



Understanding normal and recognizing abnormal development

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Objectives

- *Participants will...*
 - be able to define development
 - have a basic understanding of assessment
 - be able to define mental retardation
 - have a general understanding of ADHD
 - be able to define autism spectrum disorders along with treatment modalities



What is development?

- Systematic continuities (orderly, patterned) and changes in the individual that occur over the lifespan (womb to tomb).
 - Impacted by maturation (genes)
 - Experience (learning)- This is bi-directional.

Ways of looking at development

- Human development is best described as a continual and cumulative process
- Change is constant

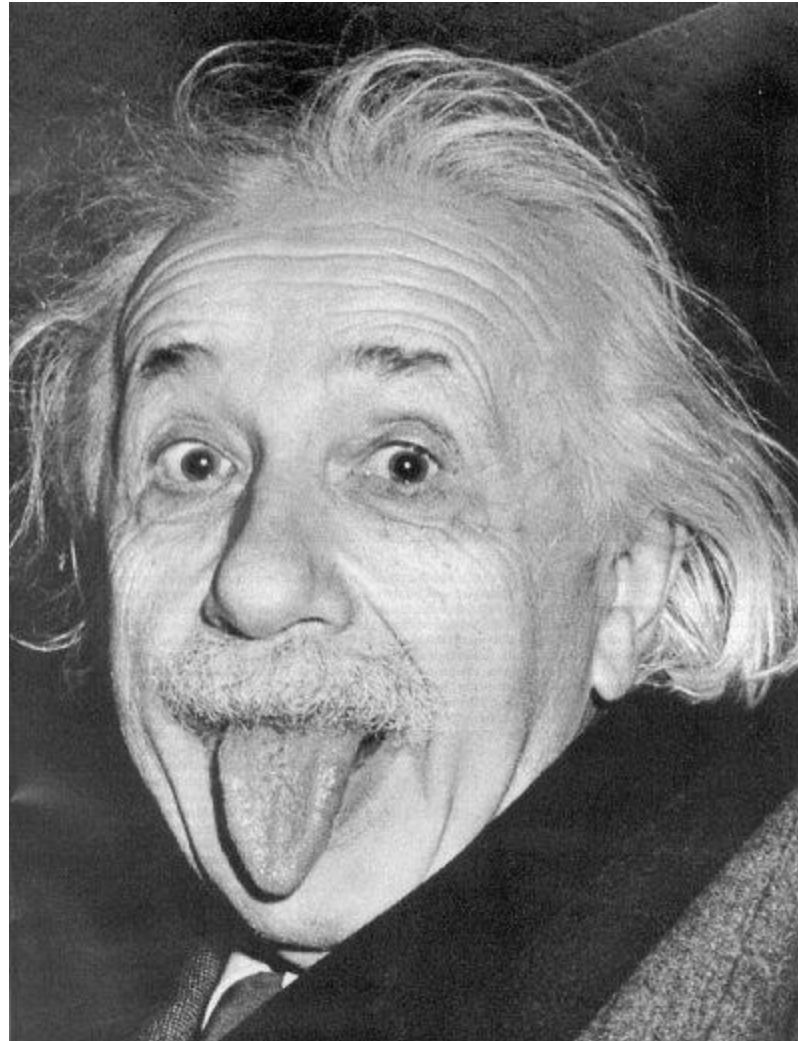




Intelligence



● ● ● | No one definition of intelligence.....



Psychometric

- Intelligence is a trait or set of traits that characterizes a person compared to a set of norms. (describe a person's intelligence based on a specific score.



Alternatives to traditional classifications





Gardener- Frames of Mind

- **Theory of multiple intelligences**

- Linguistic- poet novelist
- Spatial- Engineer; sculptor
- Logical-mathematical- Scientist; mathematician
- Musical- Musician; composer
- Body-kinesthetic- athlete; Dancer
- Interpersonal – Therapist; minister (skill of reading and responding to others)
- Intrapersonal (sensitivity to one's own internal states)



Measures of Development and Intelligence



● ● ● | Norm based assessment

- By comparing rates of attaining developmental milestones with norms, professionals can identify those children with atypical development.



Screening tools

- Quick (ASQ-SE takes 10-15 minutes)
- Inexpensive
- Provides indication of a need for further more in depth assessment or referral
- Ages and Stages (General and Social-Emotional)
- Denver Developmental Screening Tool-II



- All children should receive developmental screening as part of their routine pediatric care.
- Infants at high risk should be flagged for regular and periodic screening.
- If warranted should be referred for more in depth testing or referral





Infant development

- Bayley Scales of Infant Development (2-30 months)
 - Motor scale
 - Mental Scale
 - Behavioral Record
- Yields a DQ rather than IQ- Norm based



Predictive validity

- Infant tests not predictive of later IQ
- They clearly differentiate severe impairment from typical functioning
- Information processing tests do have some predictive validity
 - visual reaction time (how quickly infants look when presented with a target)
 - Habituation
 - Novelty preference



Wechsler Scales

- Wechsler Preschool and Primary Scale of Intelligence Revised (WPPSI-IV)- 2:6-7:7
- Wechsler Intelligence Test for Children (WISC) - Age 6:0-16:11

Wechsler Scales

- Test is less biased than earlier tests of intelligence.
- Reveals inconsistencies in mental skills that may be an early sign of neurological problem or learning disorder.



Distribution of IQ Scores- Normal distribution (half above half below) mean

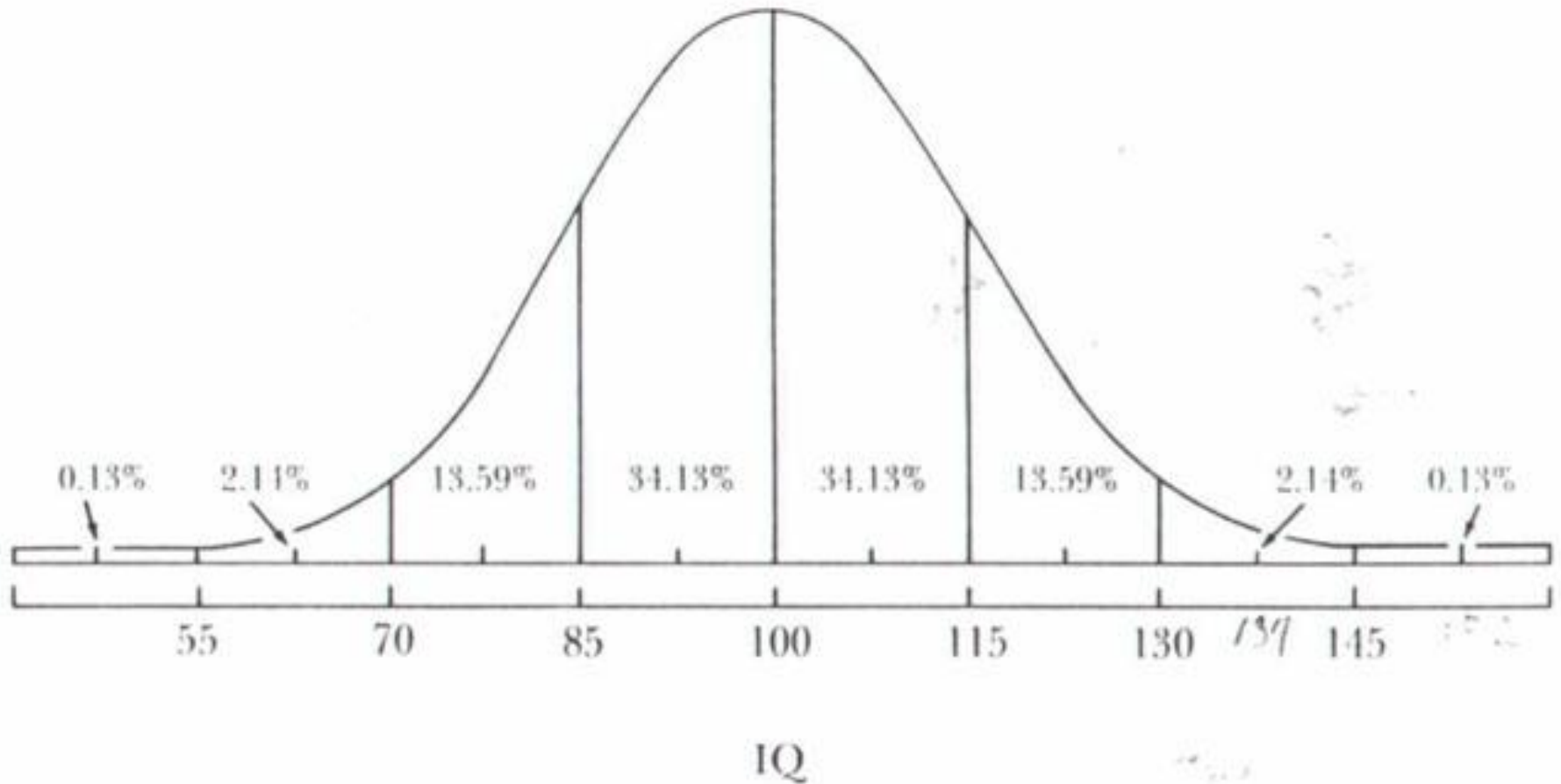


Figure 1. The IQ distribution as a normal curve, showing the percentage of scores in each segment of the curve when it is divided into standard deviations.



Normal Curve

- Two standard deviations on either side of the mean encompasses 95% of the scores in the distribution and define the range of typical intellectual functioning.



Stability of IQ

- Starting at age 4 there is a meaningful relationship between early and later IQ's
- Relationship grows stronger in middle childhood (age 7-8)
- IQ seems to be relatively stable- when group trends are observed (but IQ's of individual children may vary)



What impacts IQ fluctuation?

- Those who gain are from enriched environments
- Those who decline are from multi-risk environments (poverty, low-IQ parents)
 - Cumulative-deficit hypothesis; the longer a child remains in an impoverished environment the worse the outcome (older siblings obtain a lower IQ score than younger siblings)



What do intelligence scores predict?

- They measure intellectual performance rather than absolute capacity.
- Traditional measures correlate with academic achievement (.50) – ACT and SAT also a good predictor of academic achievement.
- Clear relationship between IQ and occupational success (mediated by the link between IQ and scholastic attainment)
- IQ also affects job performance regardless of occupational status



Intellectual Disability

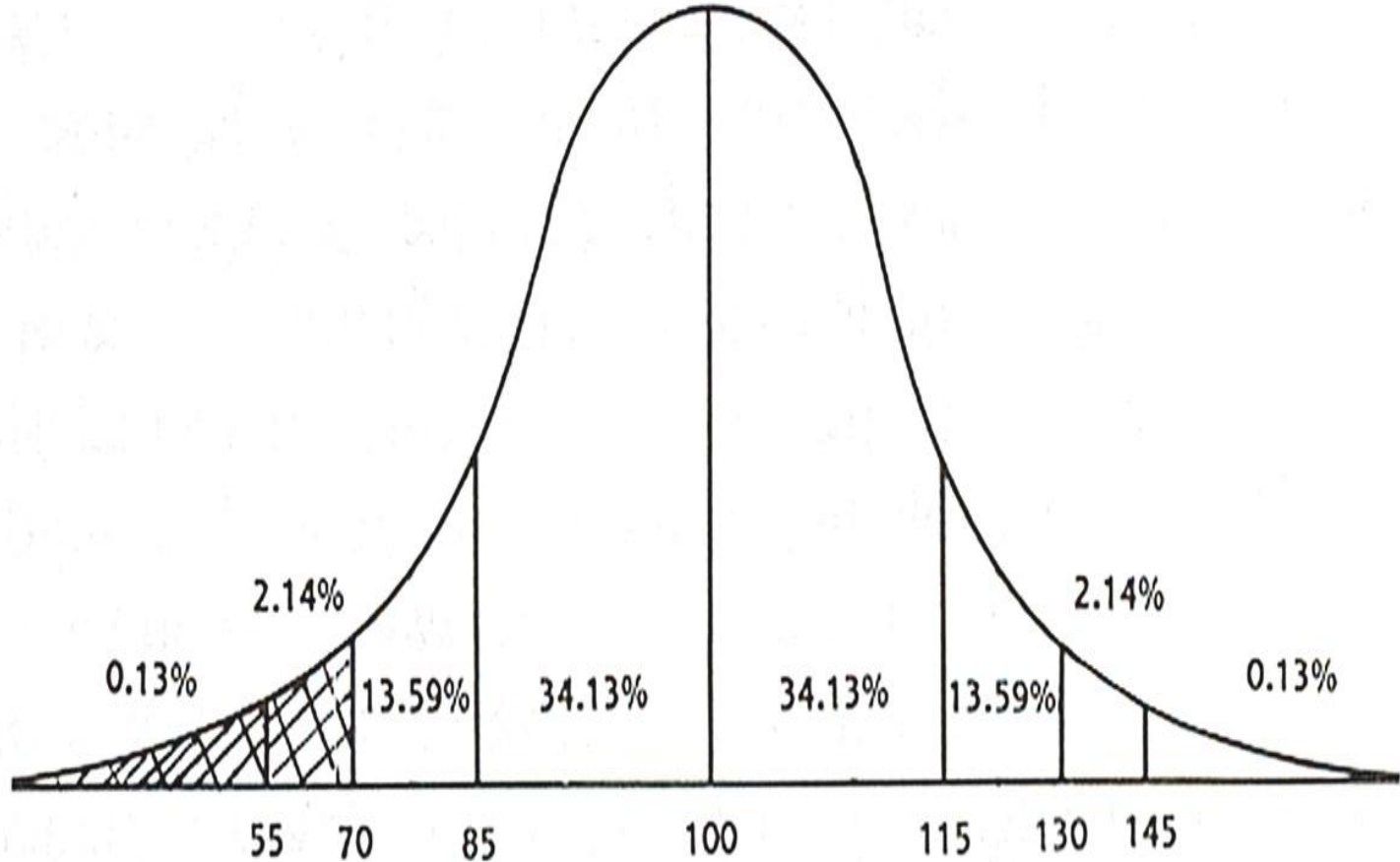




Developmental delay

- This term is used as a temporary description of a child who is not meeting developmental norms. This would be used before a formal diagnosis of mental retardation is given.
- DD does not always indicate permanent delay.

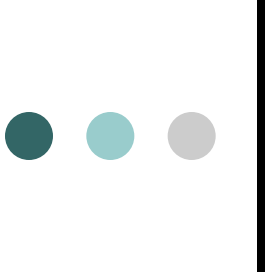
Defining Intellectual Disability





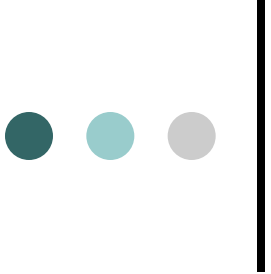
Low IQ & Intellectual Disability

- 5% of people have an IQ under around 70 and this is generally considered as the benchmark for "mental retardation", a condition of limited mental ability in that it produces difficulty in adapting to the demands of life.



Severity of Intellectual Disability can be broken into 4 levels:

- 50-70 - Mild (85%)
- 35-50 - Moderate (10%)
- 20-35 - Severe (4%)
- IQ < 20 - Profound (1%)



Adaptive functioning: Intellectual Disability diagnosis must include at least two of the following impairments (APA)

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



Outcome

- Depends on underlying cause, severity and associated impairments
- Continuum of caretaking casualty (Sameroff); family factors, community supports, resources
- Most people with MR marry and live in the community either independently or in assisted living
- Life expectancy is not adversely affected by MR, per se.
 - (APA, 2000)

● ● ● | ADHD



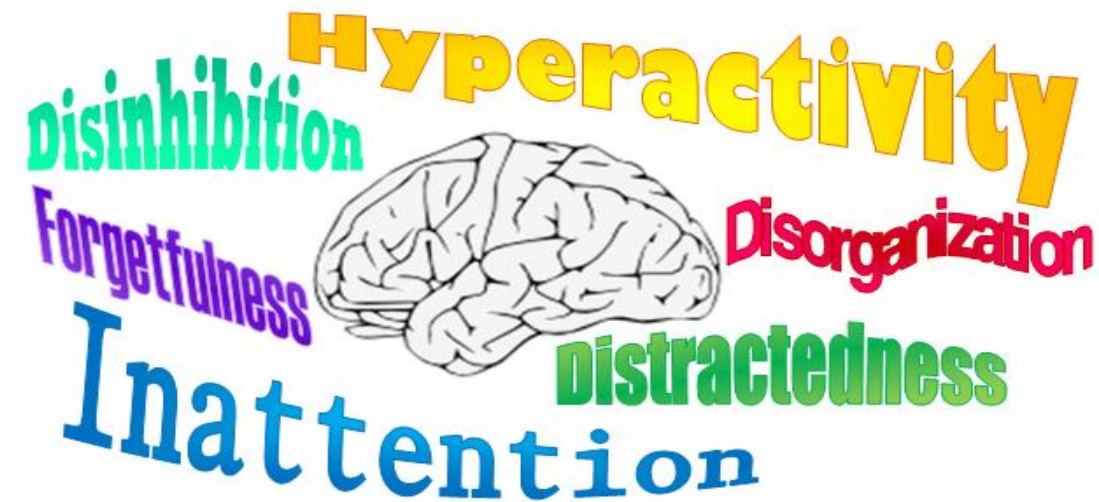
Defining ADHD-

- NO deficit of attention. There is a deficit in the allocation of attention.
- Impulsivity is the other feature of ADHD.
- Now considered more of a trait than a disability



ADHD- Defined

- More cognitive deficiencies than just attention and impulsivity are characteristic of ADHD.
- Executive function- set of control processes in the brain (includes inhibition and working memory). The executive functions reside in the frontal cortex





Subtypes

- Attention/Deficit Hyperactivity Disorder, Primarily Overactive/Impulsive Type
- Attention/Deficit Hyperactivity Disorder- Primarily Inattentive Type
- Attention/Deficit Hyperactivity Disorder-Combined Type

Diagnosis

- No conclusive Test for ADHD
- Clinical judgment based on interview, observation, checklists, direct measures of attention, WISC-IV, Achievement Tests (WJ-III)



- No Physical features that can be detected



Childhood ADHD

- The behaviors must appear before age 7
- They must continue for at least 6 months
- The symptoms must be severe enough to disrupt functioning in at least 2 of the following settings:
 - School/playground
 - Home
 - Community
 - Other social settings

How common is ADHD?

- Affects 3-5% of children nationally
- Detected early-before age 7
- 30-50% symptoms persist into adulthood (compensation occurs)



Who is most vulnerable?

- BOYS (2-5 times more frequent than girls)- BIAS in referrals?
- Girls tend to not have hyperactivity, while boys do.
- It is difficult to determine ADHD prior to age 5.



Causes

- No specific cause known
- Genetics
- Environmental-
Prenatal exposure to alcohol, lead, nicotine, infections, (viruses, bacterial infections), Preterm birth.





A Caveat.....

- ADHD-like symptoms can reflect other problems such as:
 - Early neglect, poor sleep
 - Anxious attachment, child abuse, anxiety/depression Grief or emotional distress
 - Autism
 - Post Traumatic Stress Disorder
 - Conduct Disorder/Oppositional Defiant Disorder
 - Intellectual Impairment
 - Physical pain
 - Sensory Integration Dysfunction

Another Caveat.....

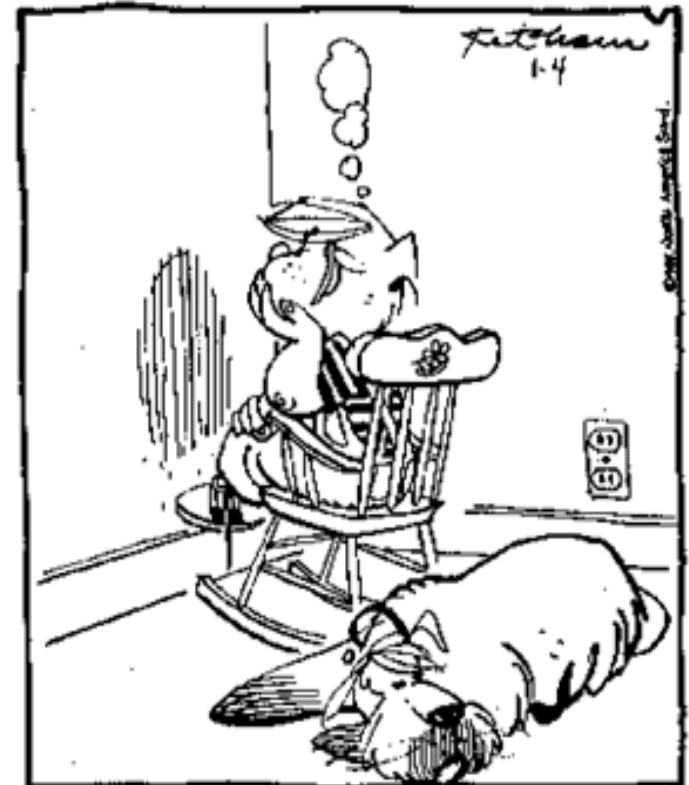
- Unreasonable expectations of Preschool children may increase referrals for ADHD assessment....
- Thinks about the criteria for ADHD. Does it occur just in school? If yes- may not meet criteria for ADHD.



ADHD Treatment

- ADHD Coach
- Counselling
- Home based adaptations
- Physical exercise, diet
- Medication
- Behavioral interventions
(Research evidence of effectiveness)
- Parenting

DENNIS THE MENACE



"BY THE TIME I THINK ABOUT WHAT I'M GONNA DO... I ALREADY DID IT!"



504 Accommodations

- Seated near the place of instruction
- Provided extra time for tests in distraction free environment
- Oral directions given along with written directions- oral directions repeated if needed.
- Note taking may be difficult. He may be provided a copy of class discussion- and this can be read to him by his parents.
- Redirect careless error rather than penalizing them. Break long tasks into smaller parts
- Increase student teacher interaction, ensuring that child understands what/how he needs to prepare for tests
- *Accommodations should be provided in a way that the child does not feel embarrassed or stigmatized.*

Pharmaceuticals

- Stimulant medication- Most commonly **prescribed** (raise intracellular concentrations of Dopamine which causes and increase in neurotransmission). Benefits are due to the effects in the frontal cortex and other parts of the brain that regulate impulse control.
- Non-Stimulant medication (Strattera)





Treatment of ADHD

- 70% of children improve as a result of stimulant medication-but this just treats symptoms (estimate)
- Long term effectiveness has yet to be determined
- Under medical supervision stimulants are safe



Prognosis

- Children with untreated ADHD have significant problems in adolescence
 - Many do not do not graduate from High School (estimate)
 - Only a small percentage graduate from college.
- ADHD persists into adulthood for 30-50% of cases



Autism Spectrum Disorders



Prevalence

- Last year- 1 in 88
- 2013- 1 in 50 school aged children





Autism Spectrum Disorders

Autistic Disorder

Asperger's Disorder

Childhood Disintegrative Disorder

Rett's Disorder

Pervasive Developmental Disorder - Not Otherwise Specified



Definition and deficits

- Impaired social interaction
- Delayed and disordered language
- Restricted range of interests
- Different Cognitive Style



Additional Impairments

- Problems with sleep, eating
- Intense tantrums (spillover versus manipulative)
- Aggressiveness
- Self injury
- Sensory sensitivity
- Trouble shifting thoughts



● ● ● | Impairments in play

- Limited or no imaginative play
- Stereotyped play
- Odd use of toys
- Immature or severely limited social interaction





Developmental course

- 75% have delays in 1st year
- In 25% symptoms appear in second or rarely 3rd year
- Concerns in first year are social and response to sound
- Concerns in second year are regression, language and social.



Diagnostic process

- Interview parents, teachers
- Medical records
- Observation (play social interaction, motor skills)
- Assessment (developmental, IQ, speech, sensory)
- Adaptive functioning

Diagnostic tests

- No definitive test
- Autism Diagnostic Observation Schedule (ADOS)
- Checklists
 - Childhood Autism Rating Scale
 - Autism Behavior Checklist





○ TREATMENT

- Speech
- OT and PT
- Behavior therapist
psychologist
- Specially trained
Teacher
- Physician psychiatrist

Treatment modalities

- Floor Time
- Applied Behavioral Analysis (ABA)



Questions/Answers

