Navigating the Spectrum: Enhancing Understanding, Diagnosis and Outcomes

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Relevant Disclosure

- Co-author of the Autism Spectrum Rating Scales (MHS, 2009)
- Co-author of the Autism Spectrum Rating Scales – Adult (MHS,2025) .
- Co-author of Assessment of Autism Spectrum Disorders text (Guilford, 2009).
- Co-author/presenter Assessment of Autism Spectrum Disorders CEU (APA, 2009).
- Co-author of Raising a Resilient Child With Autism Spectrum Disorders (2011, McGraw Hill).
- Co-author of Treatment of Autism Spectrum Disorders (2012, Springer).
- Co-author of the Autism Spectrum Evaluation Scales (in development, MHS).
- Compensated speaker.
- AI note-taking is fine.

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Goals

- Briefly discuss the historical theories of Autism Spectrum Disorders (ASD).
- Define ASD and DSM-5-TR criteria.
- Briefly discuss symptoms of ASD by age into and including adulthood.
- Briefly discuss a core theory of ASD.
- Discuss data from the ASRS, the largest epidemiological/standardization sample collected of normal children and those with ASD.
- Discuss methods for assessment, differential diagnosis and treatment of autism across the lifespan.

3

We are social beings.

4

What Benefits Do We Derive From Socialization?

- Support
- Survival
- Affiliation
- Pleasure
- Procreation
- Knowledge
- Friendship

5

The social development of autistic children is qualitatively different from other children.

6

In normal children perceptual, affective and neuroregulatory mechanisms predispose young infants to engage in social interaction from very early on in their lives.

7

Socialization Begins Early
Reina and Her Mother

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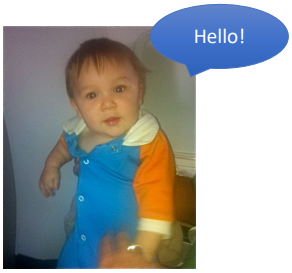
Adrian, my seatmate on a recent flight.



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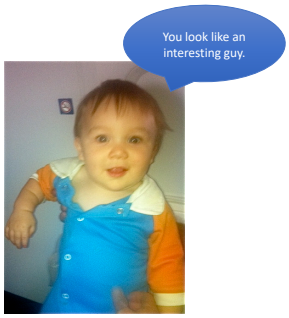
Adrian



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Adrian

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Les âges de l'ouvrier

Léon FRÉDÉRIC 1895

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Is this child portrayed as autistic?

16

Is that her mother standing next to Ron Howard's grandfather?

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Kanner's Description (1943)

- first physician in the world to be identified as a child psychiatrist
- founder of the first child psychiatry department at Johns Hopkins University Hospital
- Wrote *Child Psychiatry* (1935), the first English language textbook to focus on the psychiatric problems of children.

Leo Kanner who introduced the label *early infantile autism* in 1943 in his paper : Kanner, L. (1943). Autistic disturbances of affective contact. Nervous Child, 2, 217-250.

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Kanner's Description (1943)

- His seminal 1943 paper, "Autistic Disturbances of Affective Contact", together with the work of Hans Asperger, forms the basis of the modern study of autism.
- Leo Kanner was the Editor for *Journal of Autism and Developmental Disorders*, then called *Journal of Autism and Childhood Schizophrenia*

Leo Kanner who introduced the label *early infantile autism* in 1943 in his paper : Kanner, L. (1943). Autistic disturbances of affective contact. Nervous Child, 2, 217-250.

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Kanner's Description (1943)

- Inability to relate to others
- Disinterest in parents and people
- Language difficulties
- Fascination with inanimate objects
- Resistance to change in routine
- Purposeless repetitive movements
  - A wide range of cognitive skills
  - Where they possess an innate inability for emotional contact

Leo Kanner who introduced the label *early infantile autism* in 1943 in his paper : Kanner, L. (1943). Autistic disturbances of affective contact. Nervous Child, 2, 217-250.

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Autism's First Child

AS NEW CASES OF AUTISM HAVE EXPLODED IN RECENT YEARS—SOME FORM OF THE CONDITION AFFECTS ABOUT ONE IN 110 CHILDREN TODAY—EFFORTS HAVE MULTIPLIED TO UNDERSTAND AND ACCOMMODATE THE CONDITION IN CHILDHOOD. BUT CHILDREN WITH AUTISM WILL BECOME ADULTS WITH AUTISM, SOME 500,000 OF THEM IN THIS DECADE ALONE. WHAT THEN? MEET DONALD GRAY TRIPLETT, 77, OF FOREST, MISSISSIPPI. HE WAS THE FIRST PERSON EVER DIAGNOSED WITH AUTISM. AND HIS LONG, HAPPY, SURPRISING LIFE MAY HOLD SOME ANSWERS.

By John Donvan and Caren Zucker

Atlantic Monthly, October 2010

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A Brief Research Update of ASD and Transition to Adulthood

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DSM 5: Severity Levels for ASD

- **Level 3: Requiring Very Substantial Support**
  - Severe deficits in verbal & nonverbal communication
  - RRBs markedly interfere with functioning in all contexts
- **Level 2: Requiring Substantial Support**
  - Marked deficits in verbal & nonverbal communication
  - Social impairments apparent even with supports in place
  - RRBs are obvious & interfere with functioning in some contexts
- **Level 1: Requiring Support**
  - Social communication deficits cause noticeable impairments without supports in place
  - RRBs significantly interfere in one or more contexts
  - Problems with organization and planning hamper independence

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Development of Play Skills in Autism

- Sensory-Exploratory Play – Prolongued in ASD
  - Mouthing/dropping/manipulating objects
- Cause-and-Effect Play – Perseverative in ASD
  - Push-button & musical toys
- Functional Play – Impaired (e.g., lining up; visual peering; fixation on parts)
  - Using a toy for intended purpose (e.g., "driving" a car; "talking" on a phone; building with blocks; feeding a baby)
- Symbolic & Imaginary Play – delayed/prolongued (females) or absent in ASD
  - Using a toy for a novel purpose (e.g., using a block as a phone)
  - Using miniature figurines as agents (e.g., "mommy" feeding the baby)

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Broadening the Spectrum

- Eleven meta-analyses published between 1966 and 2018.
- 27,723 total subjects from around the world.
- Five psychosocial dimensions: emotion recognition, theory of mind, cognitive flexibility, planning and inhibition.
- For all 5 dimensions group differences between normal and those with ASD have declined since 2000.
- This was attributed to differences in diagnostic criteria, assessment practices and community awareness.

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The Autism Spectrum by Cognition & Language

Levels of Cognitive Functioning

(~30-35%) ← → *(~65-70%)*

Cognitive Impairment
Language Impairment
Seizures & Medical Co-Occurring Conditions
Severe/Profound Autism

In-tact Cognition & Language
Asperger Syndrome
Psychiatric Co-Occurring Conditions
Neurodivergent




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Stats on Autism (CDC)

IN THE GENERAL POPULATION:

- 1 in 44 8-year-old children are identified with ASD
- Male-Female Ratio:
  - 4 times higher in boys
- Median Age of Diagnosis: 4-5 years
  - Much later for disadvantaged populations
- When ASD can be reliably diagnosed:
  - 18-24 months when diagnosed by experienced clinicians
- Co-Occurring Intellectual Disability:
  - 35% with ID

GENETIC LIABILITY:

- ASD in Subsequent Biological Siblings: 1 in 5 (~20% risk)
- Broader Autism Phenotype ("shadow symptoms"): *1 in 5 Siblings*
- *Non-ASD developmental delays: 1 in 10 Siblings*

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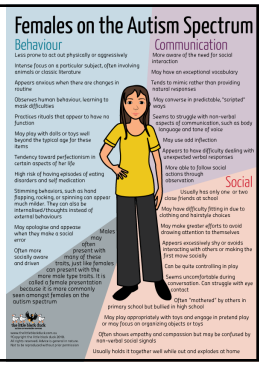
Autism in Females

- Females often misdiagnosed or missed to diagnosis
- Females may present with stronger social skills (Kreiser & White, 2014):
  - Intact symbolic and imaginary play
  - Larger emotional vocabulary
  - Greater awareness and desire for social interaction
  - Ability to mimic others in social situations
  - May develop one or two close friends
- Restricted interests tend to be related to people/animals rather than inanimate objects (Lai & Baron-Cohen, 2015)
- Research points to a "protective effect" in females (Satterstrom et al., 2020)
- "Camouflaging Effect": Females are more likely to use coping strategies to hide ASD behaviors – likely due to social pressures (Hull et al., 2017)
- Higher rates of internalizing disorders (anxiety, depression, eating disorders)



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Racial & Ethnic Disparities

www.cdc.gov/ncbddd/autism/addm

- Prevalence rates are FINALLY identical for non-Hispanic white, non-Hispanic black, and Asian/Pacific Islander children but continue to be LOWER for Hispanic children
- 47% of Black children and 36% of Hispanic children are more likely to have Intellectual Disability with ASD compared to 27% of White children
- Black children with ASD are are less likely to have a first evaluation by age 3 than White children

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

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Background

- Autism Spectrum Disorder (ASD) is a neurodevelopmental condition marked by deficits in social interaction, communication, and repetitive behaviors.
- The etiology of ASD is complex, involving both genetic and environmental factors.
- Recent studies emphasize the need for individualized and technology-driven interventions to improve quality of life and functional outcomes (Qin et al., 2024).
- Despite progress in understanding ASD, challenges remain in diagnosis and treatment, mainly due to the disorder's heterogeneity and co-occurring conditions, which complicate the diagnostic process (Hus & Segal, 2021).

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Diagnosis

- ASD diagnosis typically involves using standardized tools such as the Autism Diagnostic Observation Schedule (ADOS-2) and Autism Spectrum rating Scales (ASRS).However, these tools do not specifically diagnose
- This leads to potential misdiagnosis, especially in those with co-occurring cognitive or sensory impairments (Bishop & Lord, 2023).
- Early detection is critical, as timely intervention can significantly influence developmental outcomes.
- Advances in diagnostic technologies, including machine learning and biomarkers, enhance the precision of ASD diagnoses (Yu et al., 2024; Rasul et al., 2024).
- Four Autism Subtypes (Litman, et. al.,2025)
  Researchers from Princeton University and the Simons Foundation identified four clinically and biologically distinct autism subtypes, using data from over 5,000 individuals. This finding marks a significant advance toward precision diagnosis and personalized care.

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SPARK = Simons Foundation Powering Autism Research for Knowledge

Key Facts:

- Launched by: Simons Foundation Autism Research Initiative (SFARI)
- Goal: Recruit and study 100,000+ individuals with autism and their family members.
- Current size (2025): Over 300,000 participants, including genetic data (whole exome and genome sequencing), behavioral traits, developmental history, and family medical history.
- Participants: Individuals diagnosed with ASD and their biological parents/siblings (triads).

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Key Details

- Litman, A., Sauerwald, N., Snyder, L. G., Foss-Feig, J., Park, C. Y., Hao, Y., Dinstein, I., Theesfeld, C. L., & Troyanskaya, O. G. (2025). *Decomposition of phenotypic heterogeneity in autism reveals underlying genetic programs*. *Nature Genetics*. https://doi.org/10.1038/s41588-025-02224-z

- **Cohort:** Over 5,000 children with autism from the SPARK study (ages 4–18), with analyses validated in an independent cohort.
- **Approach:** A **person-centered**, generative mixture modeling methodology analyzing both phenotypic and genotypic data across 230+ traits per individual

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Findings: Four distinct subtypes of autism, each with unique clinical presentations, genetic profiles, and developmental trajectories:

- **Social and Behavioral Challenges** (~37%)
  Core autism traits, intact developmental milestones, frequent co-occurring conditions like ADHD, anxiety, or OCD
- **Mixed ASD with Developmental Delay** (~19%)
  Delayed early milestones, fewer psychiatric co-morbidities, a mix of de novo and inherited genetic mutations.
- **Moderate Challenges** (~34%)
  Milder core ASD traits, typical developmental progress, minimal psychiatric co-morbidities.
- **Broadly Affected** (~10%)
  Severe core traits, high levels of co-occurring conditions (e.g., intellectual disability, psychiatric issues), and greater burden of rare de novo mutations

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Key Findings

- Used generative mixture modeling on a large SPARK cohort of children with autism.
- Identified four robust autism subtypes based on genetic and phenotypic patterns.
- Subtypes corresponded with different developmental, psychiatric, and genetic profiles.
- Each subtype is linked to distinct patterns of common, inherited, and de novo mutations.
- The developmental timing of disrupted genes aligned with subtype-specific clinical outcomes.

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Overview

- Purpose: Present major scientific advances in autism research from 2025

- Focus areas:
- - Genetics & neurobiology
- - AI-powered diagnostics
- - Educational approaches
- - Novel therapeutic developments

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Genetic & Neurodevelopmental Insights

- Key Study: Z Qiu, 2025
- https://www.sciencedirect.com/science/article/pii/S0959438825000790

- - Mapped genetic pathways linked to ASD
- - Focus on synaptic transmission and brain connectivity
- - Opens potential for targeted gene therapies

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AI-Powered Diagnostic Advances

- Study: Boyapati & Pasupuleti, 2025
- https://www.researchgate.net/profile/Phanindra-Sai-Boyapati-2/publication/392387280_AI-Powered_Breakthroughs_in_Autism_Spectrum_Disorder_ASD_Identification/links/685877c193040b17338c9d6d/AI-Powered-Breakthroughs-in-Autism-Spectrum-Disorder-ASD-Identification.pdf

- - ML models enhance early ASD detection
- - Data-driven behavioral analysis
- - Cost-effective tools for underserved communities

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Logic-Based Educational Therapy

- Study: Min & Min, 2024
- https://infonomics-society.org/wp-content/uploads/A-Major-Breakthrough-in-Autism.pdf

- - Novel curriculum promoting logical & emotional growth
- - Measurable gains in communication and cognitive flexibility
- - Reinforces personalized education models

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Stem Cell Therapy in Autism

- Review: Vinski & Vinski, 2023
- https://app.scholarai.io/paper?paper_id=DOI:10.59762/PB72429025112023111013120 4&original_url=https%3A%2F%2Fwww.academia.edu%2Fdownload%2F107384102%2F3_B_52485.pdf

- - Evaluated early-stage clinical trials
- - Potential to regenerate neurological function
- - Still under investigation—safety and efficacy unproven

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"Curative" Treatment Claim

- Case Report: Al-Mosawi, 2024
- https://clinicsearchonline.org/uploads/articles/1720248505IJCE-24-CR-70-Galley_Proof.pdf

- - Reported full recovery in cases of regressive autism
- - Non-conventional interventions
- - Requires replication and further validation

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Conclusion

- - 2025 research emphasizes multidisciplinary progress
- - Genetic and AI advances are reshaping autism care
- - Stem cell and therapeutic claims remain experimental
- - Personalized education strategies gaining traction

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References

- Z Qiu (2025): https://www.sciencedirect.com/science/article/pii/S0959438825000790
- Boyapati & Pasupuleti (2025): https://www.researchgate.net/.../AI-Powered-Breakthroughs...
- Min & Min (2024): https://infonomics-society.org/.../A-Major-Breakthrough-in-Autism.pdf
- Vinski & Vinski (2023): https://app.scholarai.io/paper?...Academia...
- Al-Mosawi (2024): https://clinicsearchonline.org/.../IJCE-24-CR-70-Galley_Proof.pdf

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Treatment

- The treatment of ASD is highly individualized, with a range of behavioral, educational, and pharmacological interventions available.
- Applied Behavior Analysis (ABA) remains one of the most well-established therapies, particularly for improving children's intellectual functioning and adaptive behaviors (Eckes et al., 2023).
- Other interventions, such as Cognitive Behavioral Therapy (CBT), have proven effective in managing emotional and social challenges (You et al., 2023).
- Emerging therapies, including transcranial pulse stimulation and virtual reality-based interventions, offer promising alternatives for addressing the core symptoms of ASD and improving social skills (Cheung et al., 2023; Dechsling et al., 2021).

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Outcome

- Long-term outcomes for individuals with ASD vary widely, influenced by early intervention, co-occurring conditions, and the level of intellectual functioning.
- Early comprehensive treatment models have improved cognitive, language, and adaptive functioning, especially when intensive interventions involve parental participation (Shi et al., 2021).
- However, many individuals with ASD continue to face challenges in adulthood, particularly in areas such as employment and independent living (Scheeren et al., 2022).
- The outcomes' trajectory highly depends on the severity of symptoms and access to sustained, individualized support (Elias & Lord, 2021).

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Assessment of ASD

- High levels of co-morbidity require a comprehensive assessment including: intellect, neuropsychological abilities, achievement, emotional status, personality, and protective factors.
- A careful history is essential.
- Well-developed, reliable, and valid measures must be used to the extent they are available.
- DSM-5-TR or ICD 10 criteria must be met.

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Making the Diagnosis of ASD

- Meets DSM 5 Criteria.
- Coping behaviors assessed.
- Co-morbid behaviors and disorders assessed.
- Corroborating data obtained about child and adulthood.
- Intellectual, achievement and neuropsychological data collected if warranted.

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Determining IDIEA Eligibility of Autism

- Autism, as defined by Individuals with Disabilities Education Act (IDEA), refers to "a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance."
- This federal definition then proceeds to name traits commonly related to the condition: "Other characteristics often associated with autism are engaging in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.
- The term autism does not apply if the child's educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in [IDEA]."
- IDEA rounds out its definition by noting that a child who shows the characteristics of autism after age three could be diagnosed as having autism if the criteria above are satisfied. This enables a child to receive special education services under this classification if he or she develops signs of autism after his or her third birthday.
- Typically a psychiatrist, clinical psychologist, physician or other highly qualified professional makes the diagnosis. It would not be uncommon for the evaluation team to suspect Autism, then ask the parent to see a psychiatrist, clinical psychologist or appropriately trained pediatrician.

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Use of Technology to Detect Risk of ASD

Ami Klin, Ph.D.
Director, Marcus Autism Center
Professor and Chief, Division of Autism and Related Disorders, Department of Pediatrics, Emory University School of Medicine
Warren Jones, Ph.D.
Research Director, Marcus Autism Center
Assistant Professor, Division of Autism and Related Disorders, Department of Pediatrics, Emory University School of Medicine

EMORY UNIVERSITY SCHOOL OF MEDICINE

Children's Healthcare of Atlanta

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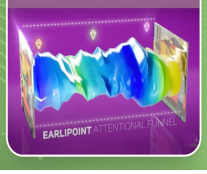
HOW IT WORKS:

1 THEY WATCH
Children watch a series of short video scenes of social interactions while their looking behavior is monitored.

2 EARLIPOINT DETECTS
FDA-authorized EarliPoint captures and analyzes looking behavior imperceptible to the human eye.



3 YOU DIAGNOSE
With robust data empowering clinicians to reach a diagnosis with confidence and objectivity.

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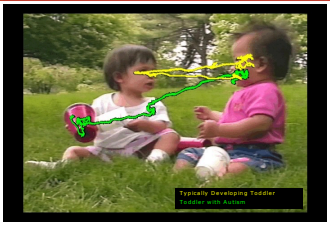
Toddler Eye Tracking Studies



Klin et al., Nature (2009);
Jones, Carr, & Klin, Arch Gen Psych (2008)

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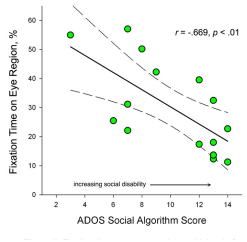
Predictors of Outcome

Jones, Carr, & Klin (2008; Arch Gen Psychiatry)



Less fixation time on eyes predicts more severe social disability.

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Infant Eye Tracking Studies

Patterns of Eye Gaze at monthly intervals

Birth through 36 months – data collected over 11 visits (2, 3, 4, 5, 6, 9, 12, 15, 18, 24, 36m)

Creating Growth Charts of Social Visual Engagement

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5 Month-Old – Low Risk Infant

Courtesy of Ami Klin & Warren Jones

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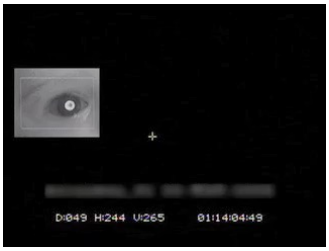
5 Month-Old – High Risk Infant

Courtesy of Ami Klin & Warren Jones



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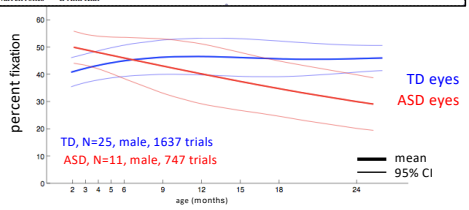
LETTER

doi:10.1038/nature12715

Attention to eyes is present but in decline in 2–6-month-old infants later diagnosed with autism

Warren Jones[1,2,3] & Ami Klin[1,2,3]



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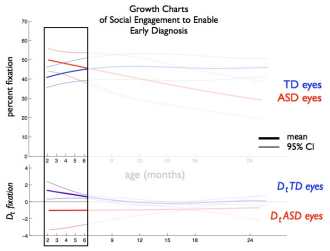
Eye Fixation – First 6 Months of Life

Jones & Klin, 2013, Nature



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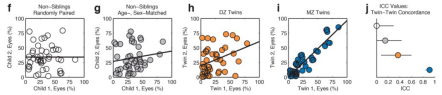
Genetic Predisposition to Visual Engagement?

Jones et al., 2018, Nature

Nature. 2017 July 20; 547(7663): 340–344. doi:10.1038/nature22999.

Infant viewing of social scenes is under genetic control and atypical in autism

John N. Constantino[1,2,3], Stefanie Kennon-McGill[1], Claire Weichselbaum[1], Natasha Marrus[1,3], Alyzeh Haider[1], Anne L. Glowinski[1], Scott Gillespie[4], Cheryl Klaiman[5,6], Ami Klin[5,6,7], and Warren Jones[5,6,7]



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Studies of Speech Production & Perception

Gordon Ramsay, Director of Spoken Communication Lab, Marcus Autism Center

- Prenatal ultrasound
- Vocal recordings
- Face & voice perception
- Motor development
- 3D head growth

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CAAB

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Characteristic Cognitive Impairments to Evaluate in ASD

- The ability to attribute mental states to oneself and others.
- The ability to display emotional reaction appropriate to another person's mental state (joint attention of emotion).
- The ability to plan and attend to relevant details in the environment.
- The ability to understand the communicative content of gaze.
- The ability to work cooperatively with others (joint attention of behavior).
- The ability to understand, comprehend, analyze, synthesize, evaluate and differentiate in particular social information in the environment.

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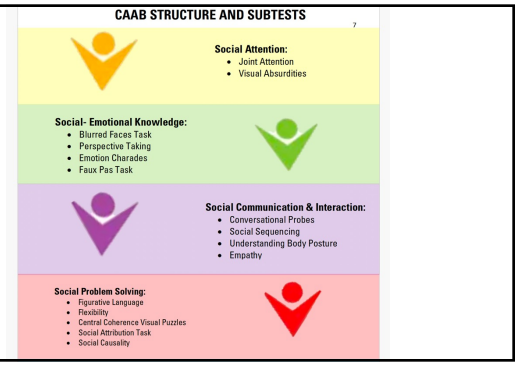

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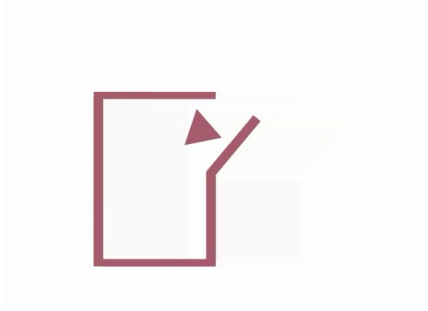

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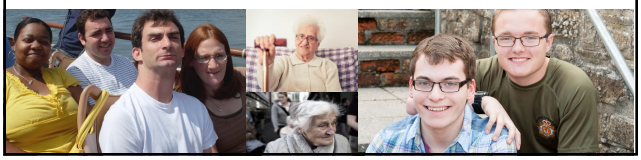
Core DSM and ICD Core ASD Symptoms in All Ages

- Impaired social relations.
- Impaired communication skills.
- Impaired behavior.



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Symptoms Present Before 24 Months

Children with ASD Struggle to:

- Orient to name
- Attend to human voice
- Look at face and eyes of others
- Imitate
- Show objects
- Point
- Demonstrate interest in other children

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Symptoms Present Before 36 Months

Children with ASD:

- Use of other's body to communicate or as a tool
- Stereotyped hand/finger/body mannerisms
- Ritualistic behavior
- Failure to demonstrate pretend play
- Failure to demonstrate joint attention

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Lorna Wing: Godmother of Autism Spectrum

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In a Spectrum Disorder genetic and phenotypic factors predispose certain individuals to express certain Central Nervous System vulnerabilities leading to poorly adapted variations in development and behavior.

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In a Spectrum Disorder all symptoms are considered relevant to the extent they present in each disorder. Thus a symptom is not exclusive to a disorder.

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The form that a Spectrum Disorder assumes is determined by its composite symptoms. These symptoms often have complex relationships.

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DSM 5 Autism Spectrum Disorder

- Combined social and communication categories.
- Tightened required criteria reducing the number of symptom combinations leading to a diagnosis.
- Omitted Retts and Childhood Disintegrative Disorders.
- Clarifies co-morbidity issues.
- Eliminated PDD NOS and Aspergers in favor of Autism Spectrum Disorder.
- Created Social Pragmatic Communication Disorder.
- Still no specified profile for adults, just guidelines.

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DSM 5 Autism Spectrum Disorder

- Five criteria.
- Seven sets of symptoms in the first two criteria – Social/Communication and Restrictive/Repetitive behaviors, interests or activities.
- All three symptoms are required to meet the first criteria (although a typo omits this).
- Two out of four are needed for the second criteria.
- Some symptoms have been combined.
- Sensory sensitivity has been added.

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DSM 5 ASD Criteria A

Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

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DSM 5 ASD Criteria B

Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
4. Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

75

75

DSM 5 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.

  Associated with another neurodevelopmental, mental, or behavioral disorder.

  With catatonia.

76

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DSM 5 ASD Criteria C, D, E.

C. 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)

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. 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 co-morbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

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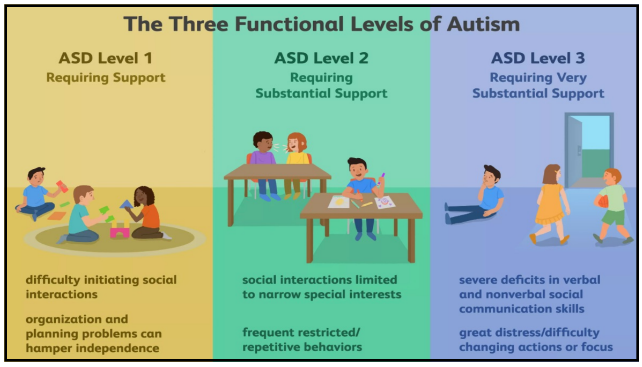

78

Applying DSM 5 With Adults (page 54)

- "Many adults with ASD without intellectual or language disabilities learn to suppress repetitive behavior in public."
- "Special interests may be a source of pleasure and motivation and provide avenues for education and vocation later in life."
- "Diagnostic criteria may be met when restricted, repetitive patterns of behavior, interests or activities were clearly present during childhood. . . even if symptoms are no longer present."
- "Among adults with ASD with fluent language, the difficulty in coordinating non-verbal communication with speech may give the impression of add, wooden or exaggerated body language."

79

Applying DSM 5 With Adults (page 56-57)

- Symptoms are "clear in the developmental period."
- "In later life interventions or compensations, as well as current supports, may mask these difficulties in at least some contexts."
- "However **symptoms remain sufficient** to cause current impairment in social, occupational or other important areas of functioning."
- "ASD is diagnosed four times more often in males than females."
- "Girls without accompanying intellectual impairment or language delays may go unrecognized."

80

DSM IV TR Autism and Asperger Syndrome

Data from the Autism Spectrum Rating Scales Epidemiologic Sample (2009)

81

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Autism vs. Asperger

- ASRS means for ages 2-5 years were typically somewhat higher for children with Autism than those with Asperger's syndrome.
  - Exception being Unusual Behaviors where the two groups were similar
- ASRS means for ages 6-18 years were consistently higher for children with Autism than those with Asperger's syndrome.

82

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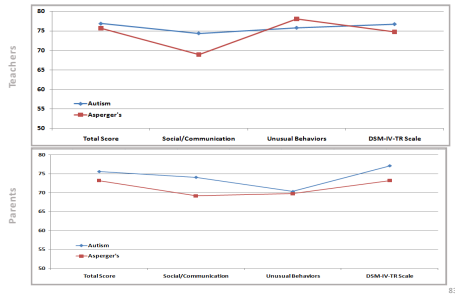
Autism vs Asperger (2-5 years)



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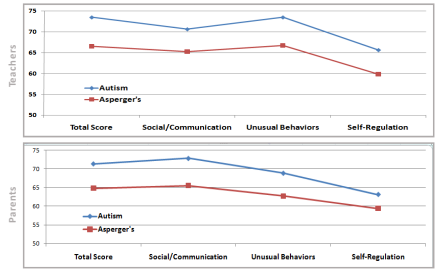
Autism vs Asperger (6-18 Years)



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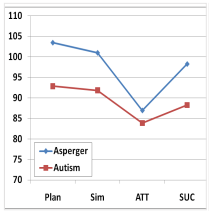
Autism vs Asperger (6-18 years)



Descriptive Statistics and Comparisons Between Individuals with Autism (*n* = 20) and Asperger Syndrome (*n* = 23).

		Mn	*SD*	*F*	Sig	*d* -ratio
PLAN	Asperger	103.5	31.6	1.71	.20	0.40
	Autism	92.9	19.2			
SIM	Asperger	101.0	15.3	3.33	.08	0.54
	Autism	91.9	17.5			
ATT	Asperger	86.9	17.7	0.30	.59	0.17
	Autism	83.9	18.8			
SUC	Asperger	98.3	15.7	2.46	.12	0.47
	Autism	88.3	25.6			

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DSM 5 Social (Pragmatic) Communication Disorder Criteria A

Persistent difficulties in the social use of verbal and nonverbal communication as manifested by all of the following:

- Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.
- 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 a playground, talking differently to a child than to an adult, and avoiding use of overly formal language.
- 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.
- Difficulties understanding what is not explicitly stated (e.g., making inferences) and non-literal or ambiguous meanings of language (e.g., idioms, humor, metaphors, multiple meanings that depend on the context for interpretation).

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DSM 5 Social (Pragmatic) Communication Disorder Criteria B, C, and D

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.

NO DISCUSSION OF THIS DIAGNOSIS IN ADULTS!

87

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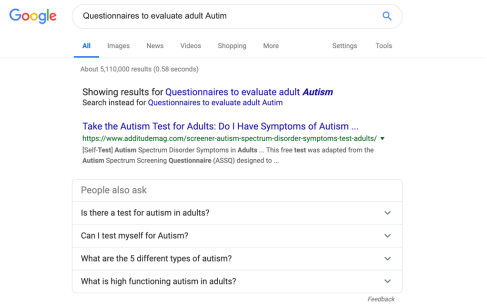
Google It! Conducting an Evaluation for ASD



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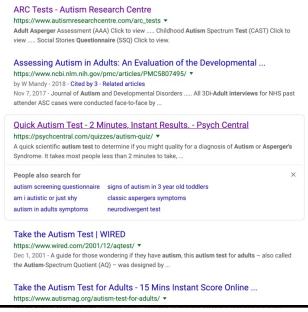
Google It! Conducting an Evaluation for ASD



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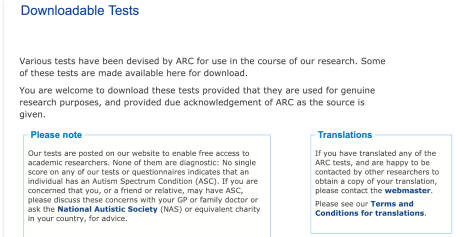
https://www.autismresearchcentre.com/arc_tests



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https://www.autismresearchcentre.com/arc_tests

- Adult Asperger Assessment (AAA)
- Autism Spectrum Quotient (AQ) (Adult)
- Autism Spectrum Quotient - 10 items (AQ-10) (Adult)
- Autism Spectrum Quotient (AQ) (Adolescent)
- Autism Spectrum Quotient - 10 items (AQ-10) (Adolescent)
- Autism Spectrum Quotient (AQ) (Child)
- Autism Spectrum Quotient - 10 items (AQ-10) (Child)
- Cambridge Mindreading (CAM) Face-Voice Battery
- Checklist for Autism in Toddlers (CHAT)
- Quantitative Checklist for Autism in Toddlers (Q-CHAT)
- Quantitative Checklist for Autism in Toddlers - 10 items (Q-CHAT-10)
- Childhood Autism Spectrum Test (CAST)
- Empathy Quotient (EQ) for Adults
- Empathy Quotient (EQ) for Adolescents
- Empathy/Systemizing Quotient (EQ-SQ) (Child)
- Empathy/Systemizing Quotient (EQ-SQ) (Child)
- The EU-Emotion Stimulus Set
- Eyes Test (Adult)
- Eyes Test (Child)
- Faces Test
- Faux Pas Test (Adult)
- Faux Pas Test (Child)
- Friendship and Relationship Quotient (FQ)
- Intuitive Physics Test
- Coherence Inferences Test
- Physical Prediction Questionnaire (PPQ)
- Picture Sequencing Test
- Reading the Mind in the Voice Test
- Reading the Mind in Films Test
- Revised Test of Genuineness (TOG-R)
- Sensory Perception Quotient

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Cambridge Behavioural Scale

1. I can easily tell if someone else wants to enter a conversation.	strongly agree	slightly agree	slightly disagree	strongly disagree
2. I prefer animals to humans.	strongly agree	slightly agree	slightly disagree	strongly disagree
3. I try to keep up with the current trends and fashions.	strongly agree	slightly agree	slightly disagree	strongly disagree
4. I find it difficult to explain to others things that I understand easily, when they don't understand it first time.	strongly agree	slightly agree	slightly disagree	strongly disagree
5. I dream most nights.	strongly agree	slightly agree	slightly disagree	strongly disagree
6. I really enjoy caring for other people.	strongly agree	slightly agree	slightly disagree	strongly disagree
7. I try to solve my own problems rather than discussing them with others.	strongly agree	slightly agree	slightly disagree	strongly disagree
8. I find it hard to know what to do in a social situation.	strongly agree	slightly agree	slightly disagree	strongly disagree
9. I am at my best first thing in the morning.	strongly agree	slightly agree	slightly disagree	strongly disagree

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Autism Spectrum Disorder as Reflected in the Autism Spectrum Rating Scales (Goldstein and Naglieri, 2009) Exploratory and Confirmatory Factor Analyses

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Validity of the Factors

- Factor analysis is a valuable tool to understand how items group.
- But we also need to know if the items have validity, that is do they measure what they purport to measure?
- Discriminating individuals with ASD from the regular population is important.
- Discriminating individuals with ASD from those who are not in the regular population (e.g. they suffer from other conditions) but not ASD is equally important.

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ASRS Profiles

- A scale like the ASRS should differentiate adults with ASD from the normal population.
- Comparison to regular individuals should demonstrate that those with ASD have high scores.
- Comparisons to other clinical groups should also show differences from those with ASD.
- Comparisons of the ASD to regular and other clinical samples provides an essential examination of validity.

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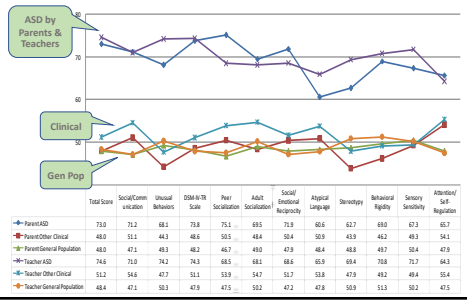
ASRS Validity for ages 2-5



	Total Score	Social/Communication	Unusual Behaviors	DSM-IV-TR Scale	Peer Socialization	Adult Socialization	Social/Emotional Reciprocity	Atypical Language	Stereotypy	Behavioral Rigidity	Sensory Sensitivity	Attention/Self-Regulation
Parent ASD	73.0	71.2	68.1	73.8	75.1	69.5	71.9	60.6	62.7	69.0	67.3	65.7
Parent Other Clinical	48.0	51.1	44.3	48.6	50.5	48.4	50.4	50.9	43.9	46.2	49.3	54.1
Parent General Population	48.0	47.1	49.3	48.2	46.7	49.0	47.9	48.4	48.8	49.7	50.4	47.9
Teacher ASD	74.6	71.0	74.2	74.3	68.5	68.1	68.6	65.9	69.4	70.8	71.7	64.3
Teacher Other Clinical	51.2	54.6	47.7	51.1	53.9	54.7	51.7	53.8	47.9	49.2	49.4	55.4
Teacher General Population	48.4	47.1	50.3	47.9	47.5	50.2	47.2	47.8	50.9	51.3	50.2	47.5

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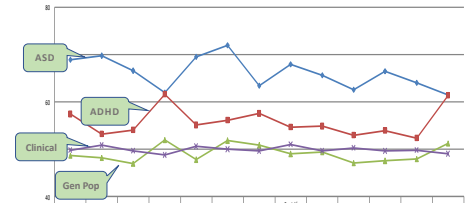
ASRS Validity: Ages 6-18 Parents



	Total Score	Social/ Communication	Unusual Behaviors	Self-Regulation	DSM-IV-TR Scale	Peer Socialization	Adult Socialization	Social/ Emotional Reciprocity	Atypical Language	Stereotypy	Behavioral Rigidity	Sensory Sensitivity	Attention
ASD	68.9	69.7	66.6	62.0	69.6	72.0	63.5	67.9	65.6	62.6	66.5	64.0	61.5
ADHD	57.4	53.2	54.1	61.7	55.1	56.1	57.5	54.6	54.8	53.0	53.9	52.3	61.4
Other Clinical	48.7	48.2	47.0	52.0	47.7	51.8	50.8	49.0	49.4	47.0	47.5	47.9	51.2
General Population	49.7	50.8	49.7	48.7	50.6	50.0	49.6	51.0	49.6	50.3	49.6	49.8	49.0

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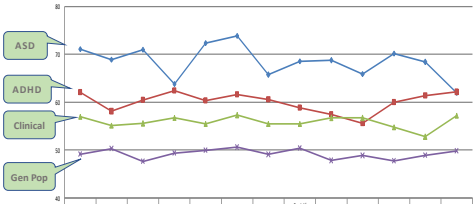
ASRS Validity: Ages 6-18 Teachers



	Total Score	Social/ Communication	Unusual Behaviors	Self-Regulation	DSM-IV-TR Scale	Peer Socialization	Adult Socialization	Social/ Emotional Reciprocity	Atypical Language	Stereotypy	Behavioral Rigidity	Sensory Sensitivity	Attention
ASD	71.1	68.9	71.0	63.8	72.4	73.9	65.8	68.6	68.8	65.0	70.3	68.4	62.0
ADHD	62.3	58.1	60.5	62.5	60.4	61.6	60.6	58.9	57.5	55.7	60.0	61.4	62.2
Other Clinical	57.0	55.1	55.6	56.8	55.5	57.3	55.5	55.5	56.7	56.7	54.8	52.8	57.2
General Population	49.2	50.3	47.7	49.4	50.0	50.6	49.1	50.4	47.8	48.8	47.8	48.9	49.9

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The ASRS has a DSM 5 scale as well as scoring options for non-verbal children.

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ASRS Reliability

100

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ASRS Reliability Ages 2-5 Parents & Teachers (or caregivers)

Scale		Parent Ratings			Teacher Ratings		
		Normative Sample (*N* = 320)	Clinical Sample (*N* = 243)	Average	Normative Sample (*N* = 320)	Clinical Sample (*N* = 249)	Average
Total Score		.95	.98	.97	.94	.99	.97
ASRS Scales	Social/ Communication	.94	.98	.96	.95	.98	.97
	Unusual Behaviors	.91	.96	.94	.85	.97	.92
DSM-IV-TR Scale		.91	.97	.94	.91	.98	.95
Treatment Scales	Peer Socialization	.77	.96	.89	.85	.95	.91
	Adult Socialization	.67	.85	.76	.78	.85	.81
	Social/Emotional Reciprocity	.83	.96	.91	.88	.96	.93
	Atypical Language	.71	.77	.74	.59	.79	.69
	Stereotypy	.75	.86	.80	.67	.86	.77
	Behavioral Rigidity	.85	.94	.90	.82	.95	.90
	Sensory Sensitivity	.71	.89	.81	.59	.90	.77
	Attention/Self-Regulation	.83	.88	.85	.83	.89	.86

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ASRS Reliability Ages 6-18 : Parents

Scale		6 to 11 Years			12 to 18 Years		
		Normative Sample (*N* = 480)	Clinical Sample (*N* = 230)	Average	Normative Sample (*N* = 480)	Clinical Sample (*N* = 185)	Average
Total Score		.97	.98	.97	.97	.97	.97
ASRS Scales	Social/ Communication	.91	.97	.94	.92	.95	.93
	Unusual Behaviors	.94	.95	.94	.93	.95	.94
	Self-Regulation	.92	.92	.92	.93	.93	.93
DSM-IV-TR Scale		.95	.96	.95	.94	.96	.95
Treatment Scales	Peer Socialization	.84	.92	.87	.84	.91	.86
	Adult Socialization	.77	.77	.77	.79	.77	.78
	Social/Emotional Reciprocity	.85	.94	.89	.88	.91	.89
	Atypical Language	.81	.85	.82	.82	.85	.83
	Stereotypy	.79	.78	.79	.77	.79	.78
	Behavioral Rigidity	.89	.92	.90	.86	.94	.89
	Sensory Sensitivity	.79	.85	.81	.77	.82	.79
	Attention	.90	.91	.90	.89	.91	.90

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ASRS Reliability Ages 6-18 : Teachers

Scale		6 to 11 Years			12 to 18 Years		
		Normative Sample (N = 480)	Clinical Sample (N = 167)	Average	Normative Sample (N = 480)	Clinical Sample (N = 325)	Average
Total Score		.97	.98	.97	.97	.97	.97
ASRS Scales	Social/ Communication	.93	.96	.94	.92	.96	.94
	Unusual Behaviors	.93	.95	.94	.94	.95	.94
	Self-Regulation	.94	.93	.94	.93	.91	.92
DSM-IV-TR Scale		.94	.96	.95	.94	.96	.95
Treatment Scales	Peer Socialization	.84	.90	.86	.83	.90	.86
	Adult Socialization	.80	.81	.80	.77	.77	.77
	Social/Emotional Reciprocity	.89	.92	.90	.89	.92	.90
	Atypical Language	.75	.87	.79	.80	.85	.82
	Stereotypy	.69	.77	.71	.72	.81	.76
	Behavioral Rigidity	.90	.93	.91	.90	.94	.92
	Sensory Sensitivity	.77	.87	.80	.84	.87	.85
	Attention	.92	.92	.92	.91	.92	.91

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ASD vs Communication Disorders

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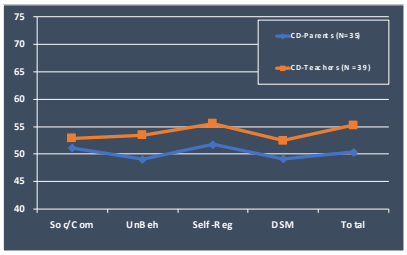
ASD vs Communication Disorders



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Race / Ethnic Differences

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ASRS Race Ethnic Differences

Table 8.26. Differences between Race/Ethnic Groups: ASRS (6–18 Years) Parent Ratings

Scale			African American	Hispanic	White	*d*-ratio: White - African American	*d*-ratio: White-Hispanic
Total Score		*M*	50.9	45.7	49.3	0.14	0.31
		SE	0.9	1.0	0.5		
		N	122	128	536		
ASRS Scales	Social/ Communication	*M*	50.8	46.4	49.1	0.15	0.24
		SE	0.9	0.9	0.5		
		N	122	128	536		
	Unusual Behaviors	*M*	50.6	45.6	49.4	0.11	0.33
		SE	0.9	0.9	0.5		
		N	122	128	536		
	Self-Regulation	*M*	50.3	46.1	49.1	0.10	0.26
		SE	0.9	1.0	0.5		
		N	122	128	536		
DSM-IV-TR Scale		*M*	51.0	45.6	49.7	0.13	0.37
		SE	0.9	0.9	0.5		
		N	128	131	549		

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Race Ethnic Differences Short Form

Table 9.12. Effect of Race/Ethnicity: ASRS Short Forms

Age	Rater		AA	HI	WH	*d*-ratio: AA - WH	*d*-ratio: WH-HI
2–5 Years	Parent	*M*	46.5	49.2	49.9	-0.34	0.06
		SE	1.4	1.7	0.8		
		N	52	57	172		
	Teacher/Childcare Provider	*M*	48.0	45.6	50.7	-0.18	0.34
		SE	1.7	1.9	1.1		
		N	47	48	195		
6–18 Years	Parent	*M*	50.6	46.2	49.6	0.09	0.29
		SE	0.9	0.9	0.5		
		N	133	135	560		
	Teacher	*M*	50.7	51.9	49.8	0.07	-0.16
		SE	0.9	0.9	0.6		
		N	132	152	521		

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Meet Kevin

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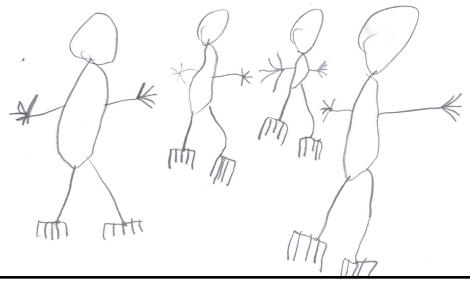
Kevin Draws His Family



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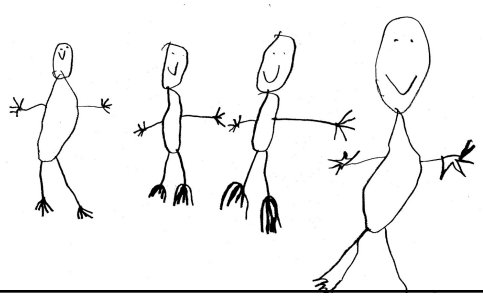
Kevin Adds Faces



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Pretend Play in Autism

- Limited, often absent
- When present usually characterized by: repetitive themes, rigidity, isolated acts, one-sided play, limited imagination.

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Evaluating Compensatory Behaviors: Social Camouflage in ASD

- Social camouflaging is defined as the use of strategies by autistic people to minimize the challenges of autism during social situations (Lai et al. 2011).
- Social camouflage has recently been a focus of researchers, but has been recognized by clinicians as coping strategies. It is now recommended that clinicians evaluate masking or coping behaviors when assessing autism in the newly released 11th edition of the International Classification of Diseases (Zeldovich 2017).
- This phenomena may be a widespread in ASD, especially in intellectually strong individuals.

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Social Camouflage in ASD

- Social camouflaging reflects an explicit effort to 'mask' or 'compensate' for autistic characteristics; and to use conscious techniques to minimize an autistic behavioral presentation (Hull et al. 2017; Lai et al. 2017; Livingston and Happé 2017).
- Examples of camouflaging behaviors described in the current literature include as example: forcing oneself to make eye contact during a social interaction; pretending that one is doing so by looking at the space between someone's eyes or at the tip of their nose; or using working memory strategies to develop a list of appropriate topics for conversation.

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Social Camouflage in ASD: Unanswered Questions

- Do autistic females camouflage more than males, and does this partly account for gender disparities in the rate and timing of diagnosis (Begeer et al. 2013; Loomes et al. 2017)?
- What is the relationship between camouflaging and mental health outcomes?
- How should camouflaging be accurately measured? Is a discrepancy method sufficient to assess the the gap between how a person with ASD mediates their internal autistic status and their overt behavior (external autistic presentation)?

115

Measuring Social Camouflage

Livingston and Happé (2017) suggest that camouflaging is a component of social compensation.

The "processes contributing to improved behavioral presentation of a neurodevelopmental disorder such as ASD, despite persisting core deficit(s) at cognitive and/or neurobiological levels".

As such they should be measured at the behavioral, cognitive, and even neurobiological levels.

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Performance on tests of cognition relevant to autism, or scores on self-reported measures of autism traits can only serve as a proxy measure of internal autistic status.

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Measuring Social Camouflage

- An alternative to the discrepancy approaches is one based on observational recognition of camouflaging; measuring the specific behaviors and experiences which represent camouflaging.
- Observational/reflective methods circumvent the limitation of being unable to measure an individual's internal autistic state. Camouflaging can be measured consistently and compared between individuals, and behaviors can be identified regardless of how successful they may be.
- This approach to camouflaging has the advantage of allowing for variation in camouflaging behaviors and their success. Techniques learned and used in some situations may not be successful in others.
- An individual's overall camouflaging skill may partly depend on their flexibility/generalizable capacity to adapt to different situations.

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Measuring Social Camouflage

- Both the discrepancy and observational/reflective approaches offer ways to define and measure camouflaging in ASD.
- All the methods used or suggested have their own strengths and weaknesses, thus combining multiple methods may allow for greater accuracy in measuring and identifying a complex phenomenon such as camouflaging.

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Camouflaging Autistic Traits Questionnaire (CAT-Q)

- Compensation
- Masking
- Assimilation

Laura Hull , William Mandy, Meng-Chuan Lai, Simon Baron-Cohen, Carrie Allison,Paula Smith & K. V. Petrides. Development and Validation of the Camouflaging Autistic Traits Questionnaire (CAT-Q) *Journal of Autism and Developmental Disorders.* doi.org/10.1007/s10803-018-3792-6

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Social Camouflage: Compensation

- Copy others facial expression or body language.
- Learn social clues from media.
- Watch others to understand social skills.
- Repeat others phrasing and tone.
- Use script in social situations.
- Explicitly research the rules of social engagement.

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Social Camouflage: Masking

- Monitor face and body to appear relaxed.
- Adjust face and body to appear relaxed.
- Monitor face and body to appear interested in others.
- Adjust face and body to appear interested in others.
- Pressured to make eye contact.
- Think about impression made on others.
- Aware of impression made on others.

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Social Camouflage: Assimilation

- Feel a need to put on an act.
- Conversation with others is not natural.
- Avoid interacting with others in social situations.
- ”Performing” e.g. not being oneself in social situations
- Force self to interact with others.
- Pretending to be normal.
- Need support of others to socialize.
- Cannot be oneself while socializing.

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Intervention

- Despite strong claims no curative treatment has been studied vigorously.
- "In the absence of a definitive cure there are a thousand treatments" (Klin).
- Behavior modification, educational intervention and pharmacology have been studied.

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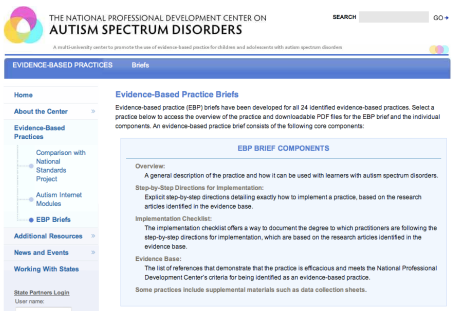
http://autismpdc.fpg.unc.edu/content/briefs



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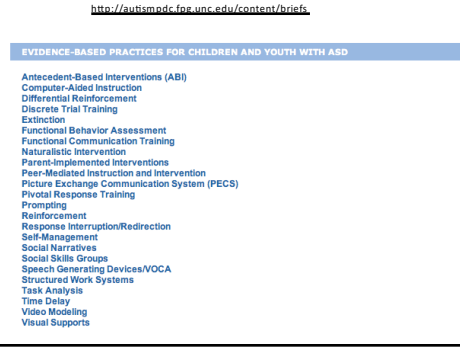
http://autismpdc.fpg.unc.edu/content/briefs



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Considering Co-morbidity

- Considerable overlap exists between autism spectrum disorder (ASD) and mental health disorders.
- High rates of overlap are significant because they affect the nature and type of problems displayed by persons with ASD and how the disorders are assessed.
- ADHD, anxiety disorders and depression are among the disorders most commonly associated with ASD.
- Symptom presentation is similar whether ASD occurs alone or with other conditions.
- Multiple assessments after initial diagnosis of ASD are frequently necessary.
- ASD can be diagnosed very early, while symptoms of other disorders emerge at different points in human development.

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Case of Allie

- Allie is a 26-year-old Hispanic, bisexual, cisgender woman referred for evaluation of inattentive symptoms.
- While ADHD symptoms are prominent, marked by distractibility, executive dysfunction, and environmental disorganization.
- Allie also displays a complex neurodevelopmental profile suggestive of autism spectrum characteristics.

Her self-report and clinical observations reveal:

- Inattention, forgetfulness, and executive dysfunction (difficulty initiating, sequencing, and completing tasks).
- Lifelong sensory sensitivities (texture, sound, smell) and repetitive, special interests (anime, music, puzzles).
- Social-communication challenges (monologic speech, limited reciprocity, preference for solitary routines).

-Emotional dysregulation, shutdowns in overstimulating contexts, and distress with transitions or unpredictability

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Allie Formal Test Results

- **WAIS-5**: Full-Scale IQ in the average range, with relative weakness in working memory and processing speed.
- **MOXO & CAARS-2**: Marked attention and hyperactivity impairments (T-scores 76 for inattention, 76 for hyperactivity).
- **SRS-2**: Severe scores in Restricted Interests and Repetitive Behaviors (T = 85) and moderate impairments in Social Cognition, Communication, and Motivation.
- **MIGDAS-2**: Strong qualitative evidence of ASD traits in sensory profile, communication, emotional regulation, and daily functioning.

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Three Diagnostic Strategies- 1

Clarify ADHD vs. ASD Functional Impairments Using Dual-Axis Frameworks

Allie's executive dysfunction—difficulty prioritizing, task switching, and organization—is a hallmark of ADHD. However, she also exhibits:

- Literal language use
- Difficulty with spontaneous conversation
- Hyperfocus on narrow interests
- Environmental sensitivity

Strategy

Use side-by-side DSM-5 criteria for ADHD and ASD to disentangle whether executive dysfunction is primary (ADHD) or secondary to cognitive rigidity/sensory overload (ASD). Leverage clinician-observed measures (e.g., MIGDAS-2) and structured rating scales (e.g., CAARS-2 vs. SRS-2) to contrast internal distractibility (ADHD) versus external rigidity (ASD).

Example: Allie's failure to initiate cleaning tasks despite motivation points toward ADHD, whereas shutdowns due to environmental reorganization support ASD.

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Three Diagnostic Strategies- 2

Use Social Pragmatic and Sensory Profiles to Differentiate ASD Traits

- Despite having strong verbal skills and relational insight, Allie:

- Avoids social initiation and small talk
- Shows idiosyncratic language (e.g., scripted catchphrases)
- Demonstrates sensory-driven routines and meltdowns

Strategy:

Conduct structured social-cognitive assessments and ecological interviews (e.g., ADI-R) to test reciprocity, theory of mind, and nonverbal communication, which are impaired in ASD but not typically in ADHD.

Evaluate developmental onset and pervasiveness across contexts

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Three Diagnostic Strategies - 3

Assess Impact and Flexibility Across Environments

Allie reports:

- Highly structured environments (e.g., school, library) improve performance.
- Low-structure contexts (e.g., remote work) exacerbate symptoms.
- Delayed adaptive behaviors (e.g., brushing teeth, task completion) since childhood.

Strategy:

Utilize functional behavior assessments (FBA) across structured vs. unstructured settings to evaluate the contextual dependency of her symptoms. If symptoms resolve in high-structure settings, ADHD is more likely. If they persist despite support or cause rigid routine dependence, ASD becomes more probable. Look for adaptive skill gaps and reliance on sensory and self-regulatory routines, which align more closely with autism.

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Case 2 Katie

Katie B is a 16-year-old girl referred for evaluation due to longstanding inattentive and anxious symptoms, with concerns initially raised for possible Autism Spectrum Disorder (ASD). While she exhibits traits such as sensory sensitivities, fixated interests, and distress with disrupted routines, her functioning across home, school, and social settings is largely intact.

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Diagnostic Strategy 1

Clarify Overlapping Symptom Profiles (Anxiety vs. ASD)

Katie presents with:
- Sensory sensitivities (e.g., sound, light, textures),
- Rigid routines and distress when disrupted,
- Fixated interests (e.g., sharks, flags),
- Social use of language that includes echolalia, metaphorical speech, and scripted phrases (SCQ indicators).

However, she also demonstrates:
- Social connectedness (secure friendships, long-term relationships),
- No functional impairment at school or home,
- Intact reciprocal social interactions.

Strategy

Administer and interpret standardized ASD measures alongside contextual and historical data (e.g., ADOS-2 Module 4 results). Consider that Katie's symptoms may stem from generalized anxiety disorder (GAD) with autistic traits rather than meeting full criteria for ASD. Use a multi-informant, cross-setting assessment model

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Diagnostic Strategy 2

Executive Function & Attention Differentiation (ADHD vs. Anxiety)

Katie shows:
- Difficulty sustaining attention (especially in math),
- High scores on inattention/hyperactivity (BASC-3 T = 63, 89th percentile),
- Anxiety-related cognitive interference (racing thoughts, chest tightness).

However:
- WAIS-5 scores show average to below average working memory (WMI = 88) and typical processing speed (PSI = 97),
- No Conners-4 evidence of exaggerated or inconsistent reporting.

Strategy

Use behavioral observations, WAIS-5 profiles, and targeted executive function testing (e.g., D-KEFS or NEPSY) to isolate whether attention problems are secondary to anxiety or reflect comorbid ADHD-Inattentive Type.

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Diagnostic Strategy 3

Developmental and Trauma-Informed Differential Formulation

History includes:
Witnessing the father's death and substance use,
Self-harm history (cutting, passive SI linked to bullying),
Anxiety onset in the 5th grade with earlier phobic tendencies.

Strategy

Integrate trauma-informed care frameworks (e.g., Trauma Symptom Checklist for Children) with longitudinal behavioral history to discern whether early symptoms (e.g., social withdrawal, rigid behaviors) may be trauma-related vs. neurodevelopmental in origin. Assess for trauma-related dissociation or somatic symptoms that may mimic or compound ASD/GAD profiles.

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Components of an Effective Treatment Program

- Structured behavioral treatment
- Parent involvement
- Treatment at an early age
- Intensive intervention
- Social skill development
- Focus on generalization of skills
- Appropriate school setting
- Medication?

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Medications

- Symptom focused medications: stimulants for attention, anti-depressants for mood, anti-psychotics for "oddities".
- Condition focused medications?

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New Drug May Treat ASD

Sci Transl Med 19 September 2012:
Vol. 4, Issue 152, p. 152ra127
Sci. Transl. Med. DOI: 10.1126/scitranslmed.3004214

RESEARCH ARTICLE

FRAGILE X SYNDROME

Effects of STX209 (Arbaclofen) on Neurobehavioral Function in Children and Adults with Fragile X Syndrome: A Randomized, Controlled, Phase 2 Trial

Elizabeth M. Berry-Kravis[1], David Hessl[2], Barbara Rathmell[3], Peter Zarevics[3], Maryann Cherubini[3], Karen Walton-Bowen[3], Yi Mu[4], Danh V. Nguyen[4], Joseph Gonzalez-Heydrich[5], Paul P. Wang[3,*], Randall L. Carpenter[3], Mark F. Bear[6] and Randi J. Hagerman[7]

+ Author Affiliations

..*To whom correspondence should be addressed. E-mail: pwang@seasidetherapeutics.com

ABSTRACT

Research on animal models of fragile X syndrome suggests that STX209, a γ-aminobutyric acid type B (GABAB) agonist, might improve neurobehavioral function in affected patients. We evaluated whether STX209 improves behavioral symptoms of fragile X syndrome in a randomized, double-blind, placebo-controlled crossover study in 63 subjects (55 male), ages 6 to 39 years, with a full mutation in the *FMR1* gene (>200 CGG triplet repeats). We found no difference from placebo on the primary endpoint, the Aberrant Behavior Checklist—Irritability (ABC-I) subscale. In the other analyses specified in the protocol, improvement was seen on the visual analog scale ratings of parent-nominated problem behaviors, with positive trends on multiple global measures. Post hoc analysis with the ABC—Social Avoidance scale, a newly validated scale for the assessment of fragile X syndrome, showed a significant beneficial treatment effect in the full study population. A post hoc subgroup of 27 subjects with more severe social impairment showed improvements on the Vineland II-Socialization raw score, on the ABC—Social Avoidance scale, and on all global measures. STX209 was well tolerated, with 8% incidences of sedation and of headache as the most frequent side effects. In this exploratory study, STX209 did not show a benefit on irritability in fragile X syndrome. Nonetheless, our results suggest that GABAB agonists have potential to improve social function and behavior in patients with fragile X syndrome.

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Psychostimulants for ADHD-like symptoms in individuals with autism spectrum disorders.

Cortese S, Castelnau P, Morcillo C, Roux S, Bonnet-Brilhault F.

Institute for Pediatric Neuroscience, NYU Child Study Center, Langone Medical Center, 215 Lexington Avenue, 14th Floor, 10016 NY, USA. samuele.cortese@gmail.com.

Expert Rev Neurother. 2012 Apr;12(4):461-73.

We conducted a comprehensive review of studies assessing the efficacy and tolerability of psychostimulants for ADHD-like symptoms in individuals with autism spectrum disorder (encompassing autism disorder, Asperger's syndrome and pervasive developmental disorders not otherwise specified). PubMed, Ovid, EMBASE, Web of Science, ERIC and CINHAL were searched through 3 January 2012. From a pool of 348 potentially relevant references, 12 citations (11 studies) were retained as pertinent. Four of the included studies had a randomized controlled design. Most of the studies assessed methylphenidate immediate release. Despite inter-study heterogeneity, taken together, the results of the selected reports suggest that psychostimulants may be effective for ADHD-like symptoms in autism spectrum disorder individuals. The most common adverse events reported in the included trials were appetite reduction, sleep-onset difficulties, irritability and emotional outbursts. We discuss future directions in the field, including the need for trials assessing more ecological outcomes and combined treatment strategies tailored to the specific individual features.

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Positive Effects of Methylphenidate on Social Communication and Self-Regulation in Children with Pervasive Developmental Disorders and Hyperactivity

Laudan B. Jahromi, Connie L. Kasari, James T. McCracken, Lisa S-Y. Lee, **et. al.**

Journal of Autism and Developmental Disorders, 2009)

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Drugs that increase serotonin transmission may be useful in reducing interfering repetitive behaviors and aggression as well as improving social relatedness (few controlled studies).

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Promoting Social Behavior With Oxytocin in High-Functioning Autism Spectrum Disorders

- Published (2/10) online in the Proceedings of the National Academy of Sciences.
- Oxytocin is a hormone known to promote mother-infant bonds.
- A French research group investigated the behavioral effects of oxytocin in 13 subjects with autism.
- Under oxytocin, children with ASD responded more strongly to others and exhibited more appropriate social behavior and affect, suggesting a therapeutic potential of oxytocin through its action on a core dimension of autism.

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Oxytocin May Have Many Effects


Personality and Social Psychology Review

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Oxytocin and Human Social Behavior

Anne Campbell

Durham University, Durham, UK, a.c.campbell@durham.ac.uk

Abstract

Despite a general consensus that oxytocin (OT) has prosocial effects, there is no clear agreement on how these effects are achieved. Human research on OT is reviewed under three broad research initiatives: attachment and trust, social memory, and fear reduction. As an organizing perspective for scholars' current knowledge, a tentative model of the causes and effects of alterations in OT level is proposed. The model must remain provisional until conceptual and methodological problems are addressed that arise from a failure to distinguish between traits and states, differing research paradigms used in relation to OT as an independent versus dependent variable, and the possibility that OT effects depend on the initial emotional state of the individual. Social and personality psychologists have important roles to play in developing more rigorous and creative research designs.

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Medication and Parent Training in Children With Pervasive Developmental Disorders and Serious Behavior Problems: Results From a Randomized Clinical Trial

MICHAELG. AMAN, PH.D., CHRISTOPHERJ. MCDOUGLE, M.D. et al.

Conclusions: Medication plus PT resulted in greater reduction of serious maladaptive behavior than Medication alone in children with PDDs, with a lower risperidone dose.

J. AM. ACAD. CHILD ADOLESC. PSYCHIATRY, 48:12, DECEMBER 2009J.

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Comorbid ADHD and Anxiety Affect Social Skills Group Intervention Treatment Efficacy in Children With Autism Spectrum Disorders

Kevin M. Antshel, PhD, Carol Polacek, PhD, NP, Michele McMahon, CSW, Karen Dygert, NP, Laura Spenceley, MA, Lindsay Dygert, BS, Laura Miller, BA, Fatima Faisal

ABSTRACT: *Objective:* To assess the influence of psychiatric comorbidity on social skill treatment outcomes for children with autism spectrum disorders (ASDs). *Methods:* A community sample of 83 children (74 males, 9 females) with an ASD (mean age = 9.5 yr; SD = 1.2) and common comorbid disorders participated in 10-week social skills training groups. The first 5 weeks of the group focused on conversation skills and the second 5 weeks focused on social problem solving skills. A concurrent parent group was also included in the treatment. Social skills were assessed using the Social Skills Rating System. Ratings were completed by parents at pre- and posttreatment time periods. *Results:* Children with ASD and children with an ASD and comorbid anxiety disorder improved in their parent reported social skills. Children with ASD and comorbid attention deficit/hyperactivity disorder failed to improve. *Conclusion:* Psychiatric comorbidity affects social skill treatment gains in the ASD population.

(*J Dev Behav Pediatr* 32:439–446, 2011) **Index terms:** autism spectrum, social skills, ADHD.

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Some Possible Challenges to Counseling Youth With ASD

- Concrete thinkers
- Difficulty with humor
- Problems regulating affect
- Difficulty interpreting other's feelings
- Rule bound
- Diminished empathy
- Decreased desire to please others.

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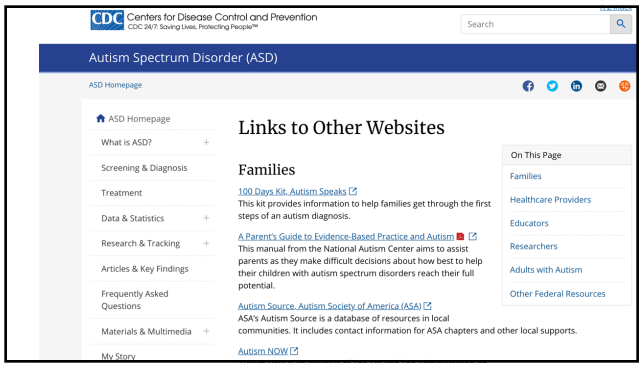
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100 Days Kit, Autism Speaks
This kit provides information to help families get through the first steps of an autism diagnosis.
A Parent's Guide to Evidence-Based Practice and Autism
This manual from the National Autism Center aims to assist parents as they make difficult decisions about how best to help their children with autism spectrum disorders reach their full potential.
Autism Source, Autism Society of America (ASA)
ASA's Autism Source is a database of resources in local communities. It includes contact information for ASA chapters and other local supports.
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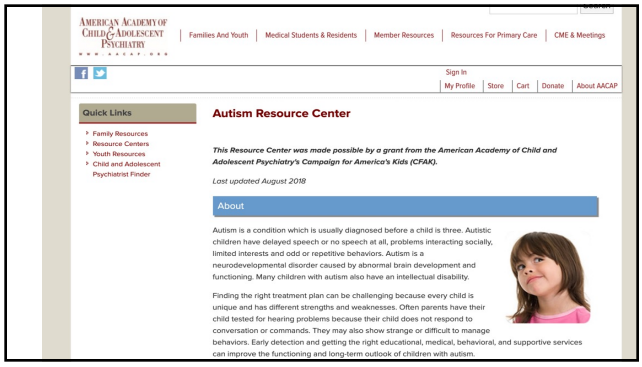
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This Resource Center was made possible by a grant from the American Academy of Child and Adolescent Psychiatry's Campaign for America's Kids (CFAK).
Last updated August 2018
About
Autism is a condition which is usually diagnosed before a child is three. Autistic children have delayed speech or no speech at all, problems interacting socially, limited interests and odd or repetitive behaviors. Autism is a neurodevelopmental disorder caused by abnormal brain development and functioning. Many children with autism also have an intellectual disability.
Finding the right treatment plan can be challenging because every child is unique and has different strengths and weaknesses. Often parents have their child tested for hearing problems because their child does not respond to conversation or commands. They may also show strange or difficult to manage behaviors. Early detection and getting the right educational, medical, behavioral, and supportive services can improve the functioning and long-term outlook of children with autism.

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In 2006 the Autism Society launched Living with Autism which presents user-friendly information within four eye-catching pages. The series was developed to provide easy-to-understand, practical information related to the autism spectrum for a broad audience on a wide range of topics. The series will continually evolve, adding new pieces on a regular basis, and address topics across the spectrum and lifespan. Emphasis of all pieces in the series is on living successfully with autism, so articles will provide useful information, helpful tips and additional resources provided by those with expertise on the particular topic. The Living with Autism series is designed for individuals on the autism spectrum, their families, friends and concerned professionals.
Living With Autism

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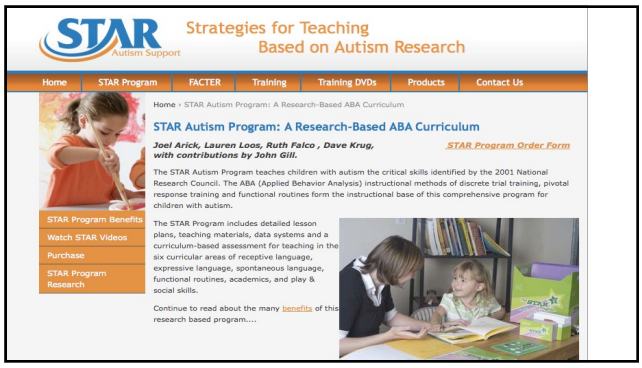

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The first randomized, controlled trial for comprehensive autism treatment for children as young as 18 months old.

While certainly not a cure for the condition, the study did find that intense early treatment yields major improvements in IQ scores, language processing, and in the ability to manage everyday tasks essential for early childhood development and education.

Published in *Pediatrics* the University of Washington study was funded by the National Institute of Mental Health. It involved 48 children ages 18 to 30 months, half of whom were randomly assigned to receive the Early Start Denver Model, an intensive autism therapy protocol. The other half were assigned to a control group and received less intensive therapy.

After two years, those who participated in the Denver Model group had average IQ scores 17.6 points higher than the control group, putting them within the range of normal intelligence, while those in the other group gained just seven points, remaining in the zone of intellectual disability.

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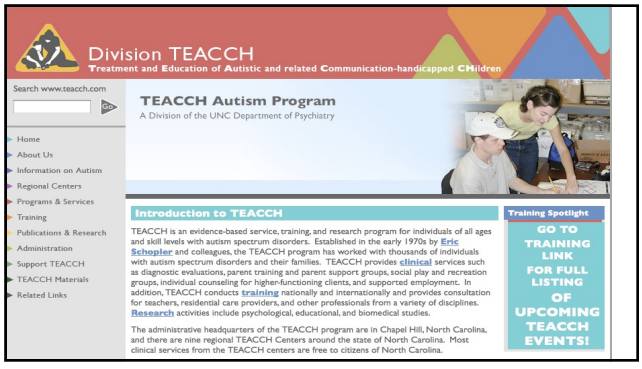

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The SCERTS® Model

(Prizant, Wetherby, Rubin & Laurent, 2007)

What is SCERTS?

SCERTS® is an innovative educational model for working with children with autism spectrum disorder (ASD) and their families. It provides specific guidelines for helping a child become a competent and confident social communicator, while preventing problem behaviors that interfere with learning and the development of relationships. It also is designed to help families, educators and therapists work cooperatively as a team, in a carefully coordinated manner, to maximize progress in supporting a child.

The acronym "SCERTS" refers to the focus on:

"SC" - Social Communication – the development of spontaneous, functional communication, emotional expression, and secure and trusting relationships with children and adults;

"ER" - Emotional Regulation - the development of the ability to maintain a well-regulated emotional state to cope with everyday stress, and to be most available for learning and interacting;

"TS" – Transactional Support – the development and implementation of supports to help partners respond to the child's needs and interests, modify and adapt the environment, and provide tools to enhance learning (e.g., picture communication, written schedules, and sensory supports). Specific plans are also developed to provide educational and emotional support to families, and to foster teamwork among professionals.

The SCERTS model targets the most significant challenges faced by children with ASD and their families. This is accomplished through family-professional partnerships (family-centered care), and by prioritizing the abilities and supports that will lead to the most positive long-term outcomes as indicated by the National Research Council (2001; Educating Children with Autism). As such, it

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All children have within them the potential to be great kids.
It's our job to create a great world where this potential can flourish.
Stanley Greenspan, MD - Great Kids, 2007.

DIR®, FLOORTIME™, AND DIRFLOORTIME™

The Developmental, Individual Difference, Relationship-based (*DIR®*) Model is a framework that helps clinicians, parents and educators conduct a comprehensive assessment and develop an intervention program tailored to the unique challenges and strengths of children with Autism Spectrum Disorders (ASD) and other developmental challenges. The objectives of the *DIR®* Model are to build healthy foundations for social, emotional, and intellectual capacities rather than focusing on skills and isolated behaviors. For a detailed overview, download 2 page flyer.

- The D *(Developmental)* part of the Model describes the building blocks of this foundation. Understanding where the child is developmentally is critical to planning a treatment program. The Six Developmental Milestones describes the developmental milestones that every child

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Welcome, Parents

Learning that your child is not developing as expected can be devastating. As you begin the search for information and guidance, you may get the discouraging message that there's not much you can do to help your child connect with the world around him. **But there's much you can do.** With the right treatment, your child can learn to relate, love others very deeply, and begin climbing the developmental ladder to communicate and think creatively and logically.

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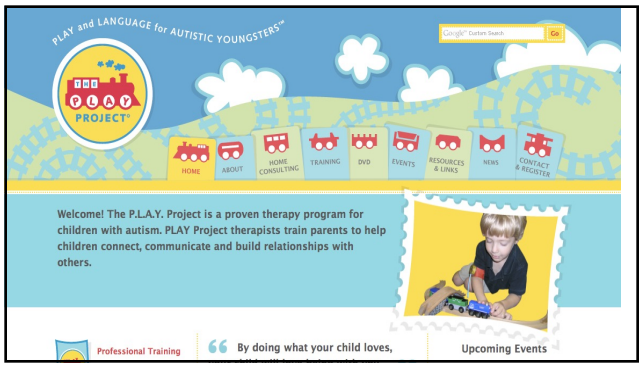
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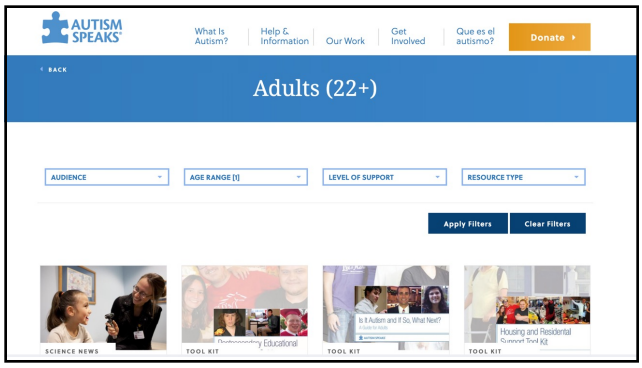
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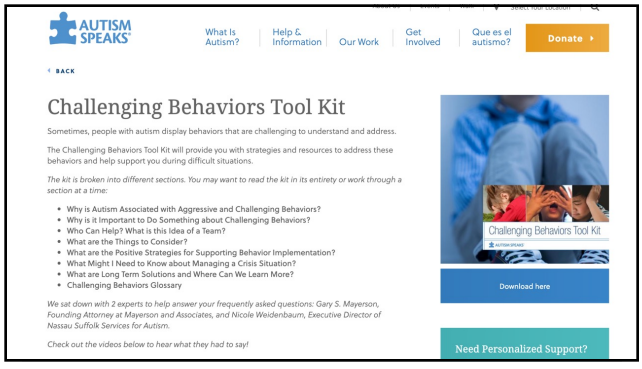
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Challenging Behaviors Tool Kit
Sometimes, people with autism display behaviors that are challenging to understand and address.
The Challenging Behaviors Tool Kit will provide you with strategies and resources to address these behaviors and help support you during difficult situations.
The kit is broken into different sections. You may want to read the kit in its entirety or work through a section at a time:
Why is Autism Associated with Aggressive and Challenging Behaviors?
Why is it Important to Do Something about Challenging Behaviors?
Who Can Help? What is this Idea of a Team?
What are the Things to Consider?
What are the Positive Strategies for Supporting Behavior Implementation?
What Might I Need to Know about Managing a Crisis Situation?
What are Long Term Solutions and Where Can We Learn More?
Challenging Behaviors Glossary
We sat down with 2 experts to help answer your frequently asked questions: Gary S. Mayerson, Founding Attorney at Mayerson and Associates, and Nicole Weidenbaum, Executive Director of Nassau Suffolk Services for Autism.
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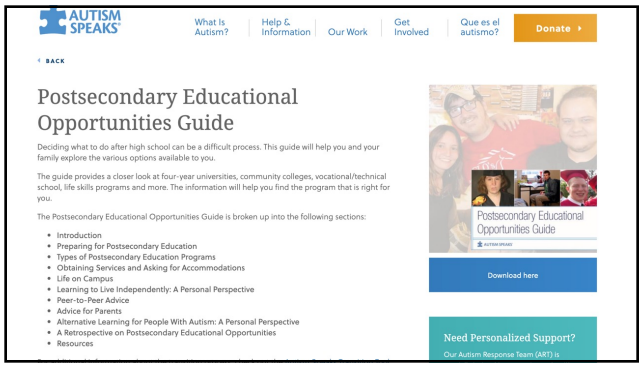
AUTISM SPEAKS
What Is Autism?
Help & Information
Our Work
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Postsecondary Educational Opportunities Guide
Deciding what to do after high school can be a difficult process. This guide will help you and your family explore the various options available to you.
The guide provides a closer look at four-year universities, community colleges, vocational/technical school, life skills programs and more. The information will help you find the program that is right for you.
The Postsecondary Educational Opportunities Guide is broken up into the following sections:
Introduction
Preparing for Postsecondary Education
Types of Postsecondary Education Programs
Obtaining Services and Asking for Accommodations
Life on Campus
Learning to Live Independently: A Personal Perspective
Peer-to-Peer Advice
Advice for Parents
Alternative Learning for People With Autism: A Personal Perspective
A Retrospective on Postsecondary Educational Opportunities
Resources
Postsecondary Educational Opportunities Guide
Download here
Need Personalized Support?
Our Autism Response Team (ART) is

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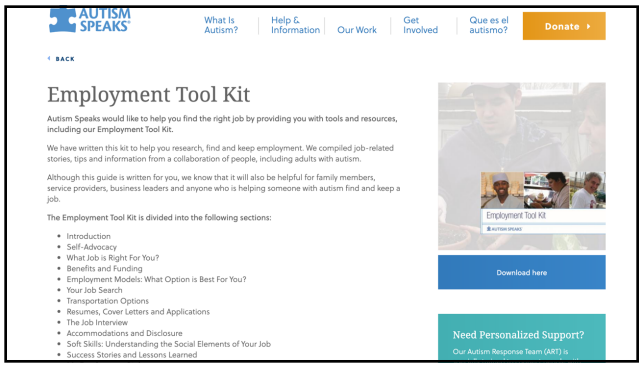
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Employment Tool Kit
Autism Speaks would like to help you find the right job by providing you with tools and resources, including our Employment Tool Kit.
We have written this kit to help you research, find and keep employment. We compiled job-related stories, tips and information from a collaboration of people, including adults with autism.
Although this guide is written for you, we know that it will also be helpful for family members, service providers, business leaders and anyone who is helping someone with autism find and keep a job.
The Employment Tool Kit is divided into the following sections:
Introduction
Self-Advocacy
What Job is Right For You?
Benefits and Funding
Employment Models: What Option is Best For You?
Your Job Search
Transportation Options
Resumes, Cover Letters and Applications
The Job Interview
Accommodations and Disclosure
Soft Skills: Understanding the Social Elements of Your Job
Success Stories and Lessons Learned
Employment Tool Kit
Download here
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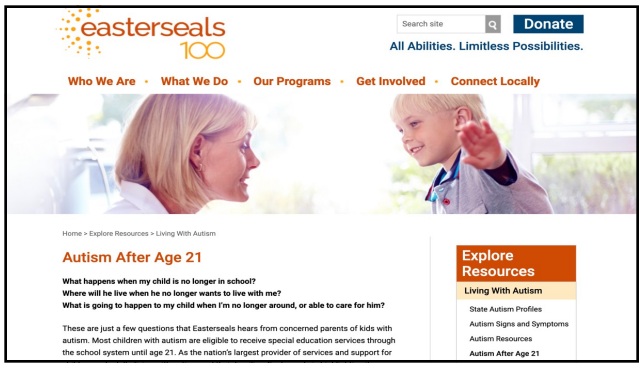
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All Abilities. Limitless Possibilities.
Who We Are
What We Do
Our Programs
Get Involved
Connect Locally
Home > Explore Resources > Living With Autism
Autism After Age 21
What happens when my child is no longer in school?
Where will he live when he no longer wants to live with me?
What is going to happen to my child when I'm no longer around, or able to care for him?
These are just a few questions that Easterseals hears from concerned parents of kids with autism. Most children with autism are eligible to receive special education services through the school system until age 21. As the nation's largest provider of services and support for
Explore Resources
Living With Autism
State Autism Profiles
Autism Signs and Symptoms
Autism Resources
Autism After Age 21

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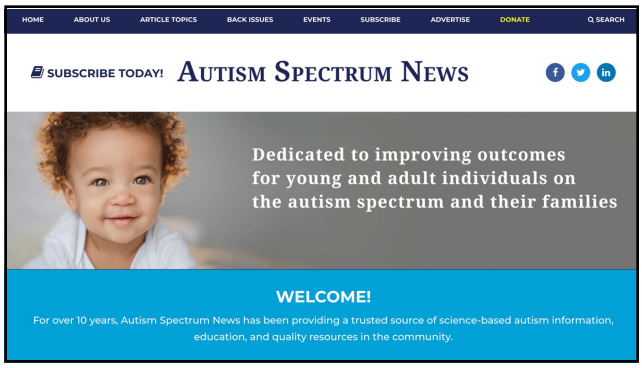

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The "Prime Directive" is Independence

- Reduce reliance on prompts.
- Help individual's predict and control. environment and behavior.
- Increase self-esteem and self-efficacy.
- Develop independence through a "learning to swim" mindset.

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Theater as a Medium to Develop Social Skills

- Theater arts offer an opportunity for individuals with ASD to venture into the community in a win-win relationship.
- EPIC's performances help the general community better understand the nature of having ASD.
- At the same time, actors with ASD have the opportunity to interact in a medium that we believe will foster not only the development of self-esteem, but appropriate social interaction—the latter very clearly being the primary hurdle to successful adult transition for those with ASD.
- EPIC hopes to quantify our initial experiences of the benefits of theater for those with ASD through a long-term, qualitative study measuring the associative effects of theater arts, training on social skills, sense of purpose and independence in daily life activities.

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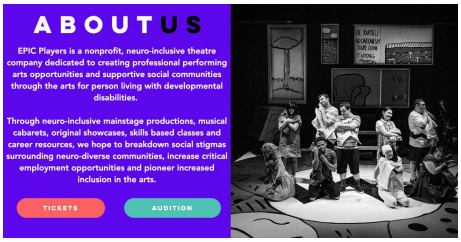
EPIC Players



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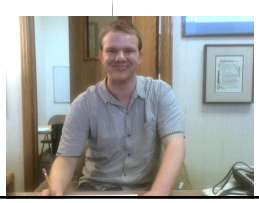
Devin Teichert
Song of Myself
December 16, 2008

Were They but There at Night

There is a bolder field where every stone
Is a glazed, glittering gem, like stars fallen from the sky
All except one, a plain grey rock alone in the center
Feeling excluded and shunned
People come, tourists, painters, photographers, collectors
To view each shining bolder, a pleasure to the beholder
Ooh! Ahh! Look at this one! Come quick!
Pockets bulge with fragments and paint cans run dry
But the grey rock remains ignored
An ugly blotch on a sweeping mural
The sun sets, everyone leaves
And they miss the centerpiece of the field
For when night falls, the grey rock in the center



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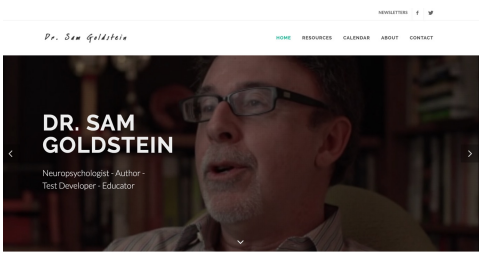
www.samgoldstein.com



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Questions?
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@doctorsamgoldstein
TEDx: https://www.youtube.com/watch?v=isfw8JJ-eWM

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