

Autism Spectrum Disorders Assessment & Treatment

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Introduction

- **Population Characteristics**
- **Screening & Diagnosis**
- **Treatment Approaches**

Pervasive Developmental Disorders

Pervasive Developmental Disorders
(Autism Spectrum Disorders-Continuum)

**Autistic
Disorder**

**Aspergers
Disorder**

PDD,NOS

**Retts
Disorder
CDD**

Pervasive Developmental Disorders (Triad of Impairments)

- Social
 - Communication
 - Behavior

Epidemiology

Previous estimates:

- 4-5/10,000 (Lotter ,1966)

Higher rates cited in recent studies

CDC (2007)

1 in 150 U.S

1 in 169 Colorado

Incidence vs. Prevalence?

- Incidence - # of new cases over time, causal research, needs tightly-controlled epidemiological studies
- Prevalence – Proportion of individuals in the population who suffer. Helpful estimate of service needs.

Mandated Reporting of ASD

- Health Care providers mandated to report ASD diagnosed in children < 10 yrs old.
- Colorado Dept. of Public Health & Environment (303-692-2700)

Autistic Disorder: *Current Understanding*

- Autism is a “behavioral symptom constellation signaling underlying nervous system dysfunction”

Aicardi, 1998

Autism Spectrum Disorders (DSM-IV-TR)

Autistic Disorder

- Onset before 36 months in at least 1 of the following areas:
 1. Social interaction
 2. Language as used in social communication
 3. Symbolic and imaginative play

- Not better accounted for by Rett's or Childhood Disintegrative Disorder

Autistic Disorder DSM-IV-TR

A. Social Impairment

- Nonverbal behaviors to regulate social interactions
- Peer relationships appropriate to developmental level
- Shared enjoyment
- Social/emotional reciprocity

Cognitive Theories of Social Deficits

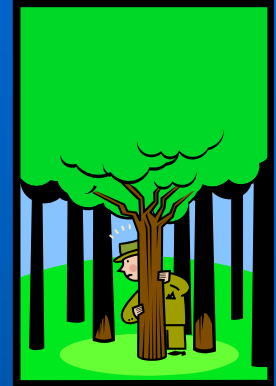
Theory of Mind (ToM)

(Baron-Cohen, 1995; Baron-Cohen, Tager-Flusberg, & Cohen, 2000)

- Deficit in the ability to attribute mental states to others (“mind-blindness”)/understand others’ intentions & predict their behavior
- Impaired mentalizing ability:
 - taking a hint
 - reflect on own thinking/self-awareness
 - Problem-solving
- Often impaired in the social use of language (conversations), despite sometimes good rote language skills



The Weak Central Coherence theory (Frith, 2003)



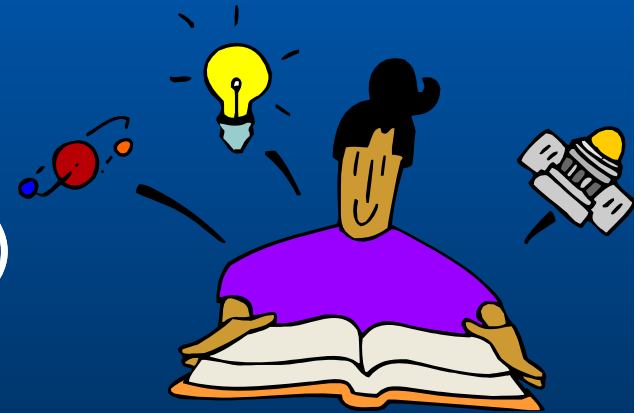
- Focuses on detail at the expense of context and holism “big picture” .
- Social world heavily dependent on integration of details (facial expression, vocal intonation, gestures and body language, & verbal content in context)



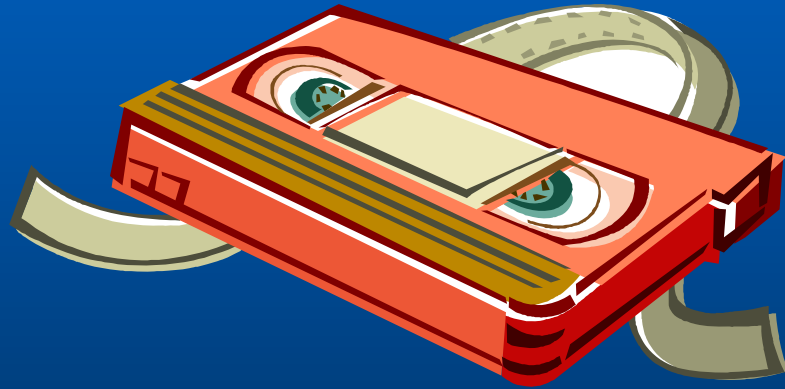
Executive Dysfunction

(Ozonoff, 1995; Russell, 1997).

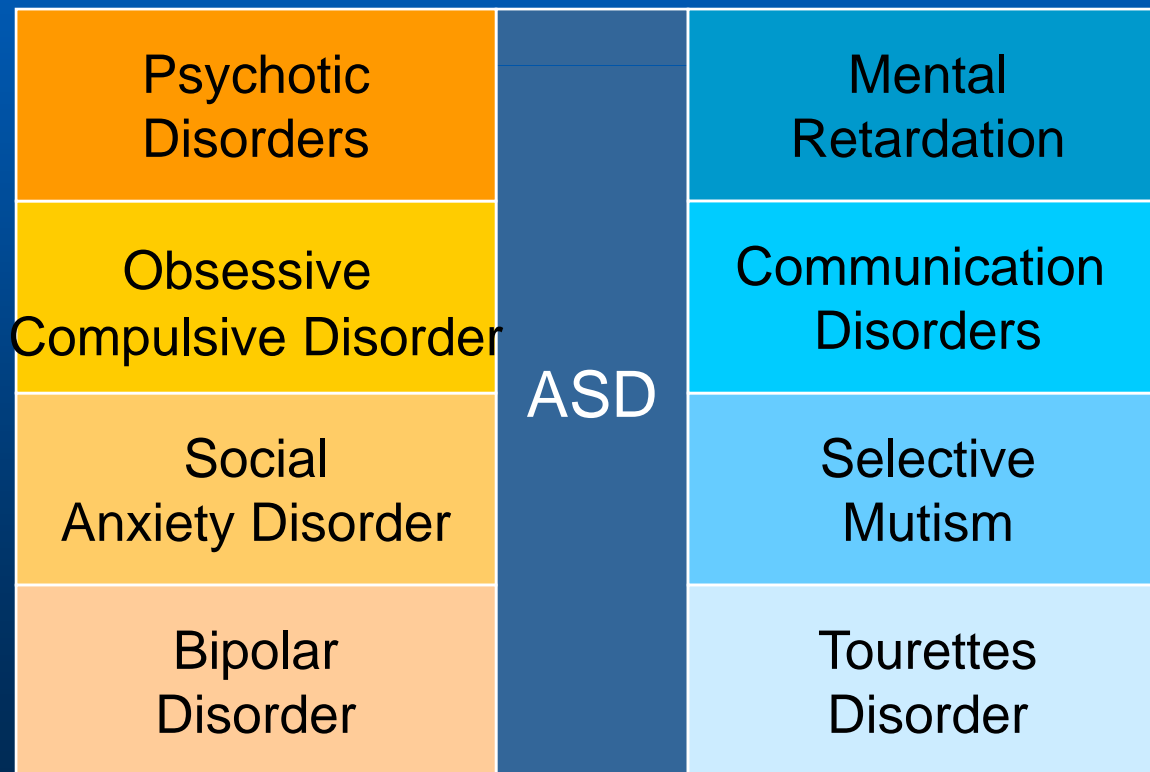
- Deficit in executive functions including:
 - Cognitive flexibility
 - Planning (e.g., inability to apply social rules flexibly)
 - Impulse control, organization
 - Initiating activity (time concepts)
- Also found in a range of neurodevelopmental disorders (e.g., Schizophrenia, ADHD, Tourettes Syndrome)



Video clip:
Discussion of Relationships
7 y/o with Autism



Social Impairment

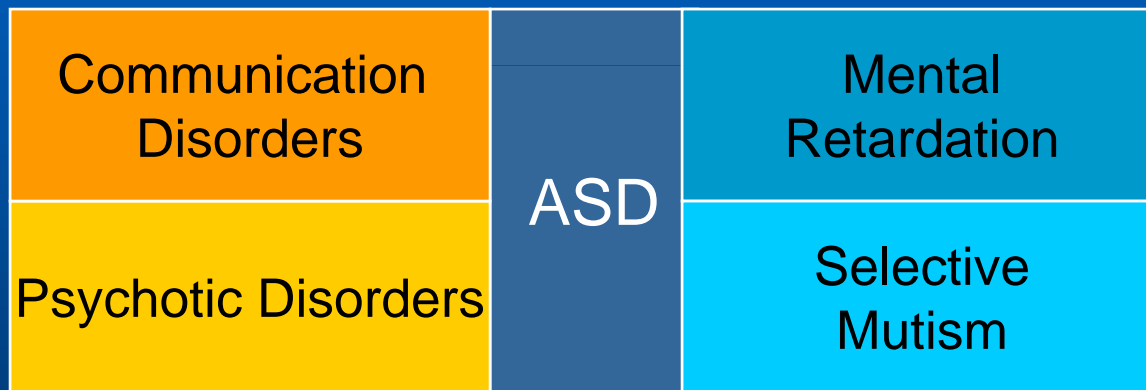


Autistic Disorder DSM-IV-TR

B. Communication Impairment

- Language acquisition
- Conversation
- Stereotyped/repetitive language
- Imaginative and social play

Communication Impairment



Social & Communication Red Flags

- Shared positive affect (social smiles) & expressiveness
- Social interaction
- Social anticipation
- Eye contact/gaze shifting
- Response to name
- Social babbling
- Use of gestures and words, loss of words
- Imitation
- Joint attention (initiating and responding to)

Decreased frequency in these areas evidenced as early as 14 mos.

By 24 mos. these differentiate autism vs. DD and LD (Landa et al., 2007)

Joint Attention: Precursor to communication/language development

- Ability to coordinate one's own attention between an object and another person to communicate a need and share and interest.

Joint Attention (Typical Development)

2 mos....reciprocal smiling

5 mos....attachment to caregiver

8 mos....gaze monitoring

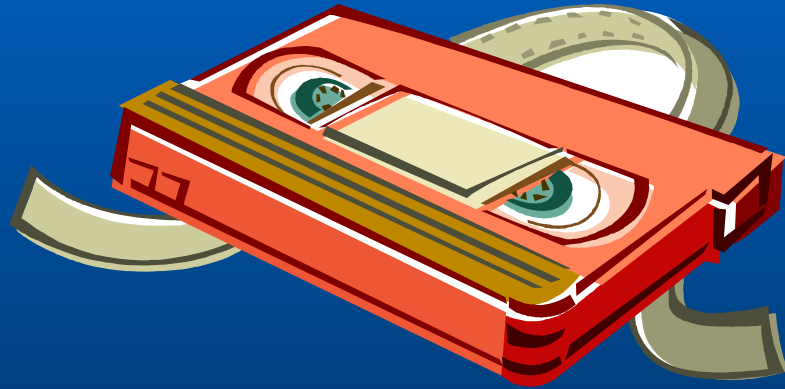
10 mos....follows a point

12 mos....proto-imperative pointing (indicate a need)

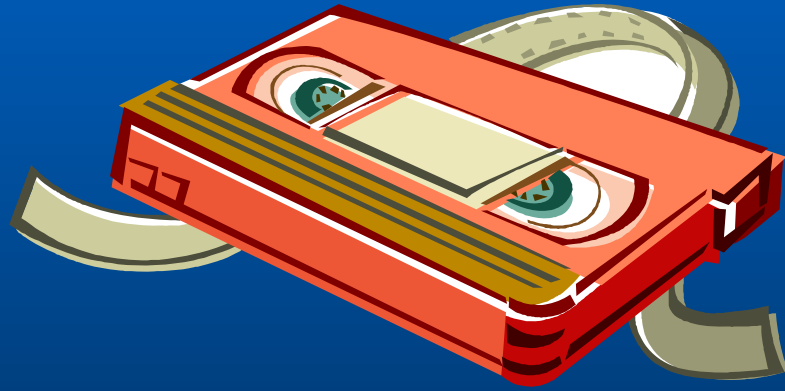
14 mos....shows object

14 mos....proto-declarative pointing (share an interest)

**Video clip:
21-month-old typical
child**



Video clip: 3 year-old child with autism



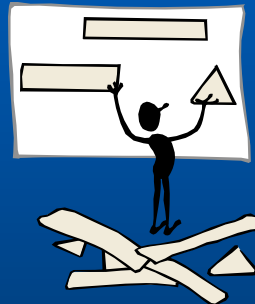
Autistic Disorder DSM-IV-TR

C. Restricted, repetitive and stereotyped behavior, interests, activities

- Circumscribed interests

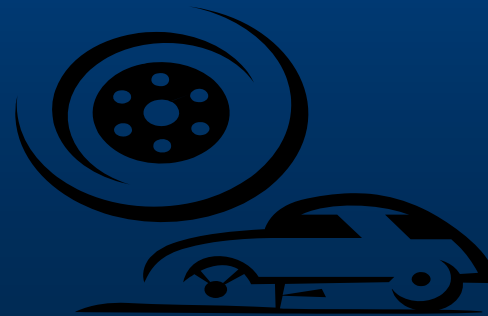


- Routines and rituals

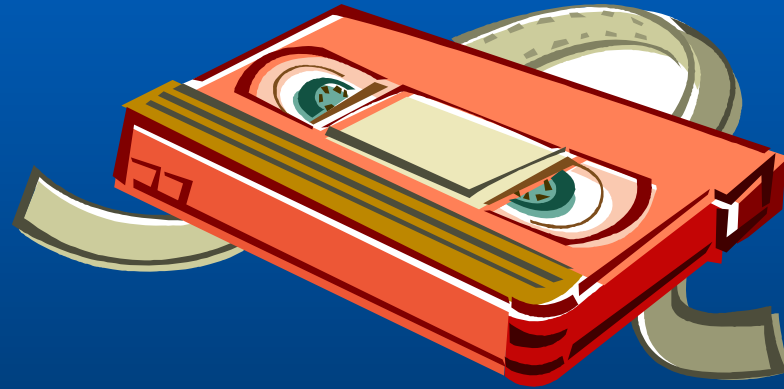


- Motor mannerisms

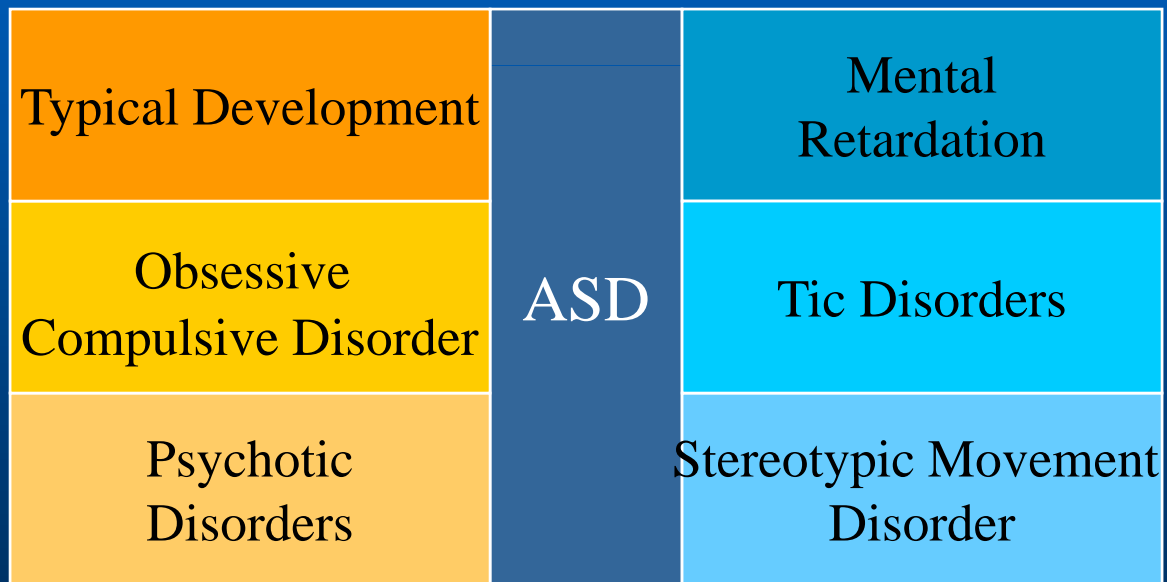
- Preoccupations



Video clip:
Compulsive Behavior
School-age Child with autism



Restricted and Repetitive Behavior (RBs)



Symptom Heterogeneity

- Heterogeneity of core features is obstacle to accurate assessment, research, & treatment.
- However, focus on the triad of impairments and the combination of positive and negative symptoms enables classification

Heterogeneity of Core Symptoms

AREA

Mild

Moderate

Severe

Social

Interested
but odd

Passive

Aloof

Communication

Verbal but
rigid

Echolalia, Jargon,
indicates wants

Non-verbal, may
use others' hands
as tools

Repetitive Behaviors

Somewhat
inflexible
routines and
interests.
Minimal
interference

Moderately resists
change in
routines/activities,
motor movement
stereotypes

Extreme resistance
to change in
routine/activities,
Persistent motor
movements

Heterogeneity of Associated Symptoms

<u>AREA</u>	<u>MILD</u>	<u>MODERATE</u>	<u>SEVERE</u>
Nonverbal IQ	Gifted to Average	Borderline IQ to mild MR	Moderate to severe MR
Motor Skills	Agile gross motor & Coordinated fine motor Skills	Some mild to Moderate impairments in gross and/or fine motor skills	Awkward & uncoordinated gross and/or fine motor skills
Sensory	Mild to no Notable Sensory issues	Moderate sensory issues: hypo or hypersensitivity	Extreme sensory issues: hypo or hypersensitivity

Autism Population Characteristics

- Male/Female Ratio: 4:1
- Siblings of children with autism: increased genetic risk for developing ASD variants
- Equally distributed among social classes, ethnic & racial groups, and nationalities
- 50% “reportedly “lose” skills in 2nd year of life, but the significance (i.e., cause and life-course) is unknown

Autism Population Characteristics

- Est. 66-70% (who meet strict autism criteria) also meet criteria for a DSM-IV diagnosis of mental retardation/intellectual disability (Chakrabarti & Fombonne, 2001; Yeargin-Allsopp, 2003)
- Level of intellectual functioning = most common concept to describe autism severity (Ozonoff, Goodlin-Jones, & Solomon, 2005).
- Parents' views of MR/ID differ significantly from professionals (12.6% co-occurrence in autism) (Goin-Kochel, Peters, & Tredwell-Deering, 2007).

Autism Population Characteristics

- Est. 50% do not develop an ability to communicate effectively.
- 50% “reportedly *lose*” skills in 2nd year of life, but the significance (i.e., cause and life-course) is unknown
- Majority continue to demonstrate marked impairments in social relatedness.

Autism Population

Characteristics

- Adaptive functioning markedly lower than intelligence levels
- Pattern appears unique to the ASD population
- Less of an increase over time in adaptive functioning domains (social and daily living) (Gabriels et al., 2007)

Same or Different? HFA vs. Asperger's

- Numerous studies continue to find little empirical support for separate disorders
- Evidence suggests Asperger's is a milder form of autism and should be considered on the same spectrum

Autism Spectrum Disorders (DSM IV/ICD-10)

Asperger's Disorder

- Social deficits like autism
 - Restricted, repetitive, stereotyped Behavior interests and activities
 - *Disturbance causes clinically significant impairments (social, occupation, or other imp. areas of functioning)*
- **By exclusion**
- Not autism

Atypical Autism/PDD-NOS

- Must have social deficits like autism
- Must have either or both communication or repetitive behaviors like autism
- **By exclusion**
 - Must have social deficits
 - May meet 2 criteria but not the third (e.g., have communication deficits or restricted, repetitive behaviors) or may fall sub threshold on all 3 domains
 - May have late onset

**Co-morbid
Conditions
&
Differential
Diagnosis**

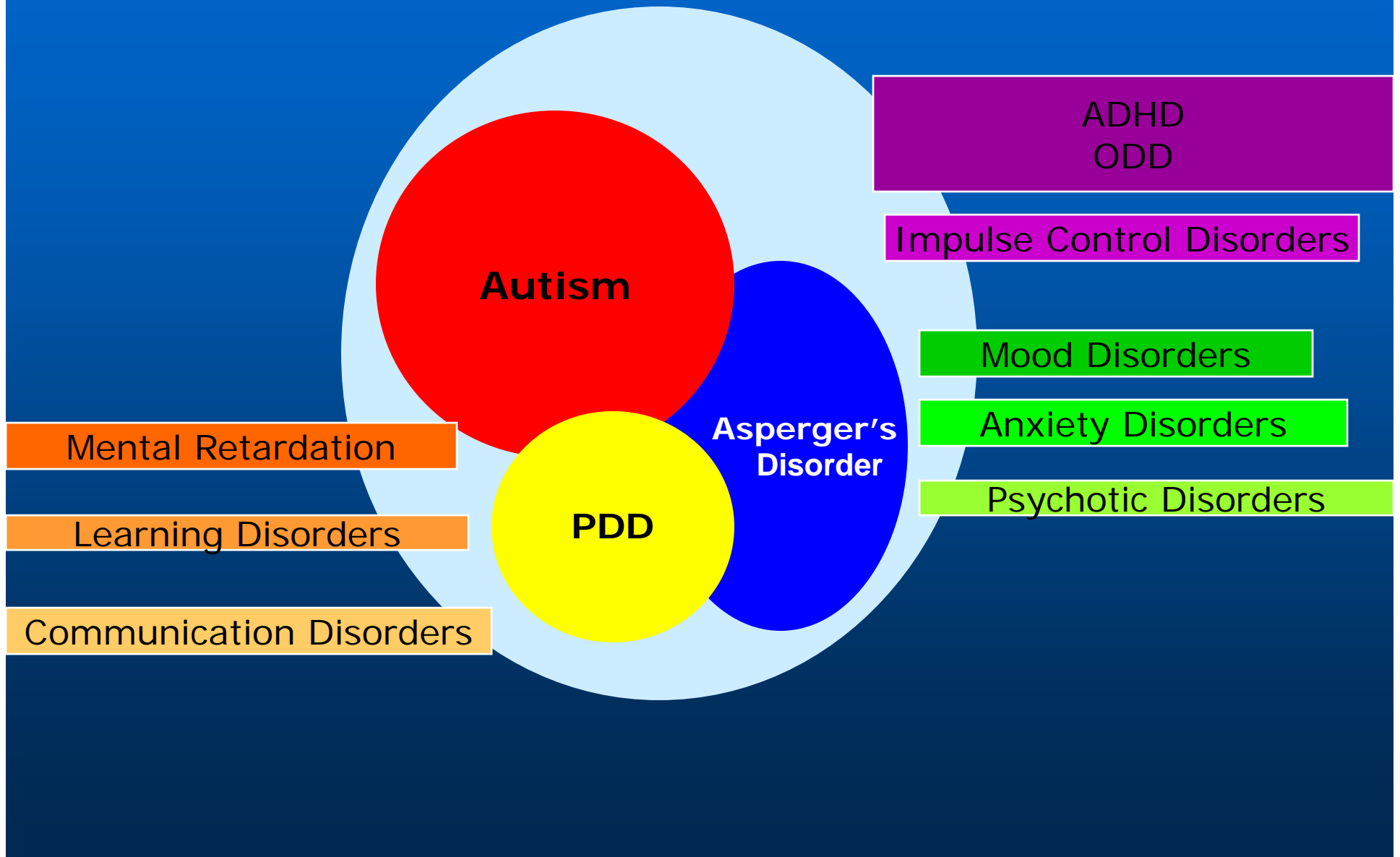
Co-occurrence and symptom overlap

Genetic Syndromes

- Fragile X 2-5%
- Tuberous Sclerosis 1-3%
- Soto's Syndrome ?
- IDIC 15 ?

Co-occurrence and symptom overlap

DSM-IV TR



Co-morbid psychiatric diagnoses

- Higher psychiatric/behavioral disorders in Autism/MR vs. MR groups
(Bradley et al., 2004; Matson et al., 1996)
- Deterioration in behavior in adolescence can be linked to affective disorders
(Gilberg, 1999)

Co-occurring Medical Conditions



- Need vigilant consideration for the presence of underlying medical conditions that may lead to insidious behavioral deterioration.

Medical Considerations

- Medication side-effects (Constipation)
- Gastrointestinal Symptoms (Constipation, flatus, diarrhea, bloating, Reflux esophagitis)
- Seizures (35-45%)
- Sleep problems (poor quality of sleep)
- Ear infections/hearing impairments
- Dental problems
- Migraine or pain of any kind

Screening & Diagnosis

Practice Parameters

Filipek et al. 1999

American Academy of Pediatrics 2006



A. Screening

Process:

- Survey developmental skills in all domains
- Elicit & attend to parent concerns
- Direct observation of child
- Medical evaluation (Hearing and vision)
- Lead screening (particularly for children at oral-motor stage)
- Autism-specific symptom screening
- Diligent surveillance of siblings
- May show first signs at 24 mos.

Evidence Based Screening Tools

- Social Communication Questionnaire (SCQ)
- Social Responsiveness Scale (SRS)
- Checklist for Autism in Toddlers (CHAT/ M-CHAT)*
- Early Screening for Autistic Traits (ESAT)*
 - *(15-18 mos.)

* Variable Sensitivity and Specificity

B. Diagnostic Assessment: Important Elements

1. Interview with parents : **ADI-R**

Autism Diagnostic Interview - Revised, Rutter, Le Couter, & Lord (2003)

- Developmental history
- Pervasiveness of behaviors

2. Assessment of Child: **ADOS**

Autism Diagnostic Observation Schedule, Lord, Rutter, DiLavore, Risi (1999)

- Create context to observe diagnostic behaviors
- Include parents

Interventions

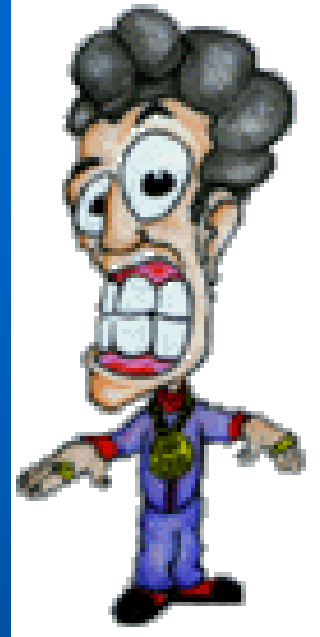


Pharmacologic Interventions

- **Behavioral & drug treatments are complementary and can be integrated.**

Common Targets

- Aggression
- Anxiety
- Hyperactivity
- Sleep
- Stereotypes



Behavior Interventions

Behavior Learning Theory

- *Operant*: e.g. ABA, Lovaas
Focus on consequences of behavior

- *Cognitive-Behavioral*:
Focus on antecedents of behavior

**TEACCH (Treatment and Education of
Autistic and Related Communication
Handicapped Children)**

Behavior Learning Theories

- Most extensively researched evidencing effective outcomes

Behavior Learning Theory



Operant Techniques

- **Reinforcement**
- **Error Correction**
- **Prompting and Modeling**
- **Backward Chaining**
- **Shaping**
- **Errorless Learning**
- **Generalization Rules**

General Cognitive- Behavioral Intervention Strategies:

- Visual Cuing/Supports
- Simple Language/Clear Expectations
- Response Time
- Environmental Modifications
- Demonstration/Modeling
- Positive Reinforcement (first/then)
- Repetition & Routines

Visual Cuing

- Goal: Provides a structure that helps decrease potential anxiety due to lack of predictability and understanding.

Visual cues answer:

- 1. "What do I do?"*
- 2. "How much needs to be done?"*
- 3. "When am I finished?"*
- 4. "What happens next?"*

Environmental Modifications

- Add contextual cues
- Clarify boundaries
- Minimize Distractions and Stimulation

Individual Issues

- Social Skills (Social Stories)
- Communication Skills
- Self-regulation/calming
- Developmental/academic/pre-vocational Skills

- Adaptive functioning Adaptive Daily Living Skills
 - Communication
 - Social
 - Self-care
 - Leisure skills

- Sensory Issues

- Sexuality Issues (self-care, social skills, & safety)

Family Issues

- In-home and community therapy teams
- Parental involvement in therapy & monitor stress levels
- Sibling issues

Community Issues

- School integration & transitions
- Safety/legal
 - Elopement
 - Victims of Crimes
 - Perpetrators of crimes

Treatment of Children with Autism Involves Multiple Systems

Individual
Child

Family
(Parents & Siblings)

Community
(In-Home therapists, (Specifically-Trained Respite Care workers, therapists, Physicians, School personnel)