

# Diagnosis & Treatment of Milder Variants of ASD: Kids on the Border

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# What is Autism Spectrum Disorder?

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In the first 3-4 years, children make monumental developmental strides:

- They learn how to regulate arousal.
  - They gain physical coordination.
- They develop increasing knowledge about persons and objects in the world.

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While individual growth patterns vary, most typical children attain developmental milestones at an even rate.

All areas of development are intimately related.

## Autism Spectrum Disorder (ASD)

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is a heterogeneous syndrome with multiple etiologies. Currently, the view is that some factor or combinations of factors act through one or more mechanisms to produce a final common pathway in CNS, that results in the behavioral syndrome of ASDs.

ASD is a behaviorally defined syndrome best viewed as a social communication learning disability involving a triad of core symptoms:

- Impairment in social interaction.
- Impairment in verbal and nonverbal communication.
- Restricted, repetitive stereotyped patterns of behaviors, interests and activities.

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There is no evidence of parenting defects or emotionally induced Autism.

There is no consistent evidence of social class association.

Progress has been made in diagnosis, establishing biological basis and designing appropriate intervention.

## What Causes ASDs?

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Available evidence indicates that initial abnormalities in ASDs may occur during early period of brain development, i.e. before birth. Various possible causes (infectious, metabolic, immunological, neurophysiologic, environmental) may lead to a similar pattern of development which results in Autism.

(Bristol Powers 1997)

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For at least a significant subgroup of individuals with ASDs, there appears to be genetic susceptibility that most likely involves more than one gene and may differ across families - i.e., different genes may be responsible in different families.

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Evidence suggests there may be a higher prevalence of a variety of problems in pregnancy, at birth or even after birth in children with ASDs than is the case for comparable, non-autistic children. However, these problems do not appear to cause ASDs, but may reflect that fetal or neonatal development was compromised in some way.

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Rigorous evaluation of the effectiveness of currently available medical approaches to treatment - including alternative or complementary medical therapies - is needed. Improvements over placebo-control evaluation designs are also needed.

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Intervention research requires well-trained investigators, longitudinal research designs, and infrastructure needed to support such research.

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Research has the potential to facilitate creation of newer approaches to treatment that utilize advances in neuroscience, genetics, immunology and other neurobiological, behavioral and pharmacologic fields.

## A Few Facts about ASDs

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- 1) Autism occurs in 1 in 150 births.
- 2) Early diagnosis & intervention can change the outcome for children with ASDs.
- 3) No matter how the child with autism is affected, intensive intervention is necessary. (National Research Council, 2001)

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4) Research has shown Applied Behavior Analysis (ABA) to be the most effective intervention for all children with ASDs.

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5) Recent research studies have shown that even very mild social communication issues in younger children result in significant behavioral problems as they get older. (Skuse et al, 2009)

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6) The majority of children with Autism Spectrum Disorders are not receiving appropriate intervention.

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Recent Headline:

“Schools Failing Children with Disabilities”

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The Individuals with Disabilities Education Act (IDEA), first adopted in 1975, requires public schools to identify children with disabilities and provide them with a need specific, free education in the least restrictive environment.

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In 1990 Congress added Autistic Disorder as a disability category to IDEA. Since then, there have been dramatic increases in the number of children served under Autism in the U.S. school system:

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- In 1999/2000 – 65,424 students were served under the category of Autism.
  - In 2006/2007, this increased to 258,000 students served under Autism - almost a 400% increase.

(Digest of Education Statistics; Table 50, Sept 2008)

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Over the past decade, the costs of complying with IDEA have skyrocketed and local school districts across the country are scrambling to find money to meet the needs of disabled children in overflowing classrooms.

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Total spending on special education has increased from an average of \$9,858 per pupil in 1985/1986 to \$12,474 in 1999/2000.

(24<sup>th</sup> Annual Report to Congress; What Are We Spending on Special Education Services, June 2004)

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Currently, more than 6.7 million children receive special education services through IDEA according to the U.S. Dept. of Education.

(Digest of Education Statistics; September 2008)

## How the Term Asperger's Syndrome is Used

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Scientific use of the term is rare and raises the question:

Is Asperger's Syndrome (AS) a distinct disorder from Autistic Disorder (AD) or is it on a spectrum of social communication disabilities with other autistic disorders?

In both scientific and popular use, Asperger's has been used to refer to individuals with different manifestations of ASDs including:

- High-functioning Autism
- Adults with Autism
- Eccentric people (“nerds”)
- Socially vulnerable adolescents with circumscribed interests
- Numerous famous people

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Asperger's syndrome has also been used as a conceptual bridge between autism and the general population.

Confusion and controversy surrounding the definition and validity of AS means that its status as a condition separate from AD remains uncertain.

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The prevailing view among clinicians, researchers and advocates alike is that, regardless of uncertainties, AS individuals have a social disability and require strident intervention.

## DSM-IV Criteria for Asperger's Disorder

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A. Qualitative impairment in social interaction as manifested by at least 2 of the following:

- 1) Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures and gestures to regulate social interaction.

2) Failure to develop peer relationships appropriate to developmental level.

3) Lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)

4) Lack of social emotional reciprocity.

B. Restricted, repetitive and stereotyped  
patterns of behaviors, interests and  
activities, as manifested by at least one of  
the following:

1) encompassing preoccupation with one or  
more stereotyped and restricted patterns of  
interest that is abnormal either in intensity of  
focus

2) apparently inflexible adherence to specific, nonfunctional routines or rituals

3) stereotyped, repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

4) persistent preoccupation with parts of objects

C. The disturbance causes clinically significant impairment in social, occupational or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).

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E. Lack of any clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.

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F. Criteria are not met for another specific  
Pervasive Developmental Disorder or  
Schizophrenia.  
(Diagnosis of Autism takes precedence.)

## Problems with ICD-10/DSM-IV Criteria

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- Distinguishes from Autistic Disorder only in onset of language and cognitive delays.
- Threshold problem
- Most children show some delays at least in development of self-help skills and adaptive functioning.

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- DSM-IV identifies lack of development of certain behavior and does not specify positive symptoms necessary to make a diagnosis – e.g., the nature of language skills, development of social disability and restricted range of interest.

# Diagnosing Milder Children or “Kids on the Border”

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## Principles of Evaluation

All clinical team members should be familiar with and able to recognize the child’s developmental level and behaviors that correspond to diagnostic criteria for ASD.

Because symptoms change over time,  
a young child should be reevaluated at  
least annually to confirm diagnosis and  
plan treatment.

In order to enable intervention to begin as  
soon as possible, diagnostic evaluation  
should be organized and coordinated.

Diagnostic evaluation should include  
assessment of multiple domains of functioning  
in order to –

- differentiate ASDs from other conditions
- provide a complete profile of the individual's strengths and weaknesses
- aid in comprehensive intervention planning and initiation of treatment

## Planning for diagnostic evaluation before meeting with the child & family includes:

- identifying and reviewing all relevant background information
- selection of tests and alternative testing procedures
- identifying opportunities for informal observation to supplement formal assessment procedures

# Assessment

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Pervasive Developmental Disorder (PDD) implies multiple areas of development are affected.

Behaviors must be viewed in the context of developmental level.

Issues in assessment vary with age of the individual and context of evaluation.

Certainty of diagnosis depends on reliability and certainty of data obtained from multiple sources:

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- Direct observation of the child in structured, unstructured environments.
- Historical information provided by parents/caregivers.
- Information from other professionals.
- Must attend to developmental delays as well as deviances.

## Aspects of Interdisciplinary Assessment

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- Must have one person to coordinate results.
- Must note strengths as well as deficits.
- Results should be used to help diagnose, organize specific services, measure efficacy of intervention and provide prognostic information.

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## Areas of functioning to be assessed:

- Intellectual
- Communication
- Behavioral presentation
- Functional adjustment

## Evaluation Process

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Aspects of assessment will vary depending on the child's age, history and previous evaluations.

## 1. Interview & Historical Information

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Clinician must be aware of ASD symptoms in differential diagnosis such as:

- nature of social relatedness in 1st year of life
- difficulties in development of language & communication
- unusual environmental responses

Rating scales, symptom checklist may be used

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2. Pregnancy, neonatal history

3. Developmental history including social, communication and motor skills

4. Medical History - discuss possible seizures or sensory (hearing, visual) deficits; search for treatable medical conditions.

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5. History of behavior modifying medication
  6. Family history of developmental disorder
  7. Family and psychological factors

## 8. Intervention history

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- Review past interventions
- Review teacher information
- Obtain a sense of the quality, intensity and appropriateness, as well as the child's response, to interventions.

## Clinical Assessment Instruments

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- Checklist for Autism in Toddlers and Modified Checklist for Autism in Toddlers (CHAT, M-CHAT)
- Childhood Autism Rating Scale (CARS)
- Autism Behavior Checklist (ABC)
- Gilliam Autism Rating Scale-2nd Edition (GARS-2)
- Gilliam Asperger's Disorder Scale (GADS)
- Gillberg Asperger's Scale

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- Asperger's Syndrome Diagnostic Scale (ASDS)  
(Simpson et al, 2001)
  - Autism Diagnostic Interview - Revised (ADI-R)  
(Lord et al, 1997)
  - Autism Diagnostic Observation Schedule (ADOS)  
(Lord et al, 2003)

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The ADI-R and ADOS are considered the gold standard for diagnosis of ASDs.

The ADOS consists of standard activities that allow the examiner to observe behaviors that have been identified as important to the diagnosis of ASDs at different developmental levels and chronological ages.

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The ADOS incorporates use of planned social occasions (“presses”) in which a behavior is likely to occur.

Structured activities and materials provide structured contexts in which social interactions, communication and other behaviors relevant to ASDs are observed.

## Psychological Assessment

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Focus on establishing an overall level of intellectual and adaptive functioning, and describe the child's strengths and weaknesses.

## Areas to assess include:

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- Verbal & non-verbal problem solving skills
- Concept formation
- Style of learning
- Memory skills
- Adaptive functioning
- Motor and visual/motor skills
- Play and social recognition

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The primary goal of psychological assessment is to provide a framework for clinical observation by describing the child's overall cognitive development.

This must be interpreted cautiously.

Use to determine eligibility for services.

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Assessment of overall cognitive functioning is only the first step.

Purpose is not to generate an overall score.

The purpose is to generate an individual profile of strengths and weaknesses that can be used to maximize the child's learning potential and optimize learning.

## Issues in Psychological Assessment of ASDs

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Standardized tools should be used, but it may be necessary to make clinical modifications.

Adaptations are considered when usual supports (breaks, distraction from setting) are not sufficient to establish rapport and motivate the child.

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When there is a break in standardized procedures, results must be interpreted cautiously.

The child's level of interest and engagement  
must be considered.

- Usual verbal instructions, social reinforcements may not be sufficient.
- May have to determine external reinforcers.
- May need to vary task presentation, alternate verbal and hands-on tasks.

Knowledge of available psychological instruments. Must consider –

- level of language skills required
- complexity of instructions & tasks
- level of social demands
- utilization of timed tasks
- # of shifts from one subtest to another

## Social Adaptive Behavior

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Refers to capacity for personal self-sufficiency in real life situations, i.e. the natural environment.

In ASDs there is usually a large discrepancy between cognitive and adaptive skills.

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Adaptive behavior assessment cannot be over emphasized.

It gives the clinician essential indicators of the extent to which the child is able to utilize potential in adapting to environmental demands.

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## Assessment Tools include:

- Vineland-II Adaptive Behavior Scales
- Scales of Independent Behavior - Revised

## Neuropsychological & Academic Assessment

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May be used to supplement psychological assessment and when there are concerns about specific patterns of behavior.

Measures may include:

- Academic levels

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- Sensory/perceptive functions (tactile, visual, auditory)
- Laterality and psychomotor functions related to speed, visual-motor integration
- Assessment of motor skills and motor functioning related to speed, strength, coordination of movement.

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- Attention in various sensory modalities
  - Specific language and memory skills
  - Concept formation and planning or executive functioning, such as forward planning, categorization, strategy, general and mental skills

## Common Assessment Tools

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For Academic Skills:

- Woodcock-Johnson measures
- Wide Range Achievement Test (WRAT-III)
- Wechsler Individual Achievement Test (WIAT-II)
- BRIGANCE System measures

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## For Motor Skills:

- Berry-Buktenica Developmental Test of Visual Motor Integration
- Bender-Gestalt Visual Motor Test

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For Social-Emotional Functioning:

- Social Skills Rating Scales (SSRS)
- Social Skills Improvement System (SSiS)
- Social Responsiveness Scale (SRS)

Traditional projective and personality tests are usually not helpful in ASDs.

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## For Executive Functioning:

- Behavior Rating Inventory of Executive Functioning (BRIEF)
- Behavior Rating Inventory of Executive Functioning – Preschool (BRIEF-P)

## For Play Skills:

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- Structured Play -

Functional / manipulative vs.  
Representational / imaginative

Role-playing yields information on the child's ability or inability to take the perspective of others.

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- Unstructured Play

Yields information about self-control and self-monitoring, and about the child's behavior when left to his/her own devices (organizational skills).

Contrast to structured play

## Communication Assessment

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Impaired communication is a hallmark of ASD.

We must view communication  
in the context of the whole person as a  
member of a family and community.

(Pragmatics of language)

## Communication Impairments:

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- Abnormalities in intent to communicate
- Echolalia
- Pragmatic communication deficits

Speech may be delayed, but assumptions are that children with ASDs will speak.

## Social Impairments:

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- Must include information about social communicative & social affective behavior
- Non-verbal communication

## Assessment of Verbal Children

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Social and play behaviors continue to be the focus.

More standardized tests become options to assess the following areas:

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- comprehension & expressive language
  - vocabulary & semantic relations
  - syntax and morphology
  - pragmatics
  - articulation
  - prosody
  - spontaneous language samples

## Specific Considerations in Verbal Children:

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- Ability to manage conversational exchanges (topic management, initiation)
- Ability to recognize, respond to clarification requests - or to request clarification
- Ability to demonstrate appropriate interactions

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- Ability to interpret non-literal language correctly
  - Ability to recognize indirect & polite cues
  - Awareness of need to shift style, manner (student / teacher vs. person / person)

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- Ability to modulate tone, volume, prosody
  - Flexibility in dealing with a range of situations
  - Ability to use language for the purpose of learning & task management

# Mental Status Examination: Structured & Unstructured

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## Social Interaction

Relationship to both familiar & unfamiliar adults must be evaluated separately.

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- Is the child interested in social interaction or aloof?
  - Does the child passively accept social interaction, but not generally seek it?
  - Is the child interested in social interaction, but limited because of eccentricities or oddness?

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- Can the child make & sustain eye contact and use it to regulate social interaction?
  - Does the child use nonverbal behavior to regulate interaction?
  - What is the nature of the child's attachment to family?

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- Does the child share enjoyment of others?
  - Does the child have and make friends?
  - Are peer relationships appropriate to developmental level?

## Communication Skills

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- Is the child verbal or mute?
- If the child is mute, is there some attempt at nonverbal communication?
- If the child is verbal, can he/she initiate and maintain a conversation?

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- Are there unusual features to the child's language (stereotypical language, echolalia, pronoun reversal, overly literal or pedantic use of language, monotonic voice quality)?
  - Does the child pursue one topic regardless of conversation?

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- Can the child make inferences, understand humor, respond to indirect requests, take into account the perspective of the conversational partner?
  - Is there any suggestion of disturbance in thought process or context?

## Restricted Interests & Unusual Behavior

- Does the child have a particular preoccupation or special interest?
- If so, does it interfere with functioning?
- Does the child have difficulty with change?
- Does the child have difficulties with transitions, or adhere to specific routine?

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- Are stereotypical movements present?
  - If so, when do they occur? Can they be interrupted?
  - Is the child preoccupied with parts of objects?

## Play

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- Can the child use play materials in a truly imaginative way?
- Does the child become preoccupied by unusual aspects of play materials (feel, sound)?
- Is play repetitive & stereotyped in nature?

Assessment of some cognitive abilities  
can also be obtained by observation of  
play stages and development.

- sensory motor
- functional/symbolic
- simple constructive
- imagination
- dramatic/social play

## Other Observations

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- Does the child's behavior interfere with programming?
- What is the child's reaction to changes in the environment?
- What are the child's areas of strength?
- What activities motivate the child?
- What are the child's motor abilities?

# Differential Diagnosis

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## Pervasive Developmental Disorders

### Autistic Disorder

- Onset always in first year
- May be concern that child is deaf
- Language significantly delayed or absent
- Stereotypical body movements present especially after age 3

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## Childhood Disintegrative Disorder

Prolonged period of normal development followed by marked regression.

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## Rett Syndrome

- Very early growth development normal followed by deceleration in head growth usually by end of first year
- Development of marked mental retardation
- Unusual hand stereotypes (e.g., “hand-washing”)

## Asperger's Disorder

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- Early development of cognitive, language and adaptive skills is normal.
- Unusual interests are pursued with great intensity.
- Social deficits become more prominent as child enters school.
- If criteria for Autistic Disorder is met, cannot diagnose Asperger's.

## Pervasive Developmental Disorder, NOS (Atypical Autism)

- Criteria for other PDDs not met.
- Social deficits consistent with PDD.
- Defined exclusively on basis of clinician's judgment, not positive symptoms.

## Reliability of Differentiating PDD

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Mahoney et al (1998) evaluated abilities of DSM-IV criteria for PDD to reliably and accurately differentiate subtypes.

Information obtained on ADI-R and ADOS, and IQ raw data was independently assessed by clinicians.

## Study results:

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DSM-IV criteria show good to excellent reliability for diagnosis of Asperger's and Autism, but very poor reliability for Atypical Autism (PDD).

Clinicians had little difficulty differentiating PDD from non-PDD children and Autism from Asperger's, but had difficulty identifying Atypical Autism.

## Conclusion:

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Psychometric properties of DSM-IV criteria for Autism and Asperger's are acceptable - but there is a high rate of misclassification of children given a diagnosis of Atypical Autism (PDD).

## Criteria for Mental Retardation

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Significantly sub-average intellectual functioning - IQ of approx. 70 or below on individually administered IQ test.

For infants, clinical judgment of significantly sub-average intellectual functioning.

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Concurrent deficits/impairments in present adaptive functioning (i.e., the individual's effectiveness in meeting standards expected for his/her age) in at least two of following areas:

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- Communication,
  - Self-care & Home living,
  - Social / Interpersonal skills,
  - Use of community resources,
  - Self-direction,
  - Functional academic skills,
  - Work, Leisure, Health & Safety

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- Onset before age 18 years.
  - Degree of severity reflecting level of intellectual impairment:

Mild MR - IQ level 50-55 to approx 70

Moderate - IQ level 35-40 to 50-55

Severe - IQ level 20-25 to 35-40

Profound - IQ level below 20-25

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- **Severity Unspecified:**

When there is a strong presumption of MR, but the person's intelligence is untestable by standard measures (e.g., too impaired, uncooperative or infants)

## Differential

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- Usually language, social skills are consistent with overall level of functioning.
- Individuals with severe or profound MR may exhibit stereotypical movements.

## Specific Developmental Disorders

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### Communication Disorders

- Expressive Language Disorder
- Mixed Receptive-Expressive Language Disorder
- Phonological Disorder
- Stuttering
- Communication Disorder, NOS

## Anxiety Disorders

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- Schizophrenia
- Obsessive-Compulsive Disorder
- Generalized Anxiety Disorder
- Social Phobia (Social Anxiety Disorder)
- Selective Mutism

## Mood Disorders

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- Major Depressive Episode
- Minor Depressive Disorder
- Recurrent Brief Depressive Disorder
- Post Psychotic Depressive Disorder of Schizophrenia
- Bipolar I Disorder

## Attention Deficit and Disruptive Behavior Disorders

- Attention Deficit-Hyperactivity Disorder
- Hyperactivity
- Impulsivity
- Oppositional Defiant Disorder
- Intermittent Explosive Disorder

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## Tic Disorders

- Tourette's Disorder
- Chronic Motor or Vocal Tic Disorder

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## Personality Disorders

- Schizoid Personality Disorder
- Schizotypal Personality Disorder
- Antisocial Personality Disorder

## Disorders Outside DSM-IV Nomenclature

- Semantic-Pragmatic Language Disorder
- Auditory Processing Disorder
- Multi-System Developmental Disorder
- Sensory Processing Disorder
- Nonverbal Learning Disorder
- Multiple Complex Developmental Disorder

# Educational Treatment for ASDs and Its Milder Variants

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## Philosophy of treatment

### Definition of Treatment & Outcome:

People with autism are individuals; thus a wide variety of treatment approaches may be necessary.

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Treatment programs should never lose sight of the long term goal - to improve outcome for persons with ASD.

Outcome is defined by quality of life indicators - empowerment to live, work, learn, be mobile, and have fun in natural settings with family, friends & co-workers.

## Components of services for the child with an ASD

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1. Developmental assessment by a trained, multi-disciplinary team that focuses on individual strengths & weaknesses.

## 2. Intervention focusing on –

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- social communication skills
- functional assessment of behavior
- positive behavior support
- 1:1 as well as small-group instruction
- environmental supports
- opportunities for structured participation with typical peers

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3. Family involvement including parent training and practical help, and counseling by someone acquainted with practical problems posed by ASDs.
  4. Medication evaluation when/if appropriate.

5. Development of a philosophy of autism that results in availability of a full range of services that can meet the needs of all individuals with ASDs.

There is no “one model fits all.”

Skills taught should be age appropriate, functional, community referenced, and lead to independent functioning.

## Report of Committee on Educational Interventions for Children with Autism

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(National Research Council, 2001)

On diagnosis, assessment and prevalence:

Because of their shared continuities and their unique social difficulties, children with any autism spectrum disorder (Autistic Disorder, Asperger's Disorder, Atypical Autism, PDD-NOS, Childhood Disintegrative Disorder) . . . .

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. . . . regardless of level of severity or function, should be eligible for special educational services within the category of Autism as opposed to other terminology used by school systems, such as other health impaired, social emotionally maladjusted, significantly developmentally delayed or neurologically impaired.

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Specific treatments are supportive and symptomatic, and focus on:

- Academic Learning
- Social Communication Skills
- Behavior
- Sensory & Motor Issues

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## Other therapies to address

- adaptive functioning
- functional skills
- vocational skills
- self-support
- psychopharmacology

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## Special Programs should include:

- Early diagnosis and school intervention program that includes structured teaching in language and play in a setting with normal peer contact, and emphasis on social communication skills.

- Opportunities for education in non-segregated programs with necessary educational and social support programs.
- Programs that facilitate access to college campuses (i.e., mentor programs or special counseling support programs).
- Matching individual talent with vocational training programs that include specific needs of the individual.

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- Individual, group and family counseling opportunities.
  - Independent living situations in the community with coordinated support and social programs.
  - Pharmacotherapy, as needed.

## Educating Children with Autism (NRC 2001)

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### 1. Characteristics of effective interventions

- There is general agreement that comprehensive programs are necessary - education in home, school & community remains the primary treatment for ASDs.
- Ethical considerations make research difficult.

## 2. Consensus of Current Programs

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- Early intervention as soon as an ASD is suspected.
- Active engagement in an intensive instructional program for a full school day, a minimum of 5 days a week and full year programming.

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- Use of planned teaching opportunities organized around brief periods of time, e.g., 15-20 minutes for a young child.
  - Sufficient amounts of adult attention in 1:1 or very small group structure to meet individual goals.

Overall, effective programs are more similar than they are different in levels of organization, staffing, ongoing monitoring and use of certain techniques such as discrete trials, incidental teaching and structural teaching programs.

However, philosophies of programs may differ significantly.

### 3. Recommendations

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- Earliest possible start
- Minimum 25 hrs a week, 12 months a year
- Engagement in systematically planned and developmentally appropriate activities.

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What constitutes hours will vary according to the child's age, developmental level, specific strengths and weaknesses, and family needs.

Each child must receive sufficient individualized attention on a daily basis so that goals and objectives can be carried out effectively.

## 4. Curriculum

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Priorities of focus include:

- functional spontaneous communication
- social instructions delivered throughout the day in variety of settings
- cognitive development
- play skills

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- proactive approaches to behavior problems
  - ongoing interactions with typical peers, as long as it facilitates acquisition of goals

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## 5. Personnel Preparation

- Specific training in ASDs is needed
- IDEA (2005) requires that scientifically valid procedures be utilized in teaching.

## Specific Educational Interventions

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- Ongoing treatment in both social and communication areas in a general intervention setting.
- Given child's strengths and weaknesses the appropriate educational setting should include the following features:

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- A small group setting with ample opportunities for individualized attention, an individualized approach, and small group work.
  - The availability of a communication specialist whose interest is in pragmatics and social skills training.

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- Opportunities for social interaction and facilitation of social relationships in structured and supervised activities.
  - A concern for acquisition of real-life skills in addition to academic skills.

- Given the fact that the child excels in certain activities, it is be important to use these activities to improve social skills.
- Social skills training should help the child learn to take the perspective of others, follow conversational interaction rules, and follow coherent and less one-sided goal directed behaviors.

- Willingness to adapt curriculum content requirements in order to flexibly provide opportunities for success and positive self-concept, and to foster an internalized investment in performance and progress.  
In light of this, a positive behavior support plan needs to be put in place that will work specifically on self-concept.

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- The availability of a counselor who understands the child's difficulties, and someone for the child to talk to about having Asperger's syndrome or an ASD.

## General Intervention Strategies

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- Skills, concepts & appropriate procedures should be taught in explicit fashion using verbal teaching approaches, as the child's verbal speaking skills are very high.

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- Specific problem solving strategies need to be taught for handling the student's troublesome situations.
  - Training is also necessary for recognizing situations as problematic and applying learning strategies in discrepant situations.

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- Social awareness should be cultivated focusing on relevant aspects of given situations and pointing out irrelevancies.
  - Generalization of learned strategies and social concepts should be instructed from the therapeutic setting to every day life.

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- Self-evaluation should be encouraged and awareness should be gained into which situations are easily managed and which are troublesome.

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- Adaptive skills intended to increase the child's self-sufficiency should be taught explicitly with no assumption that general explanations might suffice or that the child will be able to generalize.

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- The child should be instructed on how to identify a novel situation and resort to a pre-planned, well-rehearsed list of steps to be taken.

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- The link between specific frustration or anxiety producing experiences and negative feelings should be taught in a simplistic cause-effect relationship so that the child is able to gradually gain more measured insight into his/her feelings.

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## General Strategies for Communication Intervention & Social Skills Training

Explicit verbal instructions on how to interpret other people's social behavior should be taught and exercised.

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The relationship between social situations and the child's behavior needs to be taught.

Social stories and skill-streaming techniques might be useful in teaching specific social skills.

## Future Directions

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Development of diagnostic criteria and specification of the differences between Asperger's Syndrome & Autistic Disorder.

## Future research -

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Must ensure differences do not reflect diagnostic criteria.

Must ensure an agreed upon definition.

Must include larger samples and multi-site comparisons.

Must avoid over simplification of key phenomena.

To be a meaningful concept, it must also demonstrate reliable differences in -

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- phenomenology
- natural cause of disorder
- neurobiological markers
- family history
- response to treatment
- appropriate psychopharmacology interventions

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- Increased access to appropriate educational interventions.
  - Increased vocational training opportunities.
  - Increased independent living skills programs and alternative living situations.

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- Increased transitional programs across the life span.
  - Increased social support programs and social skills training.
  - Increased public education & awareness of the unique abilities of persons challenged by Autism Spectrum Disorders.

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