalities that are beyond the authorized practice of mental health professionals. As a licensed professional, you are responsible for reviewing the scope of practice, including activities that are defined in law as beyond the boundaries of practice in accordance with and in compliance with your professions standards.

Limitations of Research and Potential Risk

Most of the behavioral approaches, such as techniques of Applied Behavioral Analysis, discussed in the course are considered evidence-based as the literature consists of numerous controlled studies employing single-case experimental designs, consecutive controlled case-series studies, controlled group studies, and some randomized controlled trials. Other techniques presented are empirically supported or promising in the literature (e.g., Cognitive-behavioral therapy, Social Stories, Social Skills Programs, Social Autopsies, Exposure Response Prevention), although several studies have limitations due to small sample sizes and require more research.

Limitations of Research and Potential Risk

- The cost of certain behavioral interventions can be high
- Generalization of behaviors will not occur if not done across setting and people
- Interventions need to be individualized to the client
- Changes in behaviors may cause more initial stress
- Addressing behaviors alone can mask other problems

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www.buildingbehaviorscenter.org



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Our Dogs



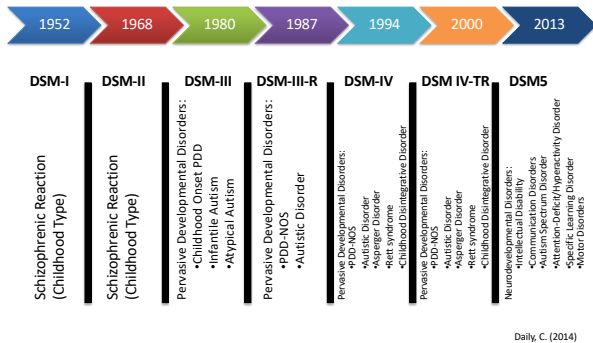
Session 1: Understand Autism Spectrum Disorder

- Latest research in ASD brain development
- Comorbid disorders and symptoms
- Enhanced versus impaired abilities
- Information processing: Typical brain versus brain with autism
- Experience how an individual with ASD processes tasks
- Sensory Overload and Self-Stimulatory Behaviors

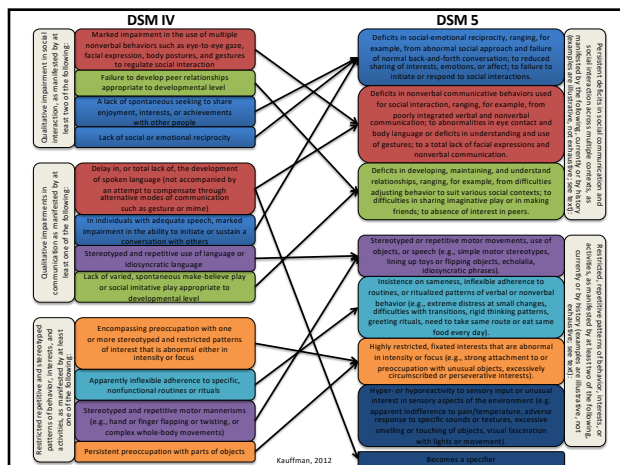


Brunner, D. (2010)

History of DSM and Autism

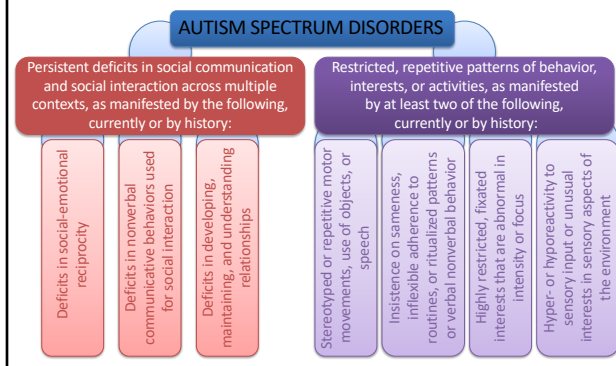


Daily, C. (2014)



Kauffman, 2012

DSM 5 Diagnostic Criteria



DSM 5 Diagnostic Criteria: Autism Spectrum Disorder

- Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
- Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

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DSM 5 Diagnostic Criteria: Autism Spectrum Disorder

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

DSM 5 Diagnostic Criteria: Autism Spectrum Disorder

Specify if:

With or without accompanying intellectual impairment

With or without accompanying language impairment

Associated with a known medical or genetic condition or environmental factor

(Coding note: Use additional code to identify the associated medical or genetic condition.)

Associated with another neurodevelopmental, mental, or behavioral disorder

(Coding note: Use additional code[s] to identify the associated neurodevelopmental, mental, or behavioral disorder[s].)

With catatonia (refer to the criteria for catatonia associated with another mental disorder, pp. 119-120, for definition) (Coding note: Use additional code 293.89 [F06.1] catatonia associated with autism spectrum disorder to indicate the presence of the comorbid catatonia.)

DSM 5 Diagnostic Criteria: Autism Spectrum Disorder

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 "Requiring very substantial support"	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning; very limited initiation of social interactions; and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 "Requiring substantial support"	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and how has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 "Requiring support"	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to- and- fro conversation with others fails, and whose attempts to make	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

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DSM 5 Diagnostic Criteria: Social (Pragmatic) Language Disorder

- A. Persistent difficulties in the social use of verbal and nonverbal communication as manifested by all of the following:
1. Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.
 2. Impairment of the ability to change communication to match context or the needs of the listener, such as speaking differently in a classroom than on the playground, talking differently to a child than to an adult, and avoiding use of overly formal language.
 3. Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signals to regulate interaction.
 4. Difficulties understanding what is not explicitly stated (e.g., making inferences) and nonliteral or ambiguous meanings of language (e.g., idioms, humor, metaphors, multiple meanings that depend on the context for interpretation).

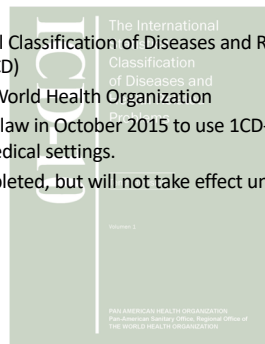
DSM 5 Diagnostic Criteria: Social (Pragmatic) Language Disorder

- B. The deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance, individually or in combination.
- C. The onset of the symptoms is in the early developmental period (but deficits may not become fully manifest until social communication demands exceed limited capacities).
- D. The symptoms are not attributable to another medical or neurological condition or to low abilities in the domains of word structure and grammar, and are not better explained by autism spectrum disorder, intellectual disability (intellectual developmental disorder), global developmental delay, or another mental disorder.

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ICD-10 and ICD-11

- International Classification of Diseases and Related Health Problems (ICD)
- Created by World Health Organization
- Required by law in October 2015 to use ICD-10 for diagnosis coding in medical settings.
- ICD-11 completed, but will not take effect until January 2022 or later.



ICD-10

Diagnostic Criteria for Pervasive Developmental Disorders, Atypical autism, and Asperger syndrome:

- F84 Pervasive Developmental Disorders
- F84.0 Childhood autism
- F84.1 Atypical autism
- F84.2 Rett syndrome
- F84.3 Other childhood disintegrative disorder
- F84.4 Overactive disorder associated with mental retardation and stereotyped movements
- F84.5 Asperger syndrome
- F84.8 Other pervasive developmental disorders
- F84.9 Pervasive developmental disorder, unspecified

Other Developmental Disorders of Speech and Language (F80.89)

- Equivalent to DSM-5 Social (Pragmatic) Language Disorder

ICD-10

F84.0 Childhood autism

- A type of pervasive developmental disorder that is defined by: (a) the presence of abnormal or impaired development that is manifest before the age of three years, and (b) the characteristic type of abnormal functioning in all the three areas of psychopathology: reciprocal social interaction, communication, and restricted, stereotyped, repetitive behaviour. In addition to these specific diagnostic features, a range of other nonspecific problems are common, such as phobias, sleeping and eating disturbances, temper tantrums, and (self-directed) aggression.

ICD-II

"Autism spectrum disorder is characterized by persistent deficits in the ability to initiate and to sustain reciprocal social interaction and social communication, and by a range of restricted, repetitive, and inflexible patterns of behaviour and interests. The onset of the disorder occurs during the developmental period, typically in early childhood, but symptoms may not become fully manifest until later, when social demands exceed limited capacities. Deficits are sufficiently severe to cause impairment in personal, family, social, educational, occupational or other important areas of functioning and are usually a pervasive feature of the individual's functioning observable in all settings, although they may vary according to social, educational, or other context. Individuals along the spectrum exhibit a full range of intellectual functioning and language abilities."

ICD-II

Autism spectrum disorder without disorder of intellectual development and with mild or no impairment of functional language.

- All definitional requirements for autism spectrum disorder are met, intellectual functioning and adaptive behaviour are found to be at least within the average range (approximately greater than the 2.3rd percentile), and there is only mild or no impairment in the individual's capacity to use functional language (spoken or signed) for instrumental purposes, such as to express personal needs and desires.

ICD-II

Autism spectrum disorder with disorder of intellectual development and with mild or no impairment of functional language.

- All definitional requirements for both autism spectrum disorder and disorder of intellectual development are met and there is only mild or no impairment in the individual's capacity to use functional language (spoken or signed) for instrumental purposes, such as to express personal needs and desires.

ICD-II

Autism spectrum disorder without disorder of intellectual development and with impaired functional language.

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Autism spectrum disorder with disorder of intellectual development and with impaired functional language.

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ICD-II

Autism spectrum disorder without disorder of intellectual development and with absence of functional language.

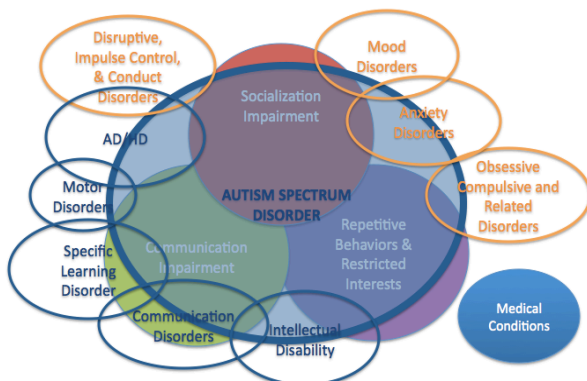
- All definitional requirements for autism spectrum disorder are met, intellectual functioning and adaptive behaviour are found to be at least within the average range (approximately greater than the 2.3rd percentile), and there is complete, or almost complete, absence of ability relative to the individual's age to use functional language (spoken or signed) for instrumental purposes, such as to express personal needs and desires.

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Conceptual Framework



Autism Spectrum Disorders (ASD): Prevalence & Etiology

- 1 in 6 children diagnosed with a neurodevelopmental disorder
- 1 in 59 children diagnosed with autism
- Growing at rate of 30 percent
- 5 times more common in boys
- Biologically based neurodevelopmental disorder
- No known etiology?
- Highly heritable

(CDC, 2018; National Center on Birth Defects and Developmental Disabilities, 2006)

Autism Spectrum Disorders (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)

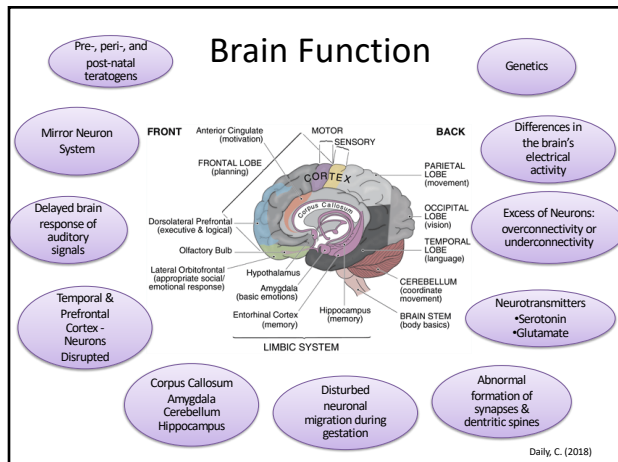
Autism Spectrum Disorders (ASD): Etiology

- Correlation with Maternal and Paternal Age (Croen and colleagues, 2007; See Kolevzon and colleagues, 2007, for a review)
- Prenatal 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

Autism Spectrum Disorders (ASD): Etiology

- Perinatal factors, such as low birth weight, abnormally short gestation length, and birth asphyxia
- Post-natal factors associated with ASD include autoimmune disease, viral infection, hypoxia, mercury toxicity

— (for more information, see review by Park and Colleagues, 2016).



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

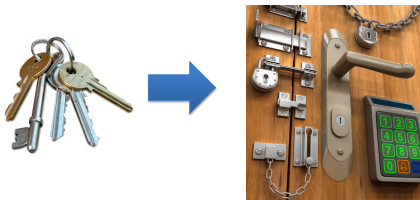
- Deficits:
 - Integrative processing
 - Complex sensory, motor, memory, and language skills
 - Executive functioning
 - Concept and Prototype Formation (facial recognition, emotional expression, organization of information into different categories, detecting patterns)
 - Differential processing of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

(Williams & Minshew, 2010)

Key Analogy: Start of the Day

Presented with task

Needs to unlock (access) each piece of information they have with a key before starting the task



Key Analogy: Processing Information Throughout the Day



Need to get an entirely different set of keys to process new information.



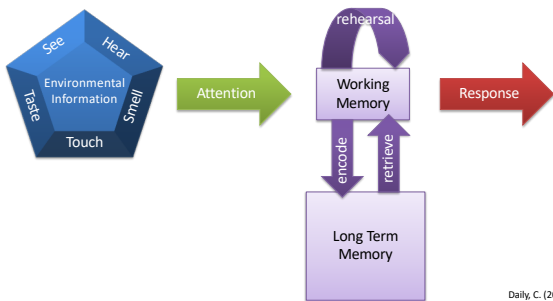
Starts unlocking another door which requires access to each piece of information they have about that task.



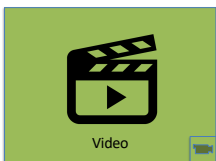
Key Analogy: End of the Day



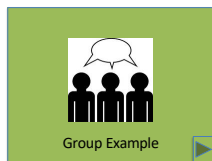
Information Processing



Understanding Sensory Difficulties



Video



Group Example

“Step Into the Shoes” of a Child with Autism

Groups of Five

1. Identified person with autism
2. Sits behind #1 and moves edge of paper up and down back of neck of #1
3. Sits next to #1 and hums/sings a song into #1’s ear.
4. Sits on other side of #1 and talks to #1 about what he/she ate for lunch and what it tasted and smelled like.
5. Sits in front of #1 and claps hands repeatedly in front of #1’s eyes

Adapted from S. Shore

Session 2: Screening and Assessment

- Comprehensive diagnostic tools and evaluations
- Modified checklists for infants and toddlers
- Accurately interpret reports to guide intervention planning
- Ethical challenges in assessment of ASD

Screening: Red Flags

- American Academy of Pediatrics recommends autism screenings at 18 and 24 months
- The American Academy of Neurology and Child Neurology Society Red Flags:
 - No babbling or pointing or other gesture by 12 months
 - No single words by 16 months
 - No 2-word spontaneous (not echolalic) phrases by 24 months
 - Loss of language or social skills at any age

Screening: Red Flags

- Lack of appropriate gaze
- Lack of warm, joyful expressions with gaze
- Lack of turn taking patterns between infant and parent
- Lack of recognition of parent voice
- Lack of response to vocalizations (e.g., name), but very aware of environmental sounds
- Delayed onset of babbling past 9 mo.
- Decrease or absent use of prespeech gestures (e.g., pointing, waving, showing)
- Lack of expressions such as “oh oh” or “huh”
- Lack of interest or response of any kind to neutral statements

(Johnson, Myers, & the Council on Children with Disabilities, 2007)

Screening Tools

- General Developmental Screenings
 - Communication and Symbolic Behavior Scales (CSBS)
 - Ages and Stages Questionnaires (ASQ-3)
 - Parents’ Evaluation of Developmental Status (PEDS)

Screening Tools

- Autism Screenings
 - Modified Checklist for Autism in Toddlers (MCHAT –R/F)
 - Screening Tool for Autism in Toddlers and Young Children (STAT)
 - <http://vkc.mc.vanderbilt.edu/vkc/traid/stat/testkit/>
- High Functioning Autism Screenings
 - Autism Spectrum Screening Questionnaire (ASSQ)
 - [http://scatn.med.sc.edu/screening/Ehlers-ASSQ-1999\[1\].pdf](http://scatn.med.sc.edu/screening/Ehlers-ASSQ-1999[1].pdf)
 - Autism-Spectrum Quotient
 - [http://scatn.med.sc.edu/screening/Baron-CohenAQ-2006\[1\].pdf](http://scatn.med.sc.edu/screening/Baron-CohenAQ-2006[1].pdf)
 - Australian Scale for Asperger's Syndrome
 - <http://www.aspergersyndrome.org/Articles/The-Australian-Scale-for-Asperger-s-Syndrome.aspx>
 - Childhood Asperger Syndrome Test (CAST)

Comprehensive Evaluation

- Full health, developmental and behavioral histories
- Complete medical exam
- Developmental Evaluation
 - Cognitive Functioning
 - Academic Functioning
 - Behavior Rating Scales
 - Adaptive Behavior Functioning
 - Autism Spectrum Rating Scales
 - Play Based Assessment
 - Speech/Language Assessment

Evaluation: Autism

- Psychologist – Can Assess (sample assessment measures):
 - Cognitive Functioning (e.g., Wechsler Intelligence Scale for Children V; Stanford-Binet 5, as well as nonverbal cognitive tests – Leiter 3)
 - Academic Functioning (e.g., Woodcock Johnson Tests of Achievement IV, Wechsler Individual Achievement Test III)
 - Adaptive Behavior Functioning (e.g., Vineland Adaptive Behavior Scales 3, Scales of Independent Behavior-Revised, Adaptive Behavior Assessment Scale)
 - Autism Spectrum Rating Scales (e.g., Childhood Autism Rating Scale 2, Gilliam Autism Rating Scale -3, Gilliam Asperger's Disorder Scale, Autism Diagnostic Interview-Revised, Social Responsiveness Scale-2)
 - Play Based Assessment (e.g., Autism Diagnostic Observation Schedule 2)
 - Behavior Rating Scales (Conners' Rating Scales 3, Behavior Assessment System for Children-3, Achenbach Child Behavior Checklist)

Evaluation: Autism

- Speech-Language - Can assess:
 - Language
 - Social Competence
 - Phonology/Dyspraxia/Apraxia
 - Articulation
 - Hearing
 - Voice
 - Oral-Motor
 - Fluency
 - Observation
 - Autism Specific Instruments – data from these assessment tools will allow for accurate identification and intervention planning.

Evaluation: Autism

- Speech-Language – Sample Assessment Measures
 - Expressive One-Word Picture Vocabulary Test - to assess vocabulary.
 - The Language Processing Test 3 - to measure areas of associations, categorizations, similarities, differences, multiple meanings, and attributes.
 - Test of Word Knowledge - to measure skills in synonyms, figurative usage, word definitions, multiple contexts, expressive/receptive vocabulary, and word opposites.
 - Test of Problem Solving 3 - making inferences, sequencing, negative questions, problem solving, predicting, determining causes.
 - Pragmatic Language Skills Inventory - 45 question rating scale to assess personal, social, and classroom interactions skills.
 - Voice Assessment Protocol for Children and Adults (VAP) - used to assess pitch, loudness, quality, breath features, and rate/rhythm.
 - The Social Communication Questionnaire (formerly Autism Screening Questionnaire) - to screen lifetime or age specific communication and social development..
 - Social Responsiveness Scale - to assess social awareness, social information processing, capacity for reciprocal social communication, social anxiety/avoidance, and preoccupations or other traits.
 - The Social Language Development Test - to gauge how students develop friendships and deal with social dilemmas. Four subtests: making inferences, interpersonal negotiations, multiple interpretations, supporting peers.
 - Oral and Written Language Skills - 2

Evaluation: Autism

- Occupational Therapist
 - According to the American Occupational Therapy Association (2010), for individuals with an ASD, the scope of occupational therapy services across the life course may include:
 - regulation of emotional and behavioral responses;
 - processing of sensory information necessary for participation;
 - development of social abilities, interpersonal skills and peer relationships;
 - self-management skills such as dressing, feeding, hygiene, and sleep;
 - skills needed for success in school such as organization of task materials, independent work skills, and group process abilities;
 - assistive technology for accomplishing communication, school, or work functions, and more

Evaluation: Autism

- Occupational Therapist – Can assess:
 - Sensory modulation, integrative, defensiveness, registration, and processing difficulties
 - Auditory discrimination difficulties
 - Affected gross and fine motor development
 - Presence of primitive reflexes
 - Feeding and Toileting issues
 - Motor planning and Bilateral coordination difficulties
 - Postural issues
 - Lack of awareness of body and body position in space
 - Lack of organizational skills
 - Poor fine motor skills e.g. Eye hand coordination and Handwriting difficulties
 - Visual perception and perceptual motor difficulties
 - Work behavior issues
 - Poor play skills and socialization
 - Emotional issues

Evaluation: Autism

- Occupational Therapist – Sample assessment measures:
 - Ayres Clinical Observations (Ayers, 1981)
 - Bayley Scales of Infant Development (Bayley, 1993)
 - Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978)
 - Childhood Autism Rating Scale (Schopler, Reichler, & Renner, 1988)
 - Coping Scale (Zeitlin, 1985)
 - Informal Sensory Processing History (Beery, 1982)
 - Peabody Developmental Motor Scales (Folio & Fewell, 1983)
 - Pediatric Evaluation of Disability Inventory (Haley, Coster, Ludlow, Haltiwanger, & Andrello, 1992)
 - Scales of Independent Behavior—Revised (Bruininks, Woodcock, & Weatherman, 1996)
 - Self-Care Checklist (Rogers & D'Eugenio, 1981)
 - Sensory Integration and Praxis Tests (Ayers, 1989)
 - Sensory Profile (Dunn & Westman, 1995)
 - Vineland Adaptive Behavior Scales (Sparrow, Ball, & Cicchetti, 1984)

Ethical Challenges in Communicating Diagnosis

- Neurodiversity and autism
- Risks of diagnosis versus benefits that knowledge can bring
- Focus on four traditional principles of medical ethics (respect for autonomy, beneficence, nonmaleficence, and justice) (Graf, 2017).
 - Involve parents in an active shared decision making partnership
 - Make sure to focus on effective treatments.
 - To be just, treatments must be equally distributed and cost-effective.
- Highlight strengths and educate child
 - Asperger's, Huh? by Rosina G. Schnurr
 - Freaks, Geeks, and Asperger's by Luke Jackson
 - Any books or videos from child's perspective

Session 3: Early Intervention & Behavior Modification for Difficult Behaviors

- **Early Intervention**
- Applied Behavioral Analysis: Discrete Trial Training
- Developmental Interventions: Early Start Denver Model
- Educational Interventions: Project TEACCH
- Ethics principles in educating and supporting the family in treatment of their choice
- **Decrease Physical, Verbal and Other Inappropriate Behaviors**
- Turn noncompliance and oppositional behavior around
- Applied behavioral analysis techniques
- Token economy systems
- Functional behavioral assessment made easy

Early Intervention and Evidenced-Based Therapies

Committee on Educational Interventions for Children with Autism, National Research Council (2001) recommends:

- Early Intervention
- Intensive
- Individualized
- Regularly evaluated
- Educated at school, home, and in community settings
- Minimum of 25 hours every week year-round
- One-on-one or small group
- Parent involvement

Early Intervention: Applied Behavioral Analysis

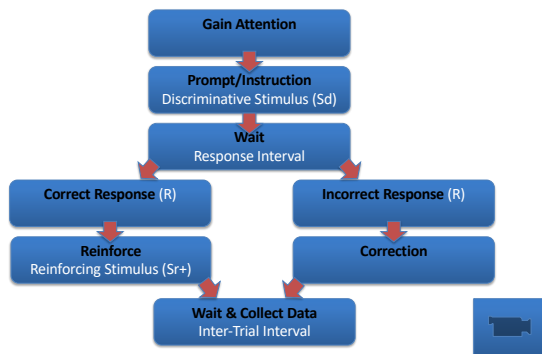
Applied Behavior Analysis (ABA)

- An effective approach to teach new skills and behaviors, reduce maladaptive and disruptive behaviors, maintain and generalize positive behaviors, and enhance attention and motivation (Goldstein, 2002; Horner, Carr, Strain, Todd, & Reed, 2002; Lovass, 1987; Odom et al., 2003; Sallows & Graupner, 2005).
- Early intervention most beneficial for children with ASD (Lovaas, 1987; Rogers & Lewis, 1989).
- Early Intensive Behavioral Intervention (EIBI) applies the principles of ABA to young children. EIBI includes 25 to 40 hours per week of behavioral intervention for two or more years.
- Children participating in EIBI have been shown to demonstrate significant improvements in intellectual, educational, and adaptive behavior functioning (Cohen, Amerine-Dickens, & Smith, 2006; Lovaas, 1987).

Evidence-based Therapies: Applied Behavioral Analysis

- Discrete Trial Training – Lovaas and Koegel
 - Application of ABA
 - Task Analysis: Breaks down concepts
 - One-on-one structured setting
 - Uses Reinforcement, Prompting, Shaping, Chaining, Differential Reinforcement, Extinction, and other behavioral strategies
 - Discriminative Stimulus, Prompting Stimulus, Response, Reinforcing Stimulus, Inter-Trial Interval, Data Collection

Evidence-based Therapies: Applied Behavioral Analysis -DTT



Evidence-based Therapies: Applied Behavioral Analysis

- Incidental Teaching (Natural Environment Teaching)
 - Set up environment to encourage your student's interest
 - Wait for the student to show interest
 - Prompt a response related to an item
 - Reward the student with the item or activity
 - Fade prompts until the student responds independently
 - Prompt for more complex vocal responses

Evidence-based Therapies: Applied Behavioral Analysis

- Verbal Behavior

Antecedent	Verbal Operant	Consequence <i>Example</i>
Motivating Operation	Mand	Directly Effective <i>While mom is blowing bubbles, Josh says, "more bubbles". The mom blows more bubbles.</i>
Verbal Behavior of Another Person (same context)	Echoic	Social <i>The teacher shows Mary a frog and says, "Frog." Mary says "Frog."</i>
Feature of the Physical Environment	Tact	Social <i>Ryan looks up into the sky and says, "Look mom, an airplane". His mom says, "Yes, it is."</i>
Verbal Behavior of Another Person (different context)	Intraverbal	Social <i>A teacher asks Marie, "What kind of animal barks?" Marie answers, "A dog." "You are correct." says the teacher.</i>
A Person's Own Verbal Behavior	Autoclitic	Directly Effective <i>After playing soccer, Joe tells his mother, "I really want some water." His mother gets him a glass of water.</i>

Evidence-based Therapies: Applied Behavioral Analysis

- Pivotal Response Training
 - Targets Pivotal areas of development in natural environment
 - Motivation
 - Responsivity to multiple cues
 - Self-management
 - Social initiation
 - child choice, task variation, interspersing maintenance and acquisition tasks, rewarding attempts, and the use of direct natural reinforcers



Evidence-based Therapies: Developmental Interventions

- Early Start Denver Model
 - A developmental approach rooted in ABA
 - Developed by Sally Rogers and Geraldine Dawson and
 - Combines behavioral, relational, and developmental aspects of intervention into a play-based approach
 - Individualized programs are based on a comprehensive assessment of early development including: cognitive skills, language, social behavior, imitation, fine and gross motor skills, self-help skills, and adaptive behavior.
 - Skills are taught within joint activity routines that foster social learning.
 - Studies show that ESDM is an effective intervention for toddlers with ASD for improving cognitive and adaptive functioning and reducing symptoms severity (Dawson et al., 2010; Roger et al., 2012)



Evidence-based Therapies: Educational Interventions

- Project TEACCH
 - Comprehensive , integrated program in North Carolina, difficult to replicate in other states
 - Many programs (outside of NC) only incorporate parts of TEACCH, which leads to inconsistent results (Metz et. al, 2005)



Evidence-based Therapies: Educational Interventions

- Project TEACCH (Treatment and Education of Autistic and Communication-Handicapped Children) (Mesibov & Shea, 2009).
 - Children with ASD receive individual classroom instruction designed to accommodate learning styles characteristic of their disorder.
 - This accommodation includes using pictures, teaching in small group settings, using a separate work station isolated from extraneous noise, and placing highly structured schedules in view of the student.
 - TEACCH method “may accelerate the development of cognitive and self-help skills” in children with ASD, and has found positive outcomes in comparison to standard special education programs for children with ASD (Ozonoff & Cathcart, 1998). Other studies have also demonstrated positive outcomes (Panerai and colleagues, 2002).

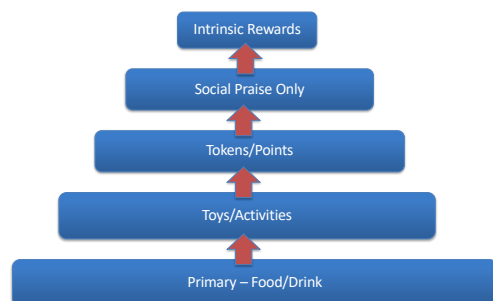


Challenging Behaviors: Behavioral Techniques

INCREASING DESIRABLE BEHAVIORS

- Reinforcement: Something serves as reinforcement if
 - 1) it immediately follows a behavior and
 - 2) it increases the frequency of that behavior in the future.
- Positive and Negative Reinforcement
- Noncontingent Reinforcement
- Reinforcement Hierarchy

Challenging Behaviors: Behavioral Techniques



Challenging Behaviors: Behavioral Techniques

Token Economy System

- A token should be something that the child can see, touch, and/or count.
- Child must be able to store and/or see how many tokens earned.
- Child must be able to exchange the tokens for actual rewards (back-up reinforcers) as frequently as necessary to maintain the child's motivation.
- Child should not be able to obtain a token from sources other than the parent, teacher, aide, etc.
- Child must know the token can be exchanged for various desirable rewards and be able to know in advance how many tokens are needed to "purchase" particular rewards. We can tell how much they value the tokens by how they take care of them, how they respond when they are administered, and even if they try to take them from other children.
- In some cases, tokens may be tally marks, etc., but other than this, the token should not be so large or small that the child is prevented from handling it.

Challenging Behaviors: Behavioral Techniques

Administering Tokens

- Administration of tokens SHOULD always be paired with verbal praise. Physical contact is good to give if reinforcing to the child.
- Tell the child WHY she/he earned a token (e.g., "I like the way you are sitting in your seat", "Good setting the table")
- With higher-level children, it is helpful if they know how many tokens they are earning for an activity before starting.
- Tokens must be given immediately after the behavior occurs, no matter how often the behavior occurs.
- Tokens should be given frequently for target behaviors.
- Give tokens CONSISTENTLY, IMMEDIATELY, AND CONTINUOUSLY at first and as the behavior gets stronger, gradually increase the amount and difficulty of the behavior required for the same back-up reinforcer.

Challenging Behaviors: Behavioral Techniques

Name: Tommy

Week:

Behavior	Mon	Tues	Wed	Thurs	Fri
Say Hello to my teacher	☺				
Total Stickers/Points	1				

Daily Reward:
Barbecue Chips
Stay up 15 minutes later
15 minutes extra on computer

Weekly Reward:
Go out for ice cream
Go to movie

Challenging Behaviors: Behavioral Techniques

Ways to Teach Desirable Behaviors

Prompting

- Prompts are cues given by others in order to obtain the desired response. Prompts direct the learner's attention to the task at hand and its requirements. The purpose of a prompt is to give staff an opportunity to reinforce the desired behavior when it occurs.

Types of prompts:

- Verbal prompts are simply instructions that people give to a child. Verbal prompts may be given either spoken or singed.
- Gestural prompts consist of pointing or gesturing and indicates what the child should do.
- Physical prompts (or physical guidance) involves using physical contact to guide the child.
- Environmental prompts are things such as signs, posters (e.g., list of classroom rules).

Challenging Behaviors: Behavioral Techniques

Ways to Teach Desirable Behaviors

Fading

- Fading is the gradual elimination of prompts so that the learner is responding to the minimal cues that exist in the natural environment.
- Fading is used when a new behavior has been established and the child no longer needs as much direction. As soon as the behavior occurs without hesitation at your prompt, it's time to start fading the prompt. The purpose of fading is to increase the child's independent performance of the behavior so that the child does not rely on prompts to perform the behavior.

Challenging Behaviors: Behavioral Techniques

Ways to Teach Desirable Behaviors

Shaping

- Shaping is a procedure used to establish single, complex behaviors. To shape a response, we start with a behavior a child can already perform and reinforce each "step in the right direction."

Steps in Shaping

- Observe the child to determine exactly what abilities the child displays in connection with the target behavior. We break down the behavior into little parts to see what the child CAN do.
- Arrange the setting for the maximum likelihood that the behavior will occur. If the behavior involves other people, or if particular environmental cues are necessary, arrange to have them present during shaping.
- Define the first approximation/step in the right direction that you will reinforce.
- Reinforce steps in the right direction toward the target response. Use the most powerful reinforcers you can. Reward these in-between steps with lots of praise, a hug, or whatever is reinforcing for your child.
- Use verbal, gestural, or physical prompts (only what's necessary) at all stages of the process.

Challenging Behaviors: Behavioral Techniques

Ways to Teach Desirable Behaviors

Chaining

- Chaining is used to teach a more complex series of behaviors. Chaining teaches sequence of related behaviors, each of which provides the cue for the next, and the last of which produces a completed task.
- The goal of chaining is to tie together already existing behaviors (which may have been shaped previously) so the child can do the sequence independently – without any verbal prompting for “what comes next”. Behaviors we chain include eating breakfast, setting the table, getting dressed/undressed, etc.

Challenging Behaviors: Behavioral Techniques

DECREASING BEHAVIORS

- **Punishment:** By definition, something serves as punishment if: 1) it immediately follows a behavior and 2) it decreases the frequency of that behavior in the future.
- We can decrease unwanted behaviors through a variety of methods. The following list ranges from least to most intrusive.
 - Extinction/Ignoring
 - Differential reinforcement of others (DRO)
 - Response cost
 - Time Out
 - Physical restraint - Not used in our practice
- You should use the least intrusive punisher so that the child has the opportunity to have the most independent control over his or her actions.

From Olson & Marker (2000). Inservice Training Manual – Pine Grove School.

Ethical Challenges in Punishment

- Executive Council of the Association for Behavior Analysis International (ABAI) position statement (2011) on Restraint and Seclusion
 - Welfare of the Individual - decisions should be made as part of the treatment team with client and caregivers
 - Informed Consent for interventions that are necessary, safe, and effective
 - Least Restrictive Treatment - evaluate the most favorable risk-to-benefit ratio, probability of treatment success, anticipated duration of treatment, distress caused by procedures, and distress caused by the behavior itself

Ethical Challenges in Punishment

- Use of Restraints
 - Restraints are defined as “physically holding or securing the individual, either (a) for a brief period of time to interrupt and intervene with severe problem behavior or (b) for an extended period of time using mechanical devices to prevent otherwise uncontrollable problem behavior (e.g., self-injurious behavior) that has the potential to produce serious injury”
 - “A behavior intervention plan that incorporates contingent restraint must (a) incorporate reinforcement-based procedures, (b) be based on a functional behavior assessment, (c) be evaluated by objective outcome data, and (d) be consistent with the scientific literature and current best practices.”

Ethical Challenges in Punishment

- Seclusion
 - Seclusion involves “isolating an individual from others to interrupt and intervene with problem behavior that places the individual or others at risk of harm.”
- Time-Out
 - Time-out from reinforcement is an evidence-based treatment intervention that involves reducing or limiting the amount of reinforcement that is available to an individual for a brief period of time.
 - The behavior intervention plan that incorporates the use of time-out (or rare cases, seclusion) must (a) be derived from a behavioral assessment, (b) incorporate reinforcement strategies for appropriate behavior, (c) be of brief duration, (d) be evaluated by objective outcome data, and (e) be consistent with the scientific literature and current best practices.

Ethical Challenges in Punishment

- Emergency restraint or seclusion – informed consent must be given
 - Used only with dangerous or harmful behaviors that occur at unpredictable times that are not amenable to less restrictive behavioral treatment interventions and places the individual or others at risk for injury, or will result in significant loss of quality of life
 - Have well-defined criteria and de-escalation techniques, least restrictive physical intervention, and withdrawn according to price and mandatory release criteria.
 - Trained staff, with continuous in-service training, supervised by BCBA, Psychologist, trained professional
 - Continuously monitored with objective data collection
 - Only continued if safe and effective and then reduced

Challenging Behaviors: Behavioral Techniques

Although punishment can suppress behavior when used correctly, it has its disadvantages. It is not the best way to change behavior because:

- The child will try to avoid future punishment by doing less in general (the fewer "things" you do, the less likely you are to get punished). Repeated punishment leads to social withdrawal, depression, or lack of motivation. To avoid this make sure the child knows what behavior leads to being punished, so only that specific behavior will decrease.
- It may produce emotional behavior: the child may become nervous or upset prior to being punished.
- The child may become aggressive toward the parent, staff, or children.
- Negative modeling may occur: you risk teaching the child how to react when others are not doing what they want.
- The child may attempt to escape or avoid the punishment by avoiding the punisher, even when the child is not being punished.

Challenge: Try giving at least 6 reinforcers for every 1 punishment

Behavioral Techniques: Functional Behavioral Assessment

Finding Solutions for Problem Behaviors: ABC Analysis

- **ABC Analysis is a process for gathering information about the environmental stimuli that are controlling the behavior.**
- Antecedents (A)
Antecedents are things or situations which happen before the target behavior. Examples of antecedents are asking a question, time of day, loud noise, a particular toy, etc. Certain behavior may regularly follow each of these antecedents.
- Behavior (B)
This is the target behavior we are studying. It is very important to be specific in our descriptions so that others could easily recognize it.
- Consequences (C)
Consequences are things or situations which immediately follow a particular behavior. They serve two purposes: to increase the behavior or to decrease the behavior that just happened.

Behavioral Techniques: Functional Behavioral Assessment

Antecedent Analysis

There are several types of antecedents (also environmental stimuli):

- Cues the child gives
- Prompts others give
- Situations
- People
- Time of Day
- Activity
- Physical Setting

From Olson & Marker (2000). Inservice Training Manual – Pine Grove School.

Behavioral Techniques: Functional Behavioral Assessment

Analysis of Function

- Two main functions of behavior:
 - To OBTAIN something desirable or communication
 - To AVOID/ESCAPE something undesirable
- By identifying the variables that maintain a behavior, we can also identify more adaptive ways of obtaining the same function.

**Always teach a more appropriate behavior
in a manner that makes meaning for the child.**

From Olson & Marker (2000). *Inservice Training Manual* – Pine Grove School.

Behavioral Techniques: Functional Behavioral Assessment

Classification of “Obtaining”

- Obtain attention/Communication attempt
 - If you believe that a child’s behavior serves to obtain attention, then the child will perform this behavior more often if he/she gets attention. We would want to teach the child a more adaptive behavior for obtaining attention from others.
- Obtain activities/tasks
 - A child’s behavior may be to obtain an activity.
- Obtain internal stimulation
 - A child may engage in a behavior in order to stimulate him/herself internally. In some cases, self-injurious behavior occurs for self-stimulation. The child may also be bored or may enjoy the sensory stimulation. As a result, you may try to teach the child another way of stimulating him/herself more appropriately.

From Olson & Marker (2000). *Inservice Training Manual* – Pine Grove School.

Behavioral Techniques: Functional Behavioral Assessment

Classification of “Escaping/Avoiding”

- Escape/Avoid attention/communication
 - Sometimes maladaptive behavior may occur when a child wants to be left alone. As an adaptive behavior, you may want to teach the child a more appropriate way of asking for a break.
- Escape/Avoid activities/tasks
 - Escape of tasks and demands is very common. A child may perform a maladaptive behavior to get out of doing a task. Make sure to monitor the difficulty of tasks.
- Escape/Avoid internal stimulation
 - Some children have difficulty with internal stimulation. They may be overly sensitive or may not like a particular type of stimulation.

From Olson & Marker (2000). *Inservice Training Manual* – Pine Grove School.

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

1) While playing with some of the kids at recess, Angela calls Bob a mean name. Bob pushes Angela and knocks her to the ground. The other kids run away.

A = Antecedent	B = Behavior	C = Consequences

Function: To obtain and/or avoid/escape:

Appropriate Behavior to Teach:

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

1) While playing with some of the kids at recess, Angela calls Bob a mean name. Bob pushes Angela and knocks her to the ground. The other kids run away.

A = Antecedent	B = Behavior	C = Consequences
ANGELA CALLS BOB MEAN NAME	BOB PUSHES ANGELA	KIDS RUN AWAY

Function: To obtain and/or avoid/escape:

Appropriate Behavior to Teach:

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

1) While playing with some of the kids at recess, Angela calls Bob a mean name. Bob pushes Angela and knocks her to the ground. The other kids run away.

A = Antecedent	B = Behavior	C = Consequences
ANGELA CALLS BOB MEAN NAME	BOB PUSHES ANGELA	KIDS RUN AWAY

Function: To obtain and/or avoid/escape: **COMMUNICATES ANGER, AVOID KIDS**

Appropriate Behavior to Teach: - **BEFORE GETTING TO RECESS, TEACH HOW TO COMMUNICATE FEELINGS AND ASK FOR HELP. REINFORCE POSITIVE INTERACTIONS WHILE AT RECESS.**

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

2) Joe is drawing cartoon figures when his teacher tells him to get out his Math book. Joe continues to draw and doesn't respond to his teacher. Five minutes later, his teacher asks Joe to get his Math book out again.

A = Antecedent	B = Behavior	C = Consequences

Function: To obtain and/or avoid/escape

Appropriate Behavior to Teach:

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

2) Joe is drawing cartoon figures when his teacher tells him to get out his math book. Joe continues to draw and doesn't respond to his teacher. Five minutes later, his teacher asks Joe to get his math book out again.

A = Antecedent	B = Behavior	C = Consequences
TEACHER TELLS HIM TO GET OUT MATH BOOK	JOE CONTINUES TO DRAW	JOE CONTINUES TO DRAW, FIVE MINUTES LATER, TEACHER ASKS AGAIN

Function: To obtain and/or avoid/escape:

Appropriate Behavior to Teach:

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

2) Joe is drawing cartoon figures when his teacher tells him to get out his math book. Joe continues to draw and doesn't respond to his teacher. Five minutes later, his teacher asks Joe to get his math book out again.

A = Antecedent	B = Behavior	C = Consequences
TEACHER TELLS HIM TO GET OUT MATH BOOK	JOE CONTINUES TO DRAW	JOE CONTINUES TO DRAW, FIVE MINUTES LATER, TEACHER ASKS AGAIN

Function: To obtain and/or avoid/escape: OBTAIN DRAWING, AVOID GETTING OUT MATH BOOK

Appropriate Behavior to Teach: WHEN JOE CAN DRAW, VISUAL SCHEDULE FOR SUBJECTS, PRIME FOR HOW MUCH TIME HE HAS TO DRAW BEFORE GETTING OUT MATH BOOK, REINFORCE

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

3) While the class is engaged in small group activities that require talking, your child, Ally, rocks back and forth.

A = Antecedent	B = Behavior	C = Consequences

Function: To obtain and/or avoid/escape

Appropriate Behavior to Teach:

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

3) While the class is engaged in small group activities that require talking, your child, Ally, rocks back and forth.

A = Antecedent	B = Behavior	C = Consequences
GROUP ACTIVITY	ALLY ROCKS	GROUP ACTIVITY CONTINUES

Function: To obtain and/or avoid/escape

Appropriate Behavior to Teach:

Behavioral Techniques: Functional Behavioral Assessment

CASE EXAMPLE:

3) While the class is engaged in small group activities that require talking, your child, Ally, rocks back and forth.

A = Antecedent	B = Behavior	C = Consequences
GROUP ACTIVITY	ALLY ROCKS	GROUP ACTIVITY CONTINUES

Function: To obtain and/or avoid/escape: **OBTAIN INTERNAL STIMULATION/CALMING MECHANISM**

Appropriate Behavior to Teach: **BEFORE STARTING GROUP ACTIVITY, TEACH HOW TO ASK FOR A BREAK OR HOW TO RELAX, REINFORCE**

Behavioral Techniques: Problem Solve Challenging Behaviors

A = Antecedent	B = Behavior	C = Consequences
Function: To obtain and/or avoid/escape		
Appropriate Behavior to Teach:		

Topic 4: Social Skills and Executive Functioning Deficits

Strengthen Communication and Social Interaction Skills

- Visual systems to improve communication and reduce meltdowns
- Teach turn taking and pragmatic language in conversations
- Programs to assist in generalizing social skills
- Video modeling and role play to teach social rules
- Social stories and social autopsies

Decode ADHD and Executive Functioning in ASD

- Improve Attention, On-Task and Organizational Skills
- Schedules, time-lines, web diagramming
- More preferred tasks
- Creating home base

Social-Communication Strategies: Speech/Language and PECS

- Speech & Language Therapy within ABA program
- Picture Exchange Communication System (PECS)
 - Students exchange a picture of a desired item for the actual item
 - Teaches functional communication
 - Many times used with ABA
 - Many studies have shown effectiveness of PECS with individuals with autism and other disabilities (see Hourcade, Pilotte, West, & Parette, 2004, for a review)



Social-Communication Strategies

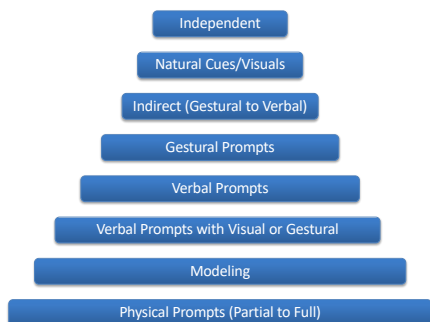
- Gain Attention
 - Reduce Distraction
 - Proximity
 - Make it Positive



Social-Communication Strategies

- Evaluate your own communication
 - Nonverbal Communication
 - Body Language
 - Hand Gestures
 - Facial Expressions
 - Verbal Communication
 - Voice Tone
 - Volume
 - Intonation
 - Few Words

Social-Communication Strategies: Least Restrictive Prompts



Social-Communication Strategies

- Allow Time for Processing
 - If they missed cues, provide information that might help make meaning.
 - Reinforce others around you for engaging in the correct response
 - Share your thoughts, feelings, actions as an example
 - Provide choices that they understand
 - Avoid using negative communication

Social-Communication Strategies: Social Skills Programs

- Social Skills Training Programs in the Schools
 - Bellini and colleagues (2007) reviewed 55 studies
 - Limited effectiveness for children with autism
 - Difficulty generalizing the social skills they learn from one situation to another
 - Maintenance effects of social skills instruction were moderately strong
 - Interventions were most effective for middle school and high school-age students
 - Elementary school children showed the lowest intervention and generalization effects
 - Lowest maintenance effects were observed in preschool-age children
 - Social skills interventions delivered in the general classroom showed significantly stronger intervention, maintenance, and generalization effects than social skills interventions delivered in pull-out programs.
 - Needed design improvements:
 - Increase dosage
 - Target individual skill deficits
 - Implement program as designed

Social-Communication Strategies: Social Skills Programs

- Social Skills Training Programs
 - Reichow and Volkmar (2010) – Reviewed 66 studies
 - Interventions based on ABA
 - Naturalistic techniques with young children
 - Parent training with young children
 - Peer training
 - Use of visual supports
 - Video modeling
 - Generalization and Maintenance need improvement

Social-Communication Strategies: Social Stories

- Social Stories and Comic Strip Conversations – Carol Gray
 - Includes: “short stories constructed to inform, advise, and reflect upon social situations”; comic strip conversations, which are similar to social stories, with the difference that they rely on the participation of the child who co-constructs them; and written cues (Hutchins & Prelock, 2006; Scattone, Wilczynski, Edwards, & Rabian, 2002; Thiemann & Goldstein, 2001).
 - These pragmatic approaches are widely used with the ASD population and are often integrated into a behavioral program.
 - Although case studies have shown social stories and comic strip conversations to be promising interventions with the ASD population (Hutchins & Prelock, 2006), further research is needed to explore the efficacy of these alternative methods of ASD treatment.

Social-Communication Strategies: Social Story Example

There are many ways to say hello to someone.

When I see someone I know, usually I will look at them, try to smile and say “hi” or “hello.” They may say “hello” back. They may stop to talk with me.

Sometimes I will try to shake their hand. Sometimes, when I am visiting a relative or a close friend, I will try to give them a small hug or a little pat on the back or the shoulder.

Sometimes, if I am just passing someone I know, I can smile, wave, or just nod my head. Most people like it when I smile at them. Smiling can make people feel good.

Social-Communication Strategies: Social Story Example

Taking turns is important when playing with my brother and my friends.

People may like me more when I take turns.

You have to let someone else have a turn when talking or playing.

I like to play birds and ninja turtles. Sometimes other kids like to play with other toys. I need to remember to take turns and play with what they want to play with first. For example, I don’t always like to play superman, but if my friend wanted to play I should do it. Afterward, we can take turns and maybe play with what I want to play with.

When I take turns with my friends, they may like me more. If I learn to take turns with other kids, I will make more friends.

Taking turns is good.

Social-Communication Strategies: Social Autopsy

1. Ask person to explain what happened.
2. Ask person to identify the mistake(s) that was made.
3. Assist person in determining the actual social error that was made and teach more appropriate responses.
4. Practice the skills
 - Role Play
 - Video
 - Create Social Story/Comic Strip
5. Provide social homework.

Social Autopsy - Rick Lavoie

Social-Communication Strategies: The Hidden Curriculum

- The hidden curriculum is the set of rules governing day-to-day interactions that everyone is assumed to know but that are rarely directly taught.
 - Book offers practical suggestions and advice for how to teach and learn those subtle messages that most people seem to pick up almost automatically but that have to be directly taught to individuals with social-cognitive challenges.

Myles, B., Trautman, M., & Schelvan, R. (2004). *The hidden curriculum*. Shawnee Mission, KS: Autism Asperger Publishing Company.

Social-Communication Strategies: The Power Card

- The Power Card uses the child's special interests to change an unwanted or inappropriate behavior.
- Motivational text or short story related to a special interest is combined with an illustration and made into a bookmark- or business card-sized Power Card.

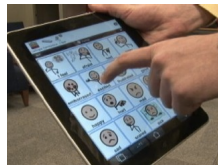
Gagnon, E. (2001). *Power cards: Using special interests to motivate children and youth with Asperger Syndrome and autism*. Shawnee, Mission, KS: Autism Asperger Publishing Company.

ADHD

- ADHD – Inattentive Type
- ADHD – Hyperactive-Impulsive Type
- ADHD - Combined Type
- Most individuals with ASD will have executive functioning deficit
- Differences between ADHD and ASD

Environmental Strategies

- Organization Systems
 - Visual Schedules
 - Checklists
 - Calendars



Environmental Strategies

- Reinforcement Menu (Change Often)



Environmental Strategies

- Adjusted Seating/Preferential Seating
- Alternate Preferred tasks with less preferred tasks
- Minimize Transitions
- Priming of Schedule/Staff Changes
- Home Base
- Make sure task is appropriate
- Break down Steps
- Flexibility
- Prepare activities, people, environment ahead of time



Environmental Strategies

- Venn Diagrams/Webbing
- Time Lines
- Choice Cards
- Break Cards
- Schedule Break Time (don't inadvertently reinforce it)

Oppositional Defiant Behaviors

- Oppositional Defiant Disorder
 - Angry/irritable mood
 - Argumentative/defiant behavior
 - Vindictiveness
 - Occurs for 6 months with at least four symptoms during interaction with at least one individual who is not a sibling.

Topic 5: Comorbid Behaviors: Anxiety, OCD, and Depression

- Manage Anxiety and Specific Phobias
- Decrease Obsessive-Compulsive Behaviors
- Psychosocial Interventions for Depression
- Psychopharmacology

Anxiety

- What does it look like in ASD?
 - Increased restlessness
 - Increases in *rumination*
 - May request that you confirm the same information over and over
 - May increase routines and rituals as a way to bring order into their life
 - May become more rigid in their thinking
 - May spend more time with special interest, using this as a way to escape situations that invoke anxiety
 - May regress to earlier behaviors

Assessment for Treatment Planning*

*More research needed on specific measures for treatment planning

- Anxiety
 - Child Anxiety Related Emotional Disorders (SCARED)
 - Multidimensional Anxiety Scale for Children (MASC)
 - Spence Children's Anxiety Scale (SCAS)
 - Revised Child Anxiety and Depression Scale (RCADS)
 - Child and Adolescent Symptom Inventory, Fourth Edition (CASI-4R)
 - Pediatric Anxiety Rating Scale (PARS)
 - Revised Childhood Manifest Anxiety Scale, 2 (RCMAS-2)
- OCD
 - Yale Brown Obsessive Compulsive Scale

Anxiety: Cognitive Behavioral Therapy

- McNally and colleagues (2013) - The Coping Cat Program for Children with Anxiety and Autism Spectrum Disorder: A Pilot Randomized Controlled Trial
- “May be a feasible and effective program for reducing clinically significant levels of anxiety in children with high-functioning ASD.”
- Limitations - Need larger sample sizes and for it to be replicated.

Coping Cat

- Philip Kendall, Ph.D., ABPP and associates- Temple University
 - The Coping Cat Workbook, Second Edition
 - Ages 8-13, 16 sessions
 - Cognitive-Behavioral Therapy For Anxious Children: Therapist Manual, Third Edition
 - The Coping Cat Parent Companion
 - The CAT Project
 - Ages 14-17
 - Therapist Manual for Group Treatment
- Use Manual as guiding template, not rigid cookbook.
- All Coping Cat, Therapist Manual, Parent Companion, and CAT Project material in this presentation reprinted with permission by Philip Kendall.

Modifying CBT

- Goals for a clinician during TX:
 - Focus on positive characteristics of client’s attributes
 - Address the presenting concerns and core symptoms
 - Develop an exposure hierarchy
 - Identifying social problems
 - Benefits of groups training
 - Opportunities to practice new skills
 - Peer modeling and skills practice
 - Develop emotional awareness and insight

(White and colleagues, 2018)

Modifying CBT cont.

- Factors to be aware of for clinicians treating adolescent ASD populations:
 - Increased reliance on parents in treatment
 - Need for psychoeducation about comorbid symptoms
 - Anxiety and Depression
 - Treatment pace tends to be slower or more drawn out
 - Benefits of this, is more opportunities for practice and time to address rigid beliefs, behaviors, and thinking patterns

(White and colleagues, 2018)

Modifying CBT cont.

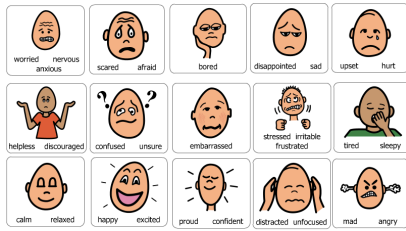
- Involve the child's special interests in treatment
 - Benefits of this, the child can visual concept easier and this can be a good tool for connection and to incentivize
- Reduce your use of metaphors (and sarcasm)
- Promote high structured sessions, give transitional prompts and clear directions
- Use visuals!!!
- Set aside time in session for practice
 - Ex. planning at-home practices, can use modeling or role play

(White and colleagues, 2018)

Anxiety: Cognitive Behavioral Therapy

- Sleep, Diet, and Exercise
- Self-Regulation Strategies - Thought Regulation
 - Understanding Emotions
 - Identifying the Situation
 - Changing Distorted Thought Patterns

I am feeling



because _____.

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Worksheet
Thought Chart: Rational Response

Directions: Complete the information below to change the cognitive distortion into a rational response.
An example has been provided to help you.

Situation	Emotion	Automatic Thought	Cognitive Distortion	Rational Response	Outcome
Describe situation that occurred.	Label the feeling and rank how strong it is on a scale from 1 to 10.	Write down the thought you had.	Identify the cognitive distortion or twisted thinking pattern.	Identify a way to untwist your thinking and then write rational thought.	Label your feeling and rank how strong it is on a scale from 1 to 10.
Mom tells me to get off video game	Frustrated - 8	She never lets me finish a game.	Over-generalization	Examined the evidence - she did let me finish the game last Monday. I'll ask her when I can finish the game.	Frustrated - 3

Anxiety: Cognitive Behavioral Therapy

- Self-Regulation Strategies - Physical Regulation
 - Diaphragmatic Breathing
 - Positive Imagery
 - Progressive Muscle Relaxation

Exercise
Diaphragmatic Breathing "BELLY BREATHING"

DIAPHRAGMATIC BREATHING HELPS YOU CALM DOWN BY:

- calming the nervous system
- slowing your heart rate
- releasing muscle tension
- lowering your blood pressure
- decreasing sweating



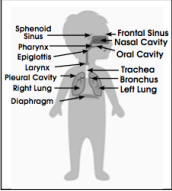
It is a great technique to use when you are nervous, stressed out, angry, or upset in any way!

HOW TO "BELLY BREATHE"

- Close your eyes
- Place your hand on your stomach
- Take a deep breath in through your nose for 3 seconds, and feel your stomach go up, almost like a balloon. Be careful to not let your shoulders go up, just expand your stomach.
- Breathe out through your mouth for 5 seconds
- Repeat until you feel calm and relaxed!

YOU CAN BELLY BREATHE AT ANY TIME AND ANYWHERE!

In some situations, it might feel a little awkward to close your eyes and hold your stomach, and that is why you have to practice and get really good at diaphragmatic breathing at home. If you practice, you will be able to "belly breathe" without anyone noticing. You can do it in school, with friends or at home, and all anybody will notice is your calm behavior.



Positive Imagery Script

Lie or sit in a comfortable position. Feel your body against the chair and begin to focus on your breathing. Be aware of the in-breath. . . aware of the out-breath. . . breathing in, feeling calm, breathing out, and feeling at peace.

Now I'd like you to see yourself in a very special place. . . It could be a real place – a place you may have actually been – a beautiful spot in nature or comfortable spot in your own home. Your special place may be an imaginary place – a place in fairy tales – indoors or outdoors – it doesn't really matter. Should more than one place come to mind, allow yourself to stay with one of them.

The only thing that matters is that it is a place in which you are completely comfortable and safe. . . you feel comfortable and safe. Appreciate this scene with all your senses. Hear the sounds – smell the aromas, feel the air as it caresses your skin – experience the ground securely under you – touch and feel the whole environment that you are in.

Notice the colors that surround you. What is the temperature? Is it warm? Is it cold? Are you alone or are you with another person or people. Notice the qualities of the place that make it safe and comfortable.

Look around you to see if there is anything else that would make this place more safe for you . . . perhaps something that you need to remove from the place or something you need to bring in. . . and then notice how your body feels in this place. . . and now take some time to enjoy this feeling of safety in this special place. . .

Now thank yourself for taking the time. . . perhaps promising yourself and reassuring yourself that you will visit this place or some other place on your own, whenever you need to.

When you're ready. . . at your own pace. . . let your breathing deepen. . . very gradually let the awareness of your body against the floor or the chair return. . . and when you are ready. . . gently open your eyes.

Progressive Muscle Relaxation

Directions: Relaxation skills may help you cope with stress, anger, illness, sleep problems, injury or pain. Relaxation exercises are designed to help you recognize and reduce body tension.

As you complete each exercise, think about each group of muscles. Notice the difference between the tight and relaxed muscles. If a feeling of tightness continues in any group of muscles after you have repeated the exercise several times, focus again on relaxing that particular muscle group. Your whole body should feel loose and relaxed.

Legs

Sit or lie down with your legs straight. Point your toes toward your head. Hold this position and feel the tightness in your calf muscles. Relax your muscles and let your entire leg go limp. Focus on making your calf as loose as you can. Repeat this exercise.

Lift and extend both legs until you can feel the tightness in your thigh muscles. Hold this position, feel the tightness of your thigh muscles. Relax until all of the tightness in your thigh muscles is gone. Repeat this exercise. Try to keep your feet and ankles relaxed while you are tightening your thighs.

Chest and Abdomen

Take a deep breath and fill your lungs with air. Hold the air in your lungs. Feel the tightness in your chest and abdominal muscles. Now release the air and relax. Breathe normally. Notice how easily the air moves when you are relaxed. Repeat this exercise.

Relax for a few seconds, then tighten, the muscles in your abdomen. Hold this position feeling the tightness of the muscles. Release your abdominal muscles and relax, breathing normally again. Repeat this exercise.

Hands and Arms

Make your hand into a fist; close your fist tightly and hold it closed. Feel the tightness in the muscles of your hand and forearm. Now relax your hand. Let it go limp and wiggle your fingers. Feel the tightness leave your hand and fingers. The muscles in your hand and forearm should feel relaxed. Remember to hold the relaxed position longer than the tense position. Do this exercise two times on each hand.

Upper Arms

Keeping your hands relaxed and arms straight, raise your hands to shoulder height. Bend your arms at the elbows so that your hands rise up; tighten the muscles in your upper arms. Count to 5 and then lower your arms until your hands hang limply at your sides. Notice how relaxed your muscles feel as you count to 5 again. Make your arms as loose as you can. Repeat this exercise.

Shoulders

Raise your shoulders to your ears and notice the tightness in the muscles in your shoulders and neck. Hold this position and think about how your muscles feel. Relax and drop your shoulders to their normal position. Relax your shoulders even more, letting them drop toward the floor. Notice the difference between the feeling of tightness and the feeling of relaxation. Repeat this exercise.

Neck

Move your head forward until your chin touches your chest. Notice the tension in the front of your neck, but especially in the back of your neck. Gradually put your head back in an upright position. Now put your head back as far as it will go, as if you were going to touch your head to your back. Notice where it is tense. Gradually put your head back in an upright position. This is the least tense position. While still in the relaxed position, tilt your head to the right, as if you were going to touch your head to your right shoulder. Bring your head back to the relaxed position. Now tilt your head to the left shoulder. Bring your head back to the relaxed position. Notice the difference when those muscles are loose and relaxed. Repeat exercise.

Face

Next, wrinkle your nose. Hold the position for five seconds and relax your face. Now tighten the muscles around your mouth and cheeks by putting your face in a forced smile. Your lips should be hard against your face. Notice how those muscles feel tight and tense. Gradually relax your face. Repeat the exercise.

OCD - Diagnosis

- You must have obsessions and compulsions
- The obsessions and compulsions must significantly impact your daily life
- You may or may not realize that your obsessions and compulsions are excessive or unreasonable
- Obsessions:
 - Intrusive, repetitive and persistent thoughts, urges, or images that cause distress
 - The thoughts do not just excessively focus on real problems in your life
 - You unsuccessfully try to suppress or ignore the disturbing thoughts, urges, or images
 - You may or may not know that your mind simply generates these thoughts and that they do not pose a true threat
- Compulsions:
 - Excessive and repetitive ritualistic behavior that you feel you must perform, or something bad will happen. Examples include hand washing, counting, silent mental rituals, checking door locks, etc.
 - The ritualistic compulsions take up a least one hour or more per day
 - You perform these physical rituals or mental acts to reduce the severe anxiety caused by the obsessive thoughts.

OCD

High functioning ASD – CBT and Exposure and Response Prevention (ERP)

- Lehmkuhl and colleagues (2008) – Case study with ERP
- Russell and colleagues (2013) - CBT with larger sample size using randomized controlled trial

Limitations – although demonstrating effectiveness in literature, more research needed to confirm.

OCD

- March & Mulle's (1998) CBT Treatment Manual includes:
 - Education about OCD
 - Cognitive Training
 - Mapping OCD – “bossing back” OCD
 - Fear Thermometer
 - Exposure and Response Prevention
 - Relapse Prevention and Graduation
 - Booster Session
 - Parent Sessions

Risk factors for Depression

- The role of IQ in the development of depression in ASD is an area of active examination. Individuals with high-functioning ASD are often assumed to be more vulnerable to depressive disorders than their lower-functioning peers, perhaps due to *relative strengths in social awareness*, and *greater expectations of fitting in with their peers*.
- Additionally, *high-functioning children* were reported to have significantly *lower self-esteem* than low-functioning and typically developing children (Mayes, 2011)
- This is consistent with multiple studies in verbal adults that have found that those with *higher cognitive ability, less social impairment, more self-perceived impairment*, and *higher rates of other psychiatric symptoms*, such as *anxiety and rumination*, were more likely to report depressive symptoms (Charlot, 2008)

Childhood Depression Symptoms

- Depressed mood, sadness, tearfulness
- Irritability
- Anhedonia
- Insomnia or hypersomnia
- Psychomotor agitation or retardation (behavioral problems)
- Fatigue or loss of energy
- Social withdrawal
- Weight loss not associated with dieting / change in appetite
- Increased guilt or worthlessness
- Somatic complaints
- Lack of brightening
- Diminished ability to concentrate; indecisiveness
- Recurrent thoughts of death or suicidal ideation
- Play characterized by themes of suicide or death

Magnuson & Constantino (2011)

Depression in ASD

- Much higher rate of depression in ASD compared to Neurotypicals
- Looks for these additional symptoms:
 - Aggression
 - Mood lability
 - Hyperactivity
 - Decreased adaptive functioning or self-care
 - Regression of previously learned skills
 - Increased compulsiveness
 - Fluctuations in autistic symptoms including both increased stereotypic behavior and decreased interest in preoccupations/restricted interests
 - Self-injurious behavior
 - Catatonia
 - Overall marked change in behavior from baseline not otherwise specified by above characteristics

Magnuson & Constantino (2011)

Depression in ASD

- Difficulties surrounding diagnosis of depression amongst ASD populations
 - Lack of standardized diagnostic tools to assess depression in the ASD population
 - Communication deficits
 - Atypical presentation of depression

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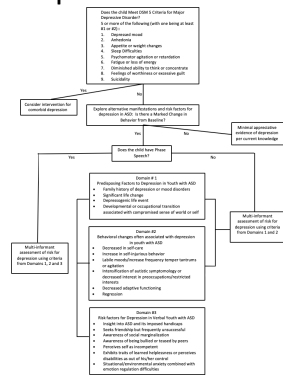
Assessment for Treatment Planning*

*More research needed on specific measures for treatment planning

- Depression
 - Autism Comorbidity Interview – Present and Lifetime Version (ACI-PL)
 - Child and Adolescent Psychiatric Assessment – Parent Version (CAPA)
 - Childhood Depression Inventory 2

[illegible]

Depression in ASD



Suicide Rates

- 4 times more likely to be depressed
- Suicide third leading cause of death in autism (and those with autism dying at a younger age)
- Clinical samples suggest that suicide occurs more frequently in high functioning autism.
- Physical and sexual abuse, bullying, and changes in routine are precipitating events associated with suicide risk.
- Adults – one sample 66% reported thoughts of suicide, 35% had plans or attempts (Cassidy et al., 2014)
- 14% of children (ages 1-16) with ASD reported suicide thoughts or attempts (Mayes et al., 2013)
- 20 year study in Utah – suicide rate increasing, with females with ASD being 3 times more likely to die of suicide compared to females without ASD (Kirby and colleagues, 2019).

Psychosocial Interventions for Depression

- Cognitive-behavioral therapies
- Mindfulness-based therapies
 - MyMind Child and Parent Program
- Social and vocational programs
- Family therapy

Treatment - Mindfulness

- This method encourages individuals to identify feelings or thoughts in the present moment and accept them, as they appear without analysis or discussion an approach that may be well suited to those with theory of mind and communication deficits
- One randomized controlled trial of adults with ASD found a significant reduction in depression, anxiety, and rumination in the intervention group compared with the control group

(Mazzone & Vitello, 2016 & Spek, 2013)

Mindfulness cont. – Mymind Child and Parent Programs

- Combination of **Mindfulness-Based Stress Reduction** (founded by Jon Kabat-Zinn of the University of Massachusetts Medical School) and **cognitive behavior therapy (CBT)**
- Mindful Kids & Parents is a mindfulness program for children aged 8-12 to attend with parents. Attending the program *together*, kids and parents learn focusing and quieting techniques they can use.
- Results of a Mymind study showed:
 - social communication problems
 - emotional and behavioral functioning
 - parenting and parental mindful awareness

(Ridderinkhof, 2017)

Social and Vocational Programs

- With age, opportunities for involvement and social activities decrease, therefore involvement in social group or skills groups have been found to *increase social interaction and boost mood*
- Social and vocational skills programs may reduce depressive symptoms in adolescents and adults with ASD, even though they are not focused on depressive symptoms.
- Participation in an 8-week structured group intervention resulted in lower scores on the BDI, though the effect size was small.

(Hillier, 2011)

Treatment – Skills group

- As those with ASD age, opportunities for involvement and social activities decrease, therefore involvement in social group or skills groups have been found to increase social interaction and boost mood
- Social and vocational skills programs may reduce depressive symptoms in adolescents and adults with ASD, even though they are not focused on depressive symptoms. Investigators found that participation in an 8-week structured group intervention resulted in lower scores on the Beck Depression Inventory-II, though the effect size was small. Individuals appeared to benefit from meeting others with similar challenges and initiating connections with each other outside of the group (Hillier, 2011)

Therapeutic Resources

- The Coping Cat Workbook, by Philip Kendall
- **Behavioral Relaxation Training and Assessment** by Roger Poppen
- PONGO poetry
- The Incredible 5-point scale, teaching emotion regulation
 - <http://www.5pointscale.com>
- Suicide Safe, a smartphone app for providers
- SAFE-T
 - <http://www.sprc.org>
- National Suicide Prevention hotline
 - 1-800-273-TALK (8255)
- **Helping bereaved children: A handbook for practitioners** by Nancy Webb

Providers seeking additional training

- **Positive Behavior Supports**
 - <http://www.autismspeaks.org/family-services/tool-kits/school-community-tool-kit>
- **Kansas Institute for Positive Behavior Support**
 - http://www.kipbs.org/new_kipbs/index.html
- **The New England Center for Children “CALM” Curriculum**
 - <http://www.necc.org/consultation/calm.aspx>
- **Safe and Civil Schools**
 - <http://www.safeandcivilschools.com>
- **Crisis Prevention Institute**
 - <http://www.crisisprevention.com>
- **Quality Behavioral Solutions to Complex Behavior Problems**
 - <http://www.qbscompanies.com/site/index.php>
- **Mental Health First Aid USA**
 - <http://www.mentalhealthfirstaid.org/cs/>

Crisis behaviors and Suicidal ideation: How do I know it's time to get therapeutic help?

- ❖ A threat of suicide is made
- ❖ Aggression or self-injury become recurrent risks to the individual, family or staff
- ❖ Unsafe behaviors, such as elopement and wandering, cannot be contained
- ❖ An individual presents with persistent change in mood or behavior, such as frequent depression, irritability, or anxiety
- ❖ A child shows regression in skills
- ❖ The family can no longer care for the individual at home

In case of emergency, call 9-1-1. Always take suicide threats seriously!

Should I call 9-1-1 or...?

- Remain as calm as possible
- Assess the severity of the situation
- Follow the Crisis Plan and focus on safety
- Determine whom to contact:
 - Dial 211 for free, confidential crisis counseling
 - Dial 911 for an emergency: fire, life-threatening situation, crime in process, serious medical problem that requires mental health and basic life support ambulance services
 - Call local police for non-emergencies

Prevention planning for a crisis situation

- Defined setting events, triggers or signs that a crisis situation might develop
- Tools and strategies for keeping the individual safe in any setting (school, home, community)
- Intervention steps and procedures promoting de-escalation that are paired at each level with increasing levels of agitation
- Lists of things to do and NOT to do specific to the history, fears and needs of the individual
- Hands on training and practice for caregivers and staff
- Data collection, monitoring, and continued re-evaluation of the effectiveness of the plan
- Knowledge of the best prepared facility if hospitalization or an Emergency Room visit might be necessary
- Secured guardianship if your child is above age 18 and you need to continue to make decisions for him

Coaching caregivers and parents through the crisis situation

- Be on alert for triggers and warning signs
- Try to reduce stressors by removing distracting elements, going to a less stressful place or providing a calming activity or object
- Remain calm, as their behavior is likely to trigger emotions in you
- Be gentle and patient
- If necessary, give them space, while still being able to keep a watchful eye
- Provide clear directions and use simple language
- Focus on returning to a calm, ready state by allowing time in a quiet, relaxation-promoting activity
- Praise attempts to self-regulate and the use of strategies such as deep breathing
- Discuss the situation or teach alternate and more appropriate responses once calm has been achieved
- Debrief the crisis situation with their care/medical team, to prepare for increased awareness of triggers and strategies for self-regulation in future experiences

Parent and Caregiver Resources

- **Hands on Training:** Ideally, this is from a behavior analyst or other behavioral provider who is part of your child's team at school or home who can individualize training to your child's needs. It is individually designed to the needs of your child, your family, and responsive to the findings of the functional behavior assessment. It would occur in your home or in the settings where you need the assistance and training. Insurance laws are increasingly providing coverage for autism services, including ABA and behavior supports. Ask your doctor or case manager for suggestions.

Parent and Caregiver Resources cont.

- **State or local ABA or autism conferences:** Many conferences, presentations and workshops will focus on autism and case studies related to the treatment of challenging behaviors, or skills that might help to replace those behaviors. Visit **ABA International** to learn more.

Parent and Caregiver Resources cont.

- **Training Classes in Behavioral Approaches:** Parenting classes are often held at autism support groups, local hospitals, YMCAs, social services agencies, and the **National Alliance on Mental Illness**. Only some will be autism specific. These classes may provide you with tips and skills, as well as access to people and resources you might not already know about who can provide or suggest more specific services. **Mental Health First Aid USA** may also be a helpful resource.

Parent and Caregiver Resources cont.

- **Take care of yourself:** Parenting is hard enough, let alone when the demands of a child with special needs and challenging behaviors are added into the mix. Find strategies to improve your sleep, your **resilience** and your ability to remain calm and nourished. Classes in yoga, mindfulness and other stress reducers might be helpful. Talk to your friends and family, and find some time for fun. Seek out local supports for **respite** from community agencies, your place of worship or friends and family. Spend time with your other children and your spouse. Ask for help. Breathe. Visit the **Autism Speaks Resource Guide** to find respite care and support groups in your area.

Psychopharmacology

Limitations of Research and Potential Risk

- Antipsychotics are the only medication proven to be effective in reducing repetitive and stereotypical behaviors in autism based on Fair Quality Studies. Other medications, such as antidepressants or those for ADHD, have not been replicated and/or are low quality studies (e.g., small sample sizes, lacking control groups, not randomized). Antidepressants are not considered effective in treating symptoms of autism in children. Risk factors include numerous side effects.

Psychopharmacology

- Warning: children with ASD process medications differently
- A Medication Guide for ASD
 - <http://www.autismspeaks.org/science/resources-programs/autism-treatment-network/tools-you-can-use/medication-guide>
- Tracking behavior and medication effects
 - <http://www.autismspeaks.org/science/resources-programs/autism-treatment-network/tools-you-can-use/medication-guide>

Medication Type			
Target behaviors			
Possible side effects			
Stimulant Medicines <ul style="list-style-type: none">Methylphenidate (Ritalin, Metadate, Concerta, Methylphenidate, Daytrana)Mixed amphetamine salts (Adderall)lisdexamphetamine (Vyvanse)desoxymephedrine (Dexedrine)lisdexamfetamine (Vyvanse)	Hyperactivity <ul style="list-style-type: none">Short attention spanImpulsive behaviorsSleep problems	Common: <ul style="list-style-type: none">Problems falling asleepLess appetiteIrritability/emotional outbursts	Less common: <ul style="list-style-type: none">Anxiety/Depression, Social withdrawalRepeating behaviors/thoughtsHeadachesDizzinessChanges in heart rateTics
Alpha Agonist Medicines <ul style="list-style-type: none">guanfacine (Tenex, Intuniv)clonidine (Catapres, Catapres TTS, Kaprow)	Hyperactivity <ul style="list-style-type: none">Short attention spanImpulsive behaviorsSleep problemsTics	Common: <ul style="list-style-type: none">SleepinessIrritability	Less Common: <ul style="list-style-type: none">AggressionLess appetiteLow blood pressureConstipation
Anti-Anxiety Medicines <ul style="list-style-type: none">Risperidone (Risperal)Fluoxetine (Prozac)Fluvoxamine (Luvox)sertraline (Zoloft)paroxetine (Paxil)Citalopram (Celexa)escitalopram (Lexapro)	Depression <ul style="list-style-type: none">AnxietyRepeating thoughtsRepeating behaviors	Common: <ul style="list-style-type: none">GI problems (nausea, vomiting, constipation)low appetiteHeadachesProblems falling asleep / SleepinessAgitationWeight gain	Less common: Seizure <ul style="list-style-type: none">Thoughts of harming selfSuicideSerotonin syndrome
Second Generation / Atypical Antipsychotics <ul style="list-style-type: none">Risperidone (Risperal)olanzapine (Zyprexa)quetiapine (Seroquel)aripiprazole (Abilify)ziprasidone (Geodon)	Irritability <ul style="list-style-type: none">AggressionSelf-harmTantrumsSleep problemsHigh activity levelRepeating behaviorsTics	Common: <ul style="list-style-type: none">SleepinessDroolingIncreased appetite/ weight gain	Less common: High blood sugar, diabetes <ul style="list-style-type: none">High cholesterolTardive dyskinesia (abnormal movements)Quetiapine – eye side effectsZiprasidone – heart side effects
Medication for Seizures and Mood Problems <ul style="list-style-type: none">carbamazepine (Epaxial, Carbatrol)valproic acid (Depakote, Depakine)lamotrigine (Lamictal)oxcarbazepine (Trileptal)topiramate (Topamax)	Aggression <ul style="list-style-type: none">Self-harm	Common: Sleepiness <ul style="list-style-type: none">NauseaVomiting	Less common: <ul style="list-style-type: none">Dizziness/ Memory problemsRashesHepatitis, Liver failure, PancreatitisBone marrow suppression, Thrombocytopenia

Psychopharmacology

Limitations of Research and Potential Risk

- Antipsychotics are the only medication proven to be effective in reducing repetitive and stereotypical behaviors in autism based on Fair Quality Studies. Other medications, such as antidepressants or those for ADHD, have not been replicated and/or are low quality studies (e.g., small sample sizes, lacking control groups, not randomized). Antidepressants are not considered effective in treating symptoms of autism in children. Risk factors include numerous side effects.

Psychopharmacology

- Antipsychotics
 - McDougle and colleagues (1998)
 - 24 participants completed the trial. The experimental design was a 12-week, randomized, double-blind, placebo-controlled phase followed by a 12-week, open-label risperidone treatment phase for individuals from the placebo group
 - Observed decreased aggression, repetitive behavior, irritability, anxiety, and depression
 - Considered a “Fair Quality Study”

Psychopharmacology

- Risperidone (Risperdal) – FDA Approved
 - McCracken and colleagues (2002) – Research Units in Pediatric Psychopharmacology network study
 - n = 101, eight-week, double-blind placebo-controlled study
 - Ages 5-17 y, dx with autism
 - 1.8 (+ or - 0.7) mg day
 - 57% decrease on the Irritability subscale of the Aberrant behavior Checklist
 - 69% rated much improved versus 11% for placebo on the Clinical Global Impression – Improvement scale
 - Improvement on the Stereotypy and Hyperactivity subscales
 - No improvement on the Social Withdrawal or Inappropriate Speech subscales.
 - Side effect: Weight Gain

Psychopharmacology

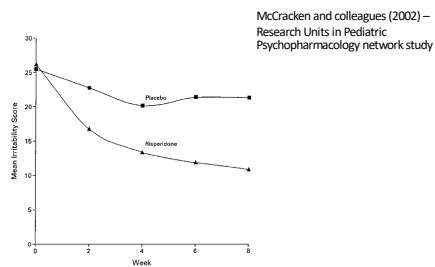


Figure 1. Mean Scores for Irritability in the Risperidone and Placebo Groups during the Eight-Week Trial. Data are for all 101 children (49 assigned to the risperidone group and 52 assigned to the placebo group). Higher scores indicate greater irritability.

Psychopharmacology

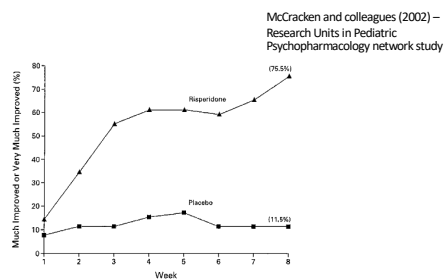


Figure 2. Percentage of Children with a Rating of Much Improved or Very Much Improved on the Clinical Global Impressions – Improvement Scale during the Eight-Week Trial. Data are for all 49 children assigned to the risperidone group and for all 52 assigned to the placebo group.

Psychopharmacology

- Antipsychotics
 - Risperidone (Risperdal) –
 - McDougale and colleagues (2005)
 - n = 174
 - Reduced overall score on the Ritvo-Freeman Real Life Rating Scale and following subscales: Sensory Motor Behaviors, Affectual Relations, and Sensory Responses. No effects on Social Relatedness or Language.
 - Reduced scores on the Children's Yale-Brown Obsessive Compulsive Scale and Vineland maladaptive Behavior Domain.
 - Treatment response maintained for 6 months.

Psychopharmacology

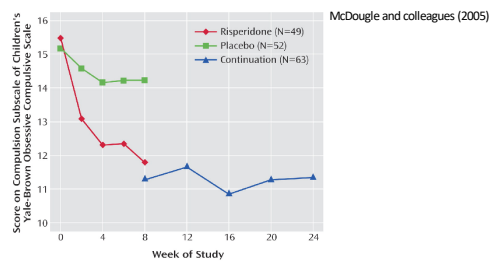


Figure 1. Scores for Compulsions on the Children's Yale-Brown Obsessive Compulsive Scale of Children and Adolescents in a Placebo-Controlled Risperidone Trial and Open-Label Continuation Study

Psychopharmacology

- Antipsychotics
 - Olanzapine (Zyprexa)
 - Open-label studies suggested similar efficacy (Malone et al., 2001, Potenza et al., 1999)

See Lewis & Lazortitz (2005) for a review.

Psychopharmacology

- Limitations of Research and Potential Risk
 - Other medication studies have not been replicated and/or are low quality studies (e.g., small sample sizes, lacking control groups, not randomized). The medications discussed in the next several slides are not considered effective in treating symptoms of autism in children. Risk factors include numerous side effects.

Psychopharmacology

- Antidepressants
 - Tricyclics
 - Clomipramine (Anafranil)
 - Decreased compulsive behavior, stereotypies, aggression and self-injury (Gordon et al, 1993)
 - SSRI's
 - Fluvoxamine (Luvox)
 - Decreased repetitive behavior, aggression, and inappropriate repetitive language in adults with autism (McDougle et al., 1996)
 - McDougle and colleagues repeated study in 2000 with children – limited improvement, adverse effects
 - Martin, Koenig, Anderson, & Scahill (2003) – pilot study of age-related differences. Minimized side effects by use of low initial dose with gradual increases – inconsistent responses.

Selective serotonin reuptake inhibitors (SSRIs) Review

- There is no evidence of effect of SSRIs in children and emerging evidence of harm.
 - One study reported significantly more adverse events in children on citalopram compared to placebo and one serious adverse event, a prolonged seizure (King, 2009). Both studies of fenfluramine reported adverse effects in children, including withdrawal and sadness that prompted dosage changes (Barthelemy, 1989) and weight loss (Barthelemy, 1989, Leventhal, 1993).
 - No significant differences were reported for side effects in children in the treatment or placebo group for fluoxetine (Hollander, 2005) and little information was available for side effects in children in the fluvoxamine study (Sugie, 2005).

(Williams and colleagues, 2013)

Selective serotonin reuptake inhibitors (SSRIs) Review

- There is limited evidence of the effectiveness of SSRIs in adults from small studies in which risk of bias is unclear.
 - Some reported improvements in:
 - Clinical global impression (fluvoxamine and fluoxetine)
 - Obsessive-compulsive behaviors (fluvoxamine)
 - Anxiety (fluoxetine)
 - Aggression (fluvoxamine).

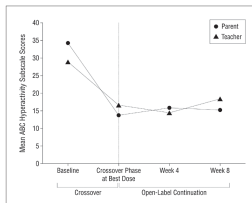
(Williams and colleagues, 2013)

Psychopharmacology

- Stimulants
 - Methylphenidate
 - Posey and colleagues (2005)
 - 72 children, ages 5-15 years with ASD with hyperactivity
 - Effect sizes ranging from 0.20 to 0.54 depending on dose and rater.
 - Thirty-five (49%) of 72 enrolled subjects were classified as methylphenidate responders.
 - Adverse effects led to the discontinuation of study medication in 13 (18%) of 72 subjects.

Psychopharmacology

Posey and colleagues (2005)



- **Figure 2.** Mean Aberrant Behavior Checklist (ABC) hyperactivity subscale scores as rated by teachers and parents at baseline, at the best dose of methylphenidate during the crossover phase, and during the methylphenidate hydrochloride open-label continuation phase. Linear slopes were used to examine the change in the primary outcome measure over time during the 8-week open-label continuation phase. Parent-rated ($F = 1.09$; $P = .30$) and teacher-rated ($F = 3.01$; $P = .10$) ABC hyperactivity subscale score slopes were not significantly different from 0, suggesting a maintenance of response.

Psychopharmacology

- Stimulants
 - Ritalin, Concerta, Metadate (Handen et al., 2000; Quintana et al., 1995)
 - Improvement in symptoms of hyperactivity
 - Side effects: social withdrawal and irritability
 - Clonidine (Catapres) (Rankhauser et al., 1992; Jaselskis et al., 1992)
 - Reduced irritability, hyperactivity, and impulsivity in double-blind trials
 - Side effects: tolerance, hypotension, rebound hypertension, over-sedation
 - Guanfacine (Tenex) (Posey et al., 2004)
 - Improvements in insomnia, tics, hyperactivity and inattention (less sedation and rebound effect)

Psychopharmacology

- Mood Stabilizers
 - Divalproex (Depakote)
 - Improved affective stability, impulsivity, and aggression (Hollander and colleagues, 2001)
- Anxiolytics
 - Buspirone (Buspar)
 - Reduction of aggressive symptoms and anxiety in small sample of adults with MR (Ratey et al., 1991)
 - Improved hyperactivity (Realmuto et al., 1989)

Psychopharmacology: Ethical Considerations

- Do individuals with ASD process medication differently than neurotypical individuals???
- Go to: <http://www.aap.org/pressroom/AutismMgmt.pdf> for AAP recommendations for psychopharmacology management

Topic 6: Other Clinical Considerations in ASD

- Sexuality and Challenging Sexual Behavior
- Trauma: Similarities and Differences with ASD
- Ethical Challenges in Autism

Challenging Topics in Sex Education Research and Statistics in ...

- Vulnerability to Abuse
 - Individuals with disability are 3.4 more times likely to be mistreated than neurotypical peers (Sullivan & Knuton, 2000)
 - Rates of sexual abuse twice as high in individuals with neurodevelopmental disorders (Mansell and colleagues, 1998)

Research and Statistics in ...

- ASD and Sex
 - Display typical sexual needs
 - Display a wide variety of sexual behaviors
 - Wish to engage in intimate relationships
 - Are neither hypersexual nor asexual

(Gourgeon, 2010)

Research and Statistics in ...

- Sexual Misconduct
 - No strong link between ASD and sexual offenses (Sutton and colleagues, 2012), but more individuals with ASD are being identified in criminal facilities.
 - They can display “problematic” sexual behaviors:
 - Masturbation (Van Bourgondien et al., 1997)
 - Pornography (Dubin & Hernault, 2014)
 - Stalking (e.g., Stokes & Newton, 2004, Stokes et al., 2007)
 - Indecent Exposure (Ruble & Dalrymple, 1993)

Research and Statistics in ...

TABLE 3. Reasons why inappropriate sexual behaviour occurs

Normal puberty	Normal changes, equal in neurotypicals and ASD individuals, initiate sexual development. Neurotypicals are socially mature, and despite it being a confusing stage of life, are able to cope with these changes. ASD adolescents may not have a social maturity corresponding to their sexuality, so they may struggle to interpret and deal with these changes. ASD adolescents find it difficult to demonstrate an appropriate theory of mind, so understanding people's behaviours, in addition to the confusing hormonal changes, may lead to actions of frustration or anxiety, which can be portrayed via inappropriate sexual behaviours, therefore demanding the attention of their carers.
ASD severity	Low functioning autistic (LFA) adolescents are most likely to masturbate in public, while some moderate functioning autistic (MFA) adolescents may masturbate in public; however, MFA adolescents tend to direct sexual behaviour towards individuals of the opposite sex. High functioning autistic (HFA) individuals are most likely to masturbate in private and often have a desire for an intimate relationship.
Social issues	Individuals with ASD have reduced social awareness and communication. These are imperative for understanding when sexual behaviours are appropriate. Frustration due to the variability of social rules, particularly regarding private and public places, can cause these individuals to become confused and act inappropriately, even if the action is innocent.
Sensory issues	Individuals with ASD can be hypersensitive to their senses. Sexual behaviours initiate pleasure, therefore satisfying their need for sensory stimulation.
Differentiation of relationships	Individuals with ASD have problems identifying when affection is appropriate, including recognizing the difference between friends, family, lovers and strangers. This causes confusion, specifically regarding how to act appropriately in friendships, compared to romantic relationships.
Curiosity	Some individuals with ASD are interested in the functioning of the human body.
Previous sexual abuse	If individuals with ASD have been abused in the past, they are more likely to act similarly towards others, demonstrating inappropriate sexual behaviour.
Medications	Some medications (not specified) can alter sexual desires, libido and make arousal difficult. These affects can result in sexual behaviours (e.g. hypermasturbation).
Pornography	Exposure to the Internet and to pornography has the potential to skew ASD individuals' view of sexuality. This can initiate a development of an aggressive sexuality.
Poor sex education	Individuals with ASD may possess inadequate skills and knowledge to fulfil their sexual desires (e.g. may have a poor masturbation technique), so are not able to reach orgasm, leading to hypermasturbation.

(From Beddows & Brooks, 2015).

Research and Statistics in ...

- Sex Education for ASD
 - Only 50% of individuals with ASD receive sex education compared to neurotypicals (Beddows & Brooks, 2015)
 - Material is insufficient for professionals and caregivers
 - There are societal barriers to education
 - Caregivers are aware and concerned about the sexual needs of their children
 - There is a gap between “knowledge” and “practice” for individuals with ASD
 - Sexual rights for individuals with ASD are denied
 - Education addressed from a problem-based/deficit perspective
 - 5 year delay in the HFA group's developmental trajectory for sexual behavior

Puberty and Sex Education

- Never too early to start education
- Schools introduce sex education around 5th grade
- Suggested Resources:
 - Sexuality and Relationship Education for Children and Adolescents with Autism Spectrum Disorders (Hartman, 2014)
 - Intimate Relationships and Sexual Health (Davies and Colleagues, 2012)

Puberty and Sex Education

- How to teach (Hartman, 2014)
 - Multi-disciplinary approach
 - Evidence-based practice
 - Work with parents
 - Use what works
 - Provide role models
 - Make it flexible, but fun
 - One-on-one instruction
 - Communication tools
 - Teach private nature of topic
 - Have ground rules

Puberty and Sex Education

- How to teach (Hartman, 2014)
 - Teach rules
 - Be sensitive to sexual orientation
 - Use multimedia sources
 - Individualize
 - Use strengths
 - Use visuals and visual schedules
 - Multisensory learning
 - Be aware of Sensory Sensitivities
 - Organize learning, environment, and information
 - Use reinforcement and special interests

Puberty and Sex Education

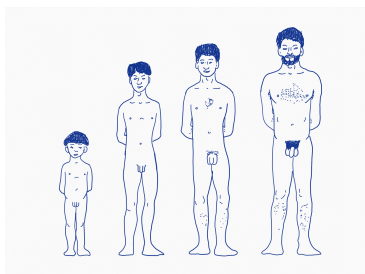
- How to teach (Hartman, 2014)
 - Generalize skills
 - Teach problem-solving and self-management
 - Utilize teachable moments
 - Use instructional stories and social scripts
 - Role play
 - Use journals
 - Video modeling
 - Peer modeling
 - Break skills down into small parts (task analysis)

Puberty and Sex Education

- Body Awareness and Exploration of Self
 - Gender Education
 - Body Parts and Fluid Education
 - Exploration of Sexual Play

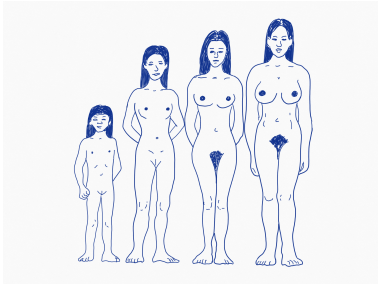
Puberty and Sex Education

- Stages of Puberty – Male



Puberty and Sex Education

- Stages of Puberty - Female



Puberty and Sex Education

- Puberty topics of wet dreams and menstruation
- Hygiene
- Sexual Health
- Conception, pregnancy, and birth
- Safety Issues
- Resources:
 - The Growing Up Book for Boys (Hartman, D., 2015)
 - The Growing Up Guide for Girls (Hartman, D., 2015)

Puberty and Sex Education

- Dating
 - Hierarchy of Steps to Physical Conduct from the waist up
 - Professional and/or Caregiver creates social story for each step
 - Individual should always ask for permission at each step
 - For example, “Is it ok to hold you hand?”
 - 1. Holding hands on the outside of each other’s thighs
 - 2. Hugging (putting your arms around the other’s body) from the chest and shoulders. Do not have your body below your waist touch the other person while hugging.

Puberty and Sex Education

- Dating (continued)
 - Hierarchy of Steps to Physical Conduct from the waist up
 3. Kissing (touching your lips upon the other's lips) for one second
 4. Kissing for two to three seconds without using your tongue
 5. Kissing placing your tongue in the other's mouth and touching their tongue with your tongue (sometimes called French kissing). This type of kissing can last several seconds to several minutes.
 6. Touching the other's body while kissing. You can touch their face, the back of their head, and/or their back (above their waist).

Puberty and Sex Education

- Social story example for Kissing

At the end of a date, sometimes people kiss each other. I need to find out if it is ok to kiss the person I took on the date. First, I need look for the nonverbal signals from the other person that it may be ok to kiss her.

If I drove her on the date, I should walk her up to her front door. If she does not immediately walk through her door, but is looking at me for longer than 3 seconds and I wish to kiss her, I should ask her, "Is it ok to kiss you?" If she says no, I should say, "Ok, thank you for the date. Please let me know if you would like to go on another."

Puberty and Sex Education

- Social story example for Kissing (continued)

If she says yes when I ask, "Is it ok to kiss you?", I should take one step toward her and tilt my head to the right and place my lips upon her lips for one second and then back away. I need to remember to not try to stick my tongue in her mouth or down her throat on the first kiss as she may not like this. If she is still facing me and has not walked through the door, then this may be a signal for me to kiss her again. I should take another step toward her, tilt my head, and place my lips upon her lips for two seconds.

Puberty and Sex Education

- Sex
 - Resources:
 - Sex, Sexuality, and the Autism Spectrum (Lawson, 2004)
 - Making Sense of Sex (Attwood, 2008)
 - Love, Sex, and Long-Term Relationships (Hendricks, 2008)
 - The Aspie Girl's Guide to Being Safe with Men (Brown, 2013)
 - The Autism Spectrum Guide to Sexuality and Relationships (Goodall & Lawson, 2016)

Strategies for Challenging Behaviors

- Masturbation
 - Lower Functioning Individual – Collect data to determine how often behavior is occurring and FBA. Present bathroom or bedroom card before behavior occurs
 - At antecedent and on a structured schedule that will be gradually faded out
 - Higher Functioning Individual – Conversations about how often he or she is masturbating, normalize masturbation is normal.
 - If interfering with activities (e.g., more than 3 times a day, is painful, or individual says it's a problem), then help individual determine more appropriate number a day and use visual calendar to track gradual reduction in number of times masturbating per day.

Strategies for Challenging Behaviors

- Masturbation Resources – Social story books
 - Things Ellie Likes (Reynolds, 2015)
 - Things Tom Likes (Reynolds, 2015)

Strategies for Challenging Behaviors

- Masturbation Visual Schedule



Strategies for Challenging Behaviors

- Pornography
 - Normalize individual's interest in exploring sexual pictures on the internet
 - Find out what they are looking out
 - Educate about child pornography and how the child in the websites/pictures are a victim
 - Help them find resources that are more appropriate if they are looking at any sites that may be illegal.
- Resource
 - The Autism Spectrum, Sexuality, and the Law (Attwood, Henault, & Dubin, 2014)

Strategies for Challenging Behaviors

- Stalking Behaviors
 - Stalking involves repeated or persistent unwanted attempts to communicate with or associate with another
 - Engage in stalking behavior when seeking contact with others for friendship or intimacy Have less access to their peers and friends as sources of learning to acquire relationship skills and knowledge.
 - Most do not obtain any learning of romantic skills from parents, siblings, observation, the media, sex education, or peers
- (Stokes and colleagues, 2007)

Strategies for Challenging Behaviors

- Stalking Behaviors
 - They attempt to initiate relationships more often than is typical with strangers and celebrities.
 - “ASD adolescents and adults were more likely to touch the person of interest inappropriately, believe that the target must reciprocate their feelings, show obsessional interest, make inappropriate comments, monitor the person’s activities, follow them, pursue them in a threatening manner, make threats against the person, and threaten self-harm.”
- (Stokes and colleagues, 2007)

Strategies for Challenging Behaviors

- Stalking Behaviors
 - Prevention by education through visuals and social stories and increasing appropriate social skills
 - If behavior is occurring, educate individual about the stalking and the law
 - Gradually decrease stalking (if person they are stalking is willing) by giving individual “appropriate time” with that person (reduce this time in small increments on a daily basis while combining reinforcement)
 - If person they are stalking is not willing to be involved, use visuals of others on the internet that may look like that person and then gradually reduce exposure to these pictures

Strategies for Challenging Behaviors

- Indecent Exposure
 - Occurred in 3% of one sample (Fernandes and colleagues, 2016).
 - Lag between interest in exploring and talking about sexual developmental compared to neurotypical individuals
 - They start to engage in “sexual play” at an older age
 - Prevent by teaching earlier
 - Educate about the laws of exploring privates with younger individuals and posting sexual pictures on the internet and in public

Strategies for Challenging Behaviors

- Gay, Lesbian, Transgender Thoughts and Behaviors
 - Lots of case examples, almost 8% of individuals referred to a gender identity clinic also had a diagnosis of ASD (De Vries et al., 2010).
 - Another study reported 5% of individuals interested in same sex and 5% interested in both sexes (Fernandes et al., 2016).
- Resources:
 - Sex, Sexuality and the Autism Spectrum (Lawson, 2004)
 - The Autism Spectrum Disorder Guide to Sexuality and Relationships (Goodall & Lawson, 2016)

Strategies for Challenging Behaviors

- Special Interests and Sex
 - Their sexual desires and fantasies are similar to those found in the general population
 - Some case examples of using objects to masturbate and using special interests in masturbation/sexual act – one study reported 24% of some type of “paraphilia”, mostly described as a “fetish” (Hernandes et al., 2014).
 - Watch out for “you tube poop”.

Other Clinical and Ethical Considerations

- Trauma
 - Assessment - Is it ASD or Trauma or both?
 - Importance of developmental and family history

Assessment - Trauma

The Three E's: Event, Experience, Effect

Categories

- Abuse: Physical, Sexual, Emotional
- Neglect*
- Serious accident, illness or medical procedure
- Victim or witness to domestic or community violence
- Historical trauma
- School violence/Bullying
- Natural or manmade disasters/Forced displacement/War/Terrorism
- Victim or witness to extreme interpersonal violence
- Traumatic grief or separation Myers, B, 2018

How Children Respond to Trauma

Reactions to trauma will vary depending on:

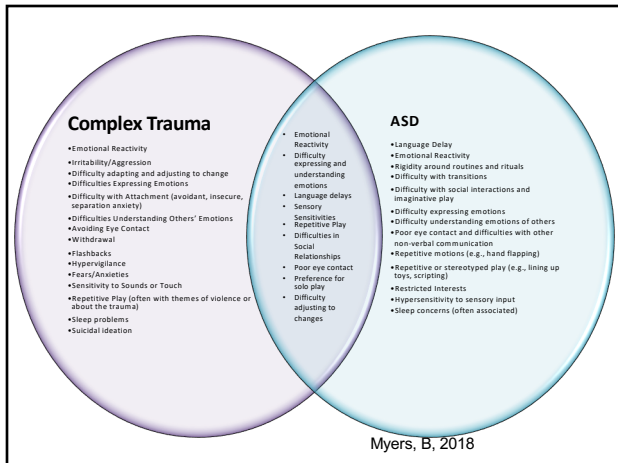
- Age and developmental stage
- Temperament
- Perception of danger faced
- Trauma history (cumulative effects)
- Subsequent experiences
- Availability of those [adults] who can offer help, reassurance, and protection

Adapted from NCTSN.org

Trauma Manifestations

- Toxic trauma may interfere with healthy development and affect an individual's:
 - Ability to trust others/develop relationships
 - Sense of personal safety
 - Ability to manage emotions
 - Ability to navigate and adjust to [life's] changes
 - Physical and emotional responses to stress
 - Ability to manage despair and hopelessness

Adapted from NCTSN.org



Diagnostic Differentiation: ASD vs. Trauma

- Gather detailed case history, Information about symptom onset, and trauma history (when possible)
 - Be careful to avoid re-traumatization
- Gather specific examples of behavioral symptoms and triggers
- Gather information regarding the nature of repetitive behaviors and repetitive play
- Gather information regarding nature of social difficulties (including onset/history) and make specific observations of social interactions during play
- Understand sensory sensitivities and rigidity or avoidance in context of trauma history

Myers, B, 2018

Other Clinical and Ethical Considerations

- Independent Living Skills
- Transition Services
- Career Planning
- Long Term Care
- Guardianship

Other Clinical and Ethical Considerations

- Cost of Services
 - <https://www.autismspeaks.org/tool-kit/financial-planning-tool-kit>
 - Assessing funds through school program
 - Assessing funds through health insurance
 - Medicaid Funding
 - Home and Community Waivers
 - Supplemental Security Income
 - Social Security Disability Insurance
 - Special Needs Trusts

Other Clinical and Ethical Considerations

- Long Term Care
 - Guardianship
 - Conservatorship
 - Power of Attorney
 - Representative or Protective Payee

Other Clinical and Ethical Considerations

- Career Planning
- Assessment tools
 - Self-Directed Search (Holland)
 - Community Based Assessment ([Autism Speaks](#))

**Ethical, legal or social issue:
Diagnostic reclassification of NDD/ASD**

- Responsible Agent: Health care and other professionals
- Goal, value, and resolution:
 - Emphasize scientific specificity and accuracy
 - Avoid false perceptions of new “epidemics”
 - Uphold the ethical duty of the medical profession to inform the public through education campaigns when diagnostic changes result in the augmented prevalence of certain behaviorally defined NDD

Graf et al., 2017.

**Ethical, legal or social issue:
Neuroscience research in NDD**

- Responsible Agent: Advocacy groups; health care and other professionals; governments
- Goal, value, and resolution:
 - Identify neurobiological mechanisms and the possibility of targeted therapies for biologically defined NDD
 - Adhere to the codes and policies for research ethics
 - Provide funding for research in all NDD

Graf et al., 2017.

**Ethical, legal or social issue:
Autism screening policies and practice**

- Responsible Agent: Parents and advocacy groups; health care and other professionals
- Goal, value, and resolution:
 - Recognize potential harm (e.g., parental anxiety) in premature diagnosis
 - Assess the balance of benefits and harms of early autism/ASD screening
 - Define the appropriateness of timely diagnosis for each child and family

Graf et al., 2017.

**Ethical, legal or social issue:
Genetic testing in mild NDD**

- Responsible Agent: Health care and other professionals; governments
- Goal, value, and resolution:
 - Guarantee ample pretest genetic counseling about the complexity of NDD and neurodiversity
 - Discuss the high probability that genetic test results will not directly alter management
 - Obtain informed consent and provide timely feedback of results

Graf et al., 2017.

**Ethical, legal or social issue:
Diagnostic needs assessment of
individuals with NDD**

- Responsible Agent: Health care and other professionals
- Goal, value, and resolution:
 - Provide a rating of the severity of functional impairment and an identification of individual needs

Graf et al., 2017.

**Ethical, legal or social issue:
Educational services for children with
NDD such as autism/ASD**

- Responsible Agent: Parents; health care and other professionals; governments
- Goal, value, and resolution:
 - Recognize that some therapies may benefit some children, but not all
 - Encourage individually designed instruction to meet the specific needs of each child and family in the least restrictive environment
 - Monitor meaningful progress and response to intervention (according to Public Law 108-446)
 - Include all children in mainstream school activities, to the greatest extent appropriate
 - Plan for and maintain effective and appropriate support services beyond adolescence

Graf et al., 2017.

Ethical, legal of social issue: Linking educational and social services to diagnosis

- Responsible Agent: Parents and advocacy groups; health care and other professionals; governments
- Goal, value, and resolution:
 - Emphasize the ethical duty of the medical profession to accurately diagnose and to advocate for services that are both necessary and effective
 - Stress the ethical duty to warn against nonbeneficial services or activities that cause harm or additional burden to individuals with NDD and their families

Graf et al., 2017.

Ethical, legal or social issue: Neurodiversity

- Responsible Agent: Advocacy groups; health care and other professionals; governments
- Goal, value, and resolution:
 - Embrace neurodevelopmental differences among humans and neurodiversity in society
 - Recognize neurodevelopmental variation in children
 - Provide accommodations for individuals with neurodevelopmental disabilities
 - Protect against discrimination according to civil rights laws

Graf et al., 2017.

Ethics in Complimentary and Alternative Medicines (CAM)–

Educating Parents in Understanding Research

- Investigate
 - Range of treatments available in your area
 - Maintain a resource directory of available services in your area
 - Consider the scientific merits of theories behind different treatments
- Talk to families
 - Ask what treatments your patients are pursuing in addition to the standard educational and developmental theories
 - Provide a neutral/non-judgmental environment so that families will be more likely to be open with their response
 - Respect parents' search for different treatment options – agree to disagree
- Educate families
 - Appropriate treatment approaches
 - How to evaluate the scientific validity of treatments (e.g., standard diagnosis, standard dosage of treatments, adequate sample size, valid treatment outcome measures, randomized treatment, placebo controlled trial, claims of cures, etc.)
 - Potential risks or harmful effects of treatments
 - Investigate healthcare credentials of practitioners and quality of service providers

From Levy and Hyman (2003)

Thank you!
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