

Assessment of Autism Spectrum Disorder in Adults



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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 of Assessment of Autism Spectrum Disorders Second Edition (Guilford, 2016).
- 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).
- My expense are paid my MHS.
- AI note-taking is fine.

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Goals

- **Provide a brief historical overview of Autism Spectrum Disorder (ASD)**
Touch on key early theories and evolving perspectives that shaped our understanding of ASD.
- **Define ASD using the DSM-5 criteria**
Clarify the diagnostic definition and how it's currently classified in clinical settings.
- **Describe common ASD symptoms across the lifespan**
Highlight how symptoms can present in early childhood, adolescence, and adulthood.
- **Introduce a central theory of ASD**
Summarize one core theoretical model that helps explain ASD features (e.g., Theory of Mind or Executive Dysfunction).
- **Review key findings from the ASRS Adult (Autism Spectrum Rating Scales Adult)**
Share data from one of the largest standardization samples to show how typical and ASD populations compare.
- **Examine the benefits and limitations of traditional diagnostic approaches**, such as ADOS and ASRS, while introducing novel tools like EarliPoint.
- **Discuss current assessment tools and approaches**
Explain how ASD is assessed today, including traditional tools like the ASRS and newer digital methods.
- **Explore emerging technologies in ASD evaluation**
Examine how innovations—like EarliPoint and AI-driven diagnostics—are shaping the future of autism assessment.

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What Secretary Kennedy's Plan Misses

Kennedy's plan reduces autism research to a simplistic search for a "cause," as though autism were a singular condition with a singular explanation. It fails to incorporate the foundational principle of developmental psychopathology: that behavior emerges from complex, evolving interactions among genes, brains, and environments. The plan lacks scientific rigor and risks diverting resources from practical, evidence-based strategies by relying on retrospective chart reviews and neglecting longitudinal evidence.

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1. **The Norwegian Mother and Child Cohort Study (MoBa)** has tracked over 100,000 pregnancies since 1999 and identified associations between prenatal factors and later neurodevelopmental outcomes (Magnus et al., 2006).
2. **The Autism Birth Cohort Study (ABC)**, nested within MoBa, has provided valuable data linking genetic variants with early behavioral markers of ASD (Stoltenberg et al., 2010).
3. **The Early Autism Risk Longitudinal Investigation (EARLI)** focuses on infants at high risk for autism and examines environmental exposures, epigenetic markers, and early signs of ASD (Fallin et al., 2013).
4. **Generation R Study** in the Netherlands—This study tracks over 9,000 children from fetal life onward and has provided insights into early brain development and psychiatric risk (Jaddoe et al., 2012).
5. **SEED (Study to Explore Early Development)** is a CDC-led project that examines risk factors in diverse U.S. populations (Schendel et al., 2012).
6. **Avon Longitudinal Study of Parents and Children (ALSPAC)** – A UK-based study that identifies prenatal and familial influences on various developmental outcomes (Boyd et al., 2013).

These studies show that identifying causal pathways requires integrating genetics, neurodevelopmental markers, environment, and family context over time.

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What Benefits Do We Derive From Socialization?



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

7

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



8

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



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Socialization Begins Early Reina and Her Mother



10

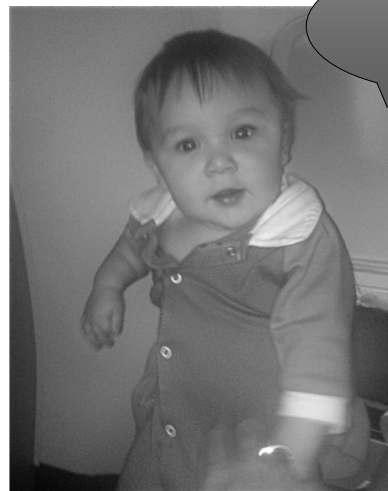
10



11

11

Adrian, my seatmate on a recent flight.



Hello!

12

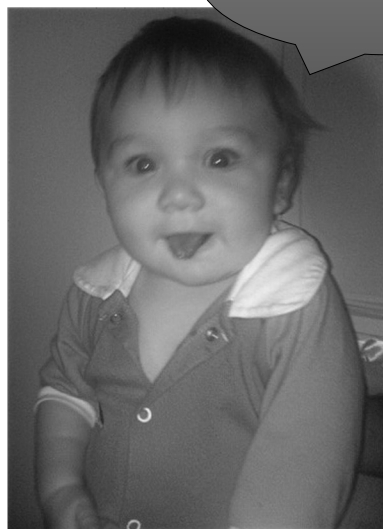
Adrian



You look like an
interesting guy.

13

Adrian



See what I can do!
Wanna take me home?

14



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15



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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 Donovan and Caren Zucker



Atlantic Monthly, October 2010

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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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Exome Versus Genome

Feature	Exome	Genome
Size	~30 million base pairs	~3 billion base pairs
% of genome	~1–2%	100%
Includes	Protein-coding regions (exons)	All DNA (coding + non-coding)
Used for	Identifying disease mutations	Comprehensive genetic analysis

The **exome** is the portion of the genome that consists of **exons**. These are the **protein-coding regions** of genes. While small in size compared to the whole genome, the exome contains the **majority of known disease-causing genetic mutations**.

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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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ASD 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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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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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).

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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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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)

Females on the Autism Spectrum

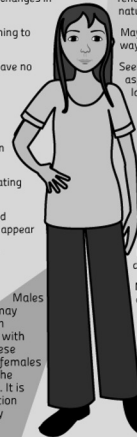
Behaviour

Less prone to act out physically or aggressively
 Intense focus on a particular subject, often involving animals or classic literature
 Appears anxious when there are changes in routine
 Observes human behaviour, learning to mask difficulties
 Practices rituals that appear to have no function
 May play with dolls or toys well beyond the typical age for these items
 Tendency toward perfectionism in certain aspects of her life
 High risk of having episodes of eating disorders and self medication
 Stimming behaviors, such as hand flapping, rocking, or spinning can appear much milder. They can also be internalised/thoughts instead of external behaviours
 May apologise and appease when they make a social error
 Often more socially aware and driven

Communication

More aware of the need for social interaction
 May have an exceptional vocabulary
 Tends to mimic rather than providing natural responses
 May converse in predictable, “scripted” ways
 Seems to struggle with non-verbal aspects of communication, such as body language and tone of voice
 May use odd inflection
 Appears to have difficulty dealing with unexpected verbal responses
 More able to follow social actions through observation
 Usually has only one or two close friends at school
 May have difficulty fitting in due to clothing and hairstyle choices
 May make greater efforts to avoid drawing attention to themselves
 Appears excessively shy or avoids interacting with others or making the first move socially
 Can be quite controlling in play
 Seems uncomfortable during conversation. Can struggle with eye contact
 Often “mothered” by others in primary school but bullied in high school
 May play appropriately with toys and engage in pretend play or may focus on organizing objects or toys
 Often shows empathy and compassion but may be confused by non-verbal social signals
 Usually holds it together well while out and explodes at home

Social



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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 less likely to have a first evaluation by age 3 than White children



Which children were more likely to be identified with ASD?



Boys were 4 times more likely to be identified with ASD than girls.

White children were still more likely to be identified with ASD than black or Hispanic children. Black children were more likely to be identified with ASD than Hispanic children. However, these differences were smaller when compared with estimates from previous years.

1.1x
MORE LIKELY among white vs black children

1.2x
MORE LIKELY among white vs Hispanic children

1.1x
MORE LIKELY among black vs Hispanic children

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Assessment of ASD in Adults

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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 Versus DSM 5 TR

- The criteria for diagnosing ASD including the two main domains:
Social communication/interaction
Restricted, repetitive behaviors/interests
- The requirement for symptoms to be present in early development
- The specifiers (e.g., intellectual impairment, language level, comorbid conditions)
- DSM-5-TR did not revise the diagnostic criteria for Autism Spectrum Disorder, but it did expand and refine the surrounding descriptions, with more up-to-date evidence and better consideration of cultural, gender, and mental health contexts.

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DSM 5 Versus DSM 5 TR

Clarification of Language and Terminology

- The DSM-5-TR refined the language in the text sections accompanying the diagnostic criteria.
- These changes aimed to improve clarity, reduce ambiguity, and provide updated guidance for clinicians.
- For example, the text was updated to reflect current research on autism and neurodiversity perspectives, though the criteria themselves were not altered.

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DSM 5 Versus DSM 5 TR

Expanded Text Sections

The descriptive text on ASD in the DSM-5-TR includes more comprehensive information:

- Prevalence data
- Risk factors (like genetic/environmental contributions)
- Developmental course
- Cultural considerations
- Comorbidities

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DSM 5 Versus DSM 5 TR

Inclusion of Suicidality as a Concern

- The DSM-5-TR highlights that individuals with autism are at increased risk of suicidal ideation and behavior, especially when co-occurring with other conditions like depression.
- This was not as clearly emphasized in the DSM-5.

Cultural and Gender Considerations

- There is more emphasis in the DSM-5-TR on how ASD presents differently across cultures and genders, especially in populations that have historically been underdiagnosed (e.g., females, minorities).
- This supports better recognition of diverse presentations of autism.

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DSM 5 & DSM 5 TR 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 TR 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 TR 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).

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DSM 5 TR 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.

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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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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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Applying DSM 5 TR 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 odd, wooden or exaggerated body language."

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Applying DSM 5 TR 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."

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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 or ICD 11 criteria must be met.

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Procedures to Evaluate Autism in Adults: Initial Screening

- Identify signs suggestive of Autism Spectrum Disorder (ASD)
- Self-report or informant questionnaires (e.g., partner, family).
- Referral from primary care or mental health providers.

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Procedures to Evaluate Autism in Adults: Clinical Interview

- Gather developmental, medical, and psychosocial history
- Early childhood behaviors (if known)
- Social relationships
- Educational and occupational history
- Psychiatric and family history

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Procedures to Evaluate Autism in Adults: Face to Face

- **ADOS-2 (Autism Diagnostic Observation Schedule, 2nd Ed.) – Module 4**
Structured, semi-standardized tasks to observe behavior in adults with fluent speech.
- **ADI-R (Autism Diagnostic Interview – Revised)**
Structured interview with someone familiar with the individual's developmental history (often used when available for adults).

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ADOS Module 4

Module 4 of the **Autism Diagnostic Observation Schedule, Second Edition (ADOS-2)** is designed for **verbally fluent older adolescents and adults**. It evaluates social communication, reciprocal social interaction, imagination, and restricted or repetitive behaviors through a semi-structured set of activities (sometimes informally referred to as “subtests” or “tasks”).

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ADOS-2 Module 4 Subtests/Activities	Domain	Activity	Description
	Communication	<i>Telling a Story from a Book</i>	Participant is asked to tell a story using a wordless picture book, assessing expressive language, narrative ability, and integration of affect.
		<i>Description of a Picture</i>	Examiner presents a picture and asks for a description, observing communicative competence and social referencing.
		<i>Cartoons</i>	Participant interprets humorous or socially awkward cartoon scenes; evaluates understanding of nonliteral and social meaning.
	Reciprocal Social Interaction	<i>Conversation and Reporting</i>	Naturalistic conversation about everyday topics to assess social reciprocity, empathy, and conversational flow.
		<i>Demonstration Task</i>	Participant is asked to show how to perform a familiar activity, gauging gesture use and social awareness.
		<i>Emotions</i>	Participant discusses emotional experiences to evaluate emotional insight and responsiveness.
		<i>Social Difficulties and Annoyance</i>	Conversation about social challenges and self-awareness regarding social interactions.
		<i>Friends, Relationships, and Marriage</i>	Discussion of friendships and romantic relationships, assessing insight and social understanding.
	Imagination / Creativity	<i>Creating a Story</i>	Examiner prompts for a creative or imaginative story; measures flexibility of thought and imagination.
	Restricted and Repetitive Behaviors	<i>Questions About Routines / Special Interests</i>	Interview-style discussion exploring intensity and focus of interests or repetitive patterns of behavior.
	Overall Observation	<i>Response to Examiner's Comments and Gestures</i>	Social reciprocity is rated throughout, particularly spontaneous reactions and integration of gestures.

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Scoring Domains:

After administration, behaviors are coded to yield algorithm totals in:

- **Social Affect (SA)**
- **Restricted and Repetitive Behaviors (RRB)**

Combined into a **Comparison Score (CS)** for diagnostic classification.

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Procedures to Evaluate Autism in Adults: Self and Observer Report

- **AQ (Autism-Spectrum Quotient)**
50-item questionnaire assessing autistic traits in adults.
- **RAADS-R (Ritvo Autism Asperger Diagnostic Scale-Revised)**
Covers language, social relatedness, sensory–motor behaviors, and circumscribed interests.
- **SRS-2 (Social Responsiveness Scale – Adult Form)**
Assesses social awareness, cognition, communication, and motivation.
- **ASRS Adult (Autism Spectrum Rating Scales Adult)**

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Procedures to Evaluate Autism in Adults: Self and Observer Report

Tool	Census-Matched Norms	Population Norms	Notes
AQ	✗ No	✓ Yes	Not representative; skewed toward educated populations
RAADS-R	✗ No	✓ Limited	No demographic-matched norms; small validation samples
SRS-2	✓ Yes	✓ Yes	Stronger psychometric and demographic.
ASRS	✓ Yes	✓ Yes	Developed specifically for ASD in adults; strongest psychometric properties.

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Procedures to Evaluate Autism in Adults: Self and Observer Report

Tool	Designed Specifically for Autism?	Notes
AQ	✓ Yes	Built to assess autistic traits in adults
RAADS-R	✓ Yes	Designed for adult autism diagnosis
SRS-2	⚠ Partially	Developed for general social responsiveness; validated for ASD
ASRS	✓ Yes	Designed specifically for autism; includes current post-COVID data

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ASRS[®]
ADULT

AUTISM SPECTRUM RATING
SCALES™ ADULT

Psychometric Properties of ASRS Adult

 **MHS**
Beyond Assessments



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Overall psychometric findings!

The ASRS Adult shows strong evidence of:

- **Reliability** – are we getting the same results every time?
- **Validity** – is the test measuring what we want it to every time?
- **Fairness** – are we measuring the same way for everyone?

These slides provide examples and summarizes findings
related to the **full-length ASRS Adult**.

These findings are also the same for **ASRS Adult–Short**

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Standardization

ASRS Adult Normative Samples

SELF-REPORT	OBSERVER	TOTAL
<i>N</i> = 1,000	<i>N</i> = 1,000	<i>N</i> = 2,000

Normative samples differ less than **1.7%** from actual proportions to the **2023 U.S. Census** in terms of:

- Gender
- Age
- Race/Ethnicity (*White, Black, Hispanic, Asian, Other*)
- Region (*Northeast, Midwest, South, West*)
- Education Level (*Less than High School to Graduate/Professional degree*)

****Though normed on a U.S. sample, ASRS Adult scores are validated for use in Canada (refer to manual – appendix D, *Cross-National Validation Study [Canada vs. United States]*)**

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Standardization

8.3% for Self-Report and 8.2% for Observer of the normative sample includes individuals with one or more clinical diagnosis:

- Autism Spectrum Disorder (ASD),
- Attention-Deficit/Hyperactive Disorder (ADHD),
- Generalized Anxiety Disorder (GAD), and/or
- Major Depressive Disorder (MDD).

Full length = 96 items, Short Form = 20 items.

Trends in raw scores by scales were inspected to determine our normative groups.

Gender differences were minimal, so **combined gender norms** were used; age differences were more pronounced, leading to **five distinct age bands:**

- 18 to 24
- 25 to 34
- 35-44
- 45-54
- 55+

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Reliability

The reliability of an instrument describes how **precise** and **consistent** the scores are. This section provides a summary of results for the reliability analyses of the ASRS Adult, including **internal consistency**, **test-retest reliability**, and **inter-rater reliability**.

INTERNAL CONSISTENCY

- Excellent internal consistency for both forms, and across all age groups.

FORM	MEDIAN ALPHA
SELF-REPORT	.88
OBSERVER	.91

TEST-RETEST RELIABILITY

- Excellent test-retest reliability across all forms
- Demonstrates stability in scores over time

FORM	MEDIAN CORRELATION (<i>r</i>)
SELF-REPORT	.79
OBSERVER	.82

The Short Form's Total Score yielded an overall correct classification rate of 82.4% for Self-Report and 77.0% for Observer (very similar to what you find in the full-length version as well). I pasted the snippet of the whole table from that section of the manual below, for your reference.

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Reliability

Inter-Rater Reliability

STUDY 1 (SELF-REPORT VS. OBSERVER)

- Moderate/strong levels of consistency across scales
- Self-report can provide greater insight into internal processes (e.g., thoughts, emotions)

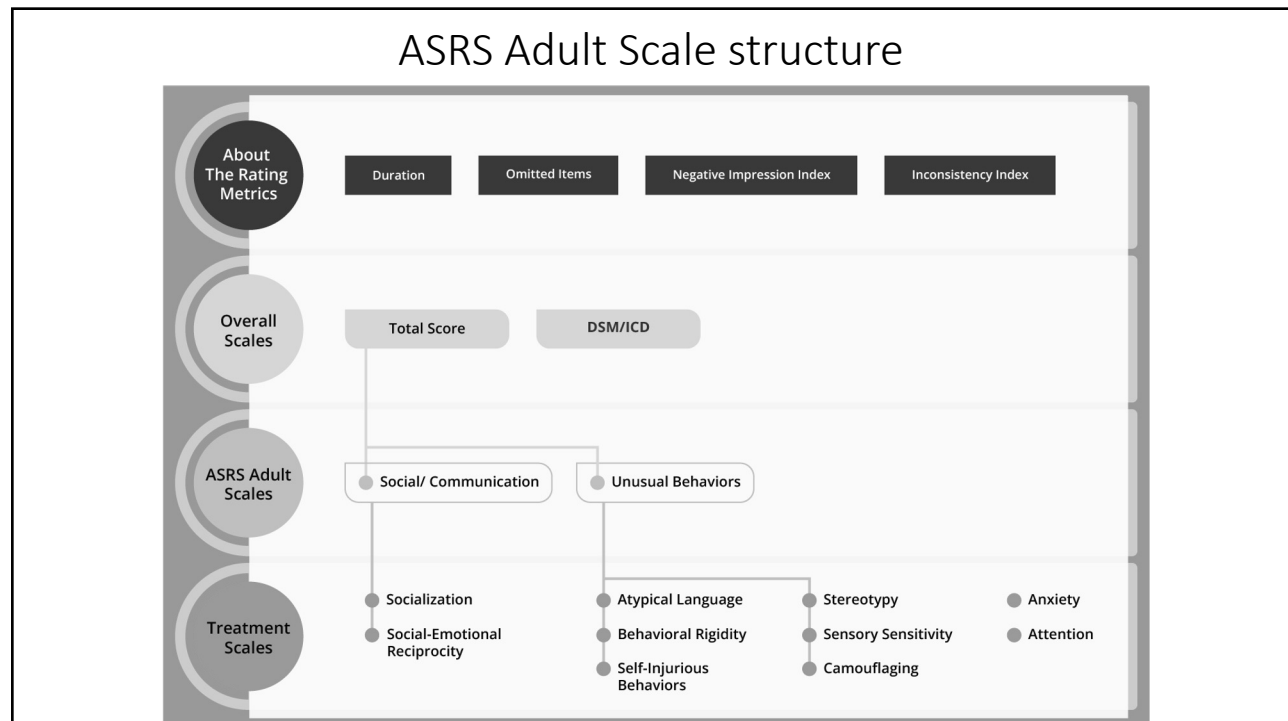
PAIRS	MEDIAN CORRELATION (<i>r</i>)
SELF-REPORT/OBSERVER	.69

STUDY 2 (TWO DIFFERENT OBSERVERS)

- Moderate/strong levels of consistency
- Different settings, level of insight, nature of the relationship could all be used to explain the level of agreement between different raters

PAIRS	MEDIAN CORRELATION (<i>r</i>)
TWO OBSERVERS (DIFFERENT TYPE)	.65

64



65

Elimination of Self Regulation Scale

Including **attention** and **new anxiety scale** in the total score **reduced specificity**.

Many adults with **clinical diagnoses (non-ASD)** were incorrectly flagged

Keep the **total score focused on core ASD symptoms**

Maintains accuracy for ASD identification

Attention and **anxiety** remain as **separate, important Treatment Scales**

Used for monitoring treatment and co-occurring conditions

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Sample Items

ASRS® ADULT SELF-REPORT

Sam Goldstein, Ph.D., and Jack A. Naglieri, Ph.D.

Your Name/ID: _____ Today's Date: _____ (MMM)/_____ (DD)/_____ (YYYY)

0 = Never **1** = Rarely **2** = Occasionally **3** = Frequently **4** = Very Frequently

During the past four weeks, how often did you...

1. overadjust your behavior to fit a social situation?	0	1	2	3	4
2. try to act like others around you?	0	1	2	3	4
3. "perform" in social interactions instead of being yourself?	0	1	2	3	4
4. force yourself to make eye contact even when you didn't want to?	0	1	2	3	4

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Classification Accuracy

Table 7.10 presents the classification accuracy statistics for both the Self-Report and Observer. The overall correct classification rate was 82.4% for Self-Report and 77.0% for Observer. These findings demonstrate that the ASRS Adult-Short exhibits a high level of accuracy with respect to correctly classifying individuals from the General Population and those with ASD into their respective groups.

[Click to expand](#)

Table 7.10. Classification Accuracy Statistics: ASRS Adult-Short

Classification Accuracy Statistic	Self-Report	Observer
Overall Correct Classification (%)	82.4	77.0
Sensitivity (%)	78.7	68.3
Specificity (%)	86.1	85.7
Positive Predictive Power (%)	85.0	82.7
Negative Predictive Power (%)	80.2	73.0
Kappa	.65	.54

Note. *N* = 122 for Self-Report ASD and *N* = 122 for matched General Population sample; *N* = 63 for Observer ASD and *N* = 63 for matched General Population sample.

68

Validity – internal structure

Unidimensionality of Treatment Scales

- Each of the 10 Treatment Scales is supported by confirmatory factor analysis (CFA) as unidimensional.

Higher-Order Structure

- Scale-level factor analysis supports a two-factor model: (1) Social/Communication and (2) Unusual Behaviors. These domains are highly correlated ($r \approx .76-.77$), also justifying the use of a **Total Score**.
- All factor loadings were positive and significant, with median values for Social/Communication and Unusual Behaviors of .587 and .719 (Self-Report), and .647 and .735 (Observer), respectively.

	Fit Indices (CFA)	MEDIAN	
		SELF-REPORT	OBSERVER
Treatment Scales (Median Values)	CFI	.979	.979
	TLI	.968	.971
	SRMR	.039	.041
	RMSEA	.093	.079
Higher-Order Model (2-factor)	CFI	.934	.932
	TLI	.931	.930
	SRMR	.060	.060
	RMSEA	.042	.046

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Validity

CONVERGENT VALIDITY

ASRS Adult scores show strong correlations with established ASD measures:

- Social Responsiveness Scale, Second Edition (SRS-2)
- Autism Spectrum Quotient (AQ)
- Camouflaging Autistic Traits Questionnaire (CAT-Q)

ASSESSMENT	MEDIAN CORRELATION (<i>r</i>)	
	SELF-REPORT	OBSERVER
SRS-2	.77	.85
AQ	.58	-
CAT-Q	.75	-

CLASSIFICATION ACCURACY

- Using the Total Score *T*-score cutoff of 60, the ASRS Adult correctly classifies ASD vs. general population with high accuracy (Self: 80.7%, Observer: 76.2%), balancing sensitivity and specificity.

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Validity: Criterion-related

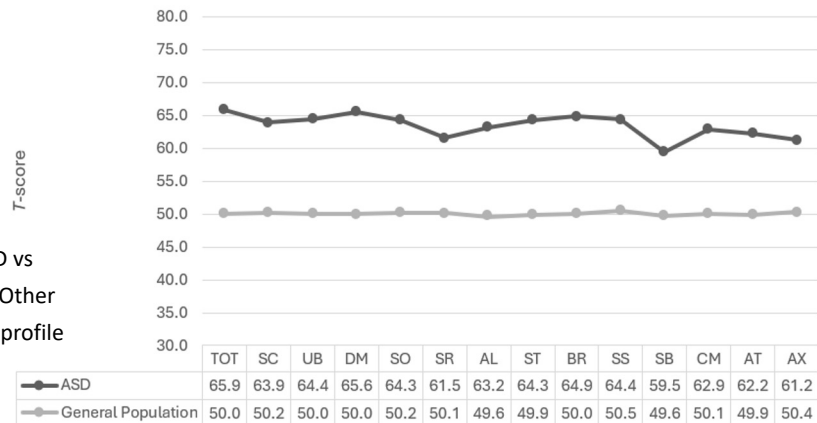
Findings:

- ASRS Adult effectively distinguishes ASD from both the general population and other clinical groups.
- The ASRS Adult manual documents ASD vs general population differences across all scales.

- Large effect sizes support robust differentiation:

- Self-Report: $d = 0.98\text{--}1.89$
- Observer: $d = 0.47\text{--}1.52$

- Forthcoming publication presents ASD vs other clinical groups (ADHD, GAD/MDD, Other clinical groups); results show clear score profile differentiation



Note. TOT = Total Score, SC = Social/Communication, UB = Unusual Behaviors, DM = DSM/ICD Scale, SO = Socialization, SR = Social/Emotional Reciprocity, AL = Atypical Language, ST = Stereotypy, BR = Behavioral Rigidity, SS = Sensory Sensitivity, SB = Self-Injurious Behaviors, CM = Camouflaging, AT = Attention, AX = Anxiety.

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Fairness

FAIRNESS

- GOAL:** Ensuring that the measurement is sensitive to individual characteristics of the intended audience, and that the intended use and interpretation of scores are valid and just across relevant subgroups

Characteristics of the person (other than the construct being measured – symptoms of ASD!) should not influence their responses to the test

To investigate these differences, we conducted these analyses:

- Differential Test Functioning** – tests whether the ASRS Adult scales operate in the same way across groups
- Mean Group Differences** – compares the size of differences between each group's average score

- Explored differences between groups: **gender, race/ethnicity, country of residence, and education level**

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Fairness

DIFFERENTIAL TEST FUNCTIONING:

GENDER - No evidence of differential test functioning was found

- Negligible measurement bias (median ETSSD = .04)
- E.g., overlapping curve evidence of no DTF

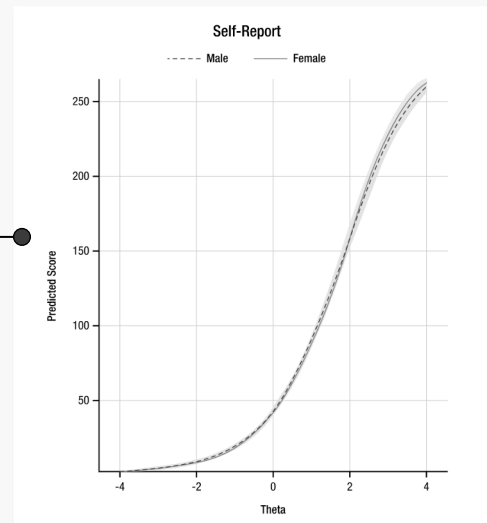
RACE/ETHNICITY - Minimal bias across Asian, Black, Hispanic, and White groups

- Median ETSSD = .05 (Self-Report), .04 (Observer); all scale-level ETSSD negligible

EDUCATION LEVEL - No evidence of differential test functioning was found

- Negligible measurement bias (median ETSSD = .03)

*Note, across groups there was minor divergence only for Self-Injurious behaviours at high trait levels



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Fairness

MEAN GROUP DIFFERENCES:

GENDER - After controlling for age, race/ethnicity, and education, mean score differences between males and females were negligible to small.

- Median Cohen's d = 0.16 (Self-Report), 0.08 (Observer).

RACE/ETHNICITY - Mean differences between Asian, Black, Hispanic, and White groups were negligible to small.

- Median Cohen's d = 0.09 (Self-Report), 0.10 (Observer).
- Maximum difference: ~3.5 points.
- No group was meaningfully advantaged or disadvantaged.

EDUCATION LEVEL - Mean differences between lower and higher education groups were negligible.

- Median Cohen's d = 0.05 (Self-Report), 0.01 (Observer).

No practically meaningful differences in ASRS Adult scores by gender, race/ethnicity, or education level. All observed differences are well below thresholds for practical significance.

74

More on the Camouflaging Scale

Strong intra-rater correlations: Within Self-Report ratings, Camouflaging (CM) shows strong positive correlations with other ASD symptom scales — .76 with Total Score and .85 with Unusual Behaviors reflecting overlap in test structure.

Moderate inter-rater correlations: When comparing Self-Report and Observer ratings, correlations decrease (e.g., .48 for Total Score, .56 for Unusual Behaviors), indicating moderate agreement but reduced consistency across raters.

Effect of high vs. low CM: Individuals with low CM scores ($T < 60$) show moderate correlations (.53–.62) across scales, whereas those with high CM ($T \geq 60$) show weak correlations (.13–.15), suggesting greater masking of observable symptoms.

Interpretation of masking: Masking (camouflaging) may reduce symptom visibility to others but does not eliminate detection, particularly among close observers familiar with the individual.

Clinical implication: Camouflaging complicates ASD assessment; thus, using both Self-Report and Observer data provides a fuller understanding of symptom expression across different social contexts.



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OVERALL PSYCHOMETRIC FINDINGS!

The ASRS Adult shows strong evidence of:

- Reliability
- Validity
- Fairness



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Making the Diagnosis of ASD Today

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

77

Case Study: Hannah (early 20s)

Referral & Purpose: Evaluation requested by Utah Vocational Rehabilitation to assess Hannah's eligibility and guide treatment planning for learning and cognitive challenges.

Developmental History: Early speech and motor delays; received special education services since preschool for learning disabilities.

Educational Background: Graduated high school (GPA 3.7), ACT 14; partial college success (1 pass, 1 fail in online courses).

Neurocognitive Findings: Full-scale IQ extremely low (GIA = 60); severe deficits in working memory, attention, and processing speed; math significantly impaired.

Executive Function: Marked deficits in attention regulation, planning, working memory, and organization; severe ADHD symptoms (97th percentile inattention).

Emotional Functioning: High depression (BDI = 36) and anxiety (BAI = 37); trauma-related stress and prior suicidal ideation reported.

Autism Traits: Rigid routines, sensory sensitivities, echolalia, difficulty interpreting nonverbal cues, and inconsistent social reciprocity consistent with *ASD Level 1*.

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ASRS-A Hannah Summary

Hannah's **ASRS self-report** reveals a **complex neurodivergent profile** marked by sensory hypersensitivity, social communication difficulties, and rigid behavioral patterns.

She exhibits strong resistance to physical touch, discomfort with certain textures, and a need for routine. Socially, she struggles with initiating conversation and interpreting emotional cues yet shows genuine concern for others' feelings.

Attention regulation is inconsistent, frequent distractibility but occasional hyperfocus. Her cognitive style favors detail and predictability, with distress over unexpected change.

The overall pattern indicates Autism Spectrum Disorder traits with co-occurring attention deficits, suggesting the need for structured, supportive environments for optimal functioning.

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Case Study: Hannah (early 20s)

Diagnoses: Autism Spectrum Disorder (Level 1), ADHD (Combined Type), Major Depressive Disorder, Generalized Anxiety Disorder, Provisional PTSD, Specific Learning Disorder (math/reading).

Strengths: Insightful, empathic, cooperative, motivated for therapy; good expressive writing and strong moral concern for others.

Recommendations: Trauma-informed psychotherapy (CBT, DBT, ACT), psychiatric evaluation for medication, autism/EF coaching, academic accommodations, vocational support, and family psychoeducation.

80

Case Study: Megan (41)

Referral & Purpose: Evaluation requested by Utah Vocational Rehabilitation to determine eligibility and functional capacity amid complex trauma, ADHD, and emotional dysregulation.

Background: 41-year-old veteran with extensive childhood abuse history, estranged family relationships, and two years of sobriety through AA. Lives in transitional housing for veterans.

Military & Education: Served six years before discharge for marijuana use; holds two associate's degrees (architectural design and general education); multiple short-term jobs.

Cognitive Profile: Average-to-above-average IQ (GIA = 103), strong verbal and visual-spatial skills, above-average oral language and writing, but relative weaknesses in math reasoning and working memory.

Executive Functioning: Impaired attention regulation, inhibition, and planning; significant ADHD symptoms (inattention >98th percentile; impulsivity 95th percentile).

Emotional Functioning: Moderate depression (BDI = 25), mild anxiety (BAI = 16), high trauma reactivity, and emotional instability consistent with complex PTSD and borderline traits.

Autism Traits: Social communication difficulties, rigidity, sensory sensitivities, narrow interests, and difficulty interpreting humor or nonverbal cues consistent with *ASD Level 1*.

Personality Dynamics: MCMI-IV indicates avoidant, borderline, and depressive features, fear of rejection, emotional lability, self-criticism, and trauma-driven mistrust.

81

ASRS-A Megan Summary

Megan's **ASRS self-report** reveals clear traits consistent with **Autism Spectrum Disorder** alongside **attention regulation deficits**. She experiences marked difficulties interpreting social cues, humor, and facial expressions, often misunderstanding intentions or emotions. Social interactions are effortful, leading to avoidance or withdrawal. Her behavior reflects repetitive focus, rigid thinking, and distress with change. Sensory sensitivities (to textures, smells, and sounds) and strong attention to small details coexist with distractibility and fidgetiness, indicating overlap with ADHD features. This combination of social, sensory, and executive challenges supports a neurodivergent profile best understood as ASD with comorbid attentional dysregulation requiring structured, supportive interventions.

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Case Study: Megan (41)

Diagnoses: Complex PTSD, Major Depressive Disorder (Recurrent), Generalized Anxiety Disorder, ADHD (Combined Type), Autism Spectrum Disorder (Level 1), Borderline Personality Traits, and Substance Use Disorder (in remission).

Recommendations: Trauma-focused therapy (EMDR/CPT), DBT for emotion regulation, psychiatric consultation, vocational support, academic accommodations, ASD specialty evaluation, and structured case management

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Case Study 3: Alex

Alex is a 21-year-old with a history of learning disabilities, type 1 diabetes, and suspected autism, referred for an updated neuropsychological evaluation.

He demonstrates significant cognitive challenges, including low intellectual functioning (FSIQ = 76), impaired working memory, and pervasive executive dysfunction.

Academic achievement scores are in the very low to low range across reading, writing, and math, consistent with a diagnosis of Specific Learning Disorder.

Adaptive functioning is impaired, especially in independent living skills, health maintenance, and financial management, despite strengths in social motivation and persistence.

Psychological testing indicates mood instability, compulsive and dependent personality traits, and emerging features of Bipolar I Disorder with psychotic symptoms (provisional).

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ASRS-A: Alex

Alex's ASRS results reflect a profile consistent with Autism Spectrum Disorder, Level 1. He exhibits elevated behavioral rigidity, stereotypy, and atypical language patterns, with additional indicators of sensory sensitivity and social communication challenges. While his overall social skills and peer relationships fall within the average range, his difficulties lie in adapting to change, interpreting nuanced social cues, and managing repetitive thoughts or routines. Alex is not socially avoidant and shows emotional awareness, but he struggles with flexibility and over-focus on details. These results confirm a mild but impactful autism presentation that requires structured support and social skills intervention.

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Case Study 3: Alex

Alex meets DSM-5 criteria for Autism Spectrum Disorder Level 1, with rigid thinking, sensory sensitivities, difficulty with change, and limited social inference.

He also meets criteria for ADHD, Combined Presentation, with symptoms of inattention, distractibility, and poor impulse control.

Parent and self-reports confirm emotional challenges (mild depression and anxiety), social naivety, and moderate executive dysfunction without severe behavioral disruption.

Behavioral observations revealed friendly demeanor, poor eye contact, impulsivity, and atypical social communication, though he remained cooperative and engaged.

A multidisciplinary treatment plan is recommended, including psychiatric monitoring, psychotherapy, vocational support, life skills training, and coordinated services.

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Making the Diagnosis of ASD in the Future

There has been a significant uptick in recent research leveraging artificial intelligence (AI) to develop diagnostic algorithms for Autism Spectrum Disorder (ASD). These studies demonstrate the potential of AI to revolutionize early detection, reduce diagnostic delays, and assist clinicians with accurate classification.

87

One notable 2023 study focuses on early ASD screening in children using machine learning (ML) models. The researchers evaluated various algorithms for their ability to identify early signs of ASD, particularly where traditional diagnostic delays are common. Their results showed strong performance in ML models, suggesting they could complement existing diagnostic pathways.

Alkahtani, H., & Aldhyani, T. H. H. (2023). *Early screening of autism spectrum disorder diagnoses of children using artificial intelligence*. Journal of Data Research.

88

Machine Learning (ML)

Machine learning is a subfield of artificial intelligence (AI) that enables computers to learn from data and make decisions or predictions without being explicitly programmed. Algorithms in ML build models based on input data, identify patterns, and improve their performance over time.

There are three main types:

1. **Supervised learning** (with labeled data),
2. **Unsupervised learning** (finding patterns in unlabeled data),
3. **Reinforcement learning** (learning through feedback and reward signals).

89

Another 2023 paper applied AI strategies like support vector machines (SVM) and deep learning (DL) on data from EEG and MRI scans to diagnose ASD. The integration of these imaging modalities with AI allowed for more objective and data-driven assessments.

Sundas, A., Badotra, S., Rani, S., & Gyaang, R. (2023). *Evaluation of autism spectrum disorder based on the healthcare by using artificial intelligence strategies*. Computational and Mathematical Methods in Medicine.

90

Support Vector Machines (SVMs)

Support Vector Machines (SVMs) are a type of supervised machine learning algorithm used for classification and regression tasks. They work by finding the hyperplane that best separates data into different classes. The goal is to maximize the margin between the classes—the distance between the closest points (support vectors) of each class to the hyperplane.

SVMs are powerful for smaller, structured datasets and perform well in high-dimensional spaces but typically require feature engineering and don't scale as easily as deep learning models.

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Deep Learning (DL)

Deep learning is a specialized subset of machine learning that uses **artificial neural networks** with many layers (hence "deep"). It is particularly effective for large-scale, complex data like images, audio, and natural language. Deep learning models automatically extract and learn hierarchical features from data, often outperforming traditional ML algorithms in fields like computer vision, speech recognition, and NLP.

Examples include:

1. Convolutional Neural Networks (CNNs) for image processing
2. Recurrent Neural Networks (RNNs) and Transformers for language modeling

92

A comprehensive review in 2023 detailed various AI applications for ASD triage, diagnosis, and prioritization. It emphasized how AI could streamline clinical workflows and support decision-making in under-resourced healthcare settings.

Joudar, S. S., Albahri, A. S., Hamid, R. A., & Zahid, I. A. (2023). *Artificial intelligence-based approaches for improving the diagnosis, triage, and prioritization of autism spectrum disorder: A systematic review of current trends and challenges*. Artificial Intelligence Review

93

Further advancing this trend, another 2022 study proposed a hybrid model that combines multiple medical tests and sociodemographic data for ASD classification. The integration of diverse datasets led to more accurate diagnostic outputs.

Alqaysi, M. E., & Albahri, A. S. (2022). *Diagnosis-based hybridization of multimedical tests and sociodemographic characteristics of autism spectrum disorder using artificial intelligence and machine learning*. Computational and Mathematical Methods in Medicine.

94

Collectively, these studies signal that AI is not only capable of assisting in ASD diagnosis but could also redefine best practices for early intervention and individualized care.

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**EarliPoint™: An FDA-
Authorized Tool to Accelerate
Early and Efficient ASD
Diagnosis & Assessment**

LBL2-1005, rev F

96

ASD Prevalence is Increasing, but the Healthcare System is Missing a Critical Developmental Window

Children's and their Families' Needs Aren't Being Met Today

- 4-5 years old median age of Dx
- Only 28% receive expert Dx
- No objective standard of care
- Severity of ASD unknown
- Reference tools lack sensitivity to measure frequent change
- Shortage of clinicians leads to big waitlists
- Underserved & misdiagnosed populations

Diagnosis and Treatment Before the Age of 3 Is Key

- Access to early treatment
- 40% higher intellectual function
- \$1.2M reduction in lifetime costs
- 43% more likely to attend regular education



Sources: Isett, Jafari Naimi, Stapel-Wax, & Hicks. Autism in Numbers and Stories. (2015) <http://www.autism-earlytech.edu/>
S2N Health Phase 1 market research report on file with ETD

CONFIDENTIAL 3

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EarliTec Blends World-Class Science with Groundbreaking Technology

DEEP KNOWLEDGE IN AUTISM
DIAGNOSIS AND TREATMENT

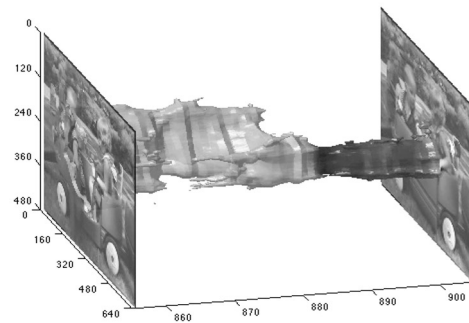


**AMI
KLIN, PhD**
Scientific Founder,
Chief Clinical Officer



**WARREN
JONES, PhD**
Scientific Founder,
Chief Science Officer

Marcus Autism Center
Emory University
Yale University
20 Years of Autism Research
\$58.2M in NIH Funding
Top 10 Most Important Advances Autism
(‘08, ‘09, ‘13, ‘17)
Over 200 publications
Ruane Prize for Neuropsychiatric Research



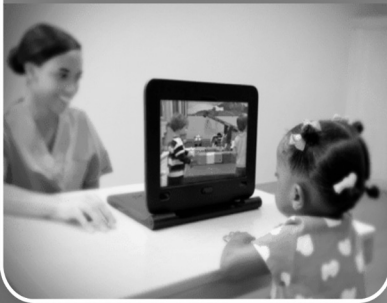
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HOW IT WORKS:

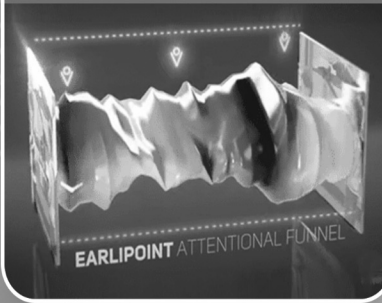
1 THEY WATCH

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



2 EARLIPPOINT 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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Performance-Based Measures of Strengths and Vulnerabilities

Example:
Nonverbal
Communication
& Gestures



Environmental Context

101

Performance-Based Measures of Strengths and Vulnerabilities

Example:
Nonverbal
Communication
& Gestures



Quantitative Reference Metric: Age-Expected Social Visual Engagement

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Performance-Based Measures of Strengths and Vulnerabilities



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Performance-Based Measures of Strengths and Vulnerabilities

Example:
Facial Affect



Quantitative Reference Metric: Age-Expected Social Visual Engagement

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Performance-Based Measures of Strengths and Vulnerabilities



105

Performance-Based Measures of Strengths and Vulnerabilities

Example:
Pointing &
Social
Monitoring



Quantitative Reference Metric: Age-Expected Social Visual Engagement

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Performance-Based Measures of Strengths and Vulnerabilities

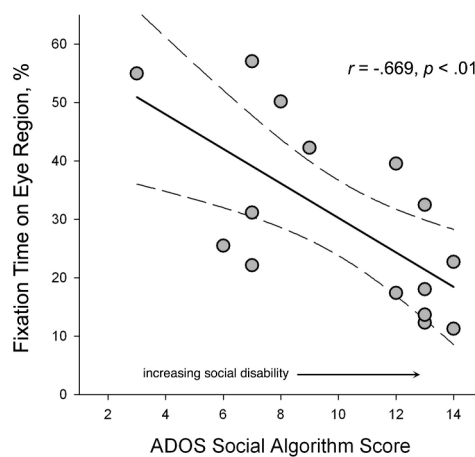


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Predictors of Outcome

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



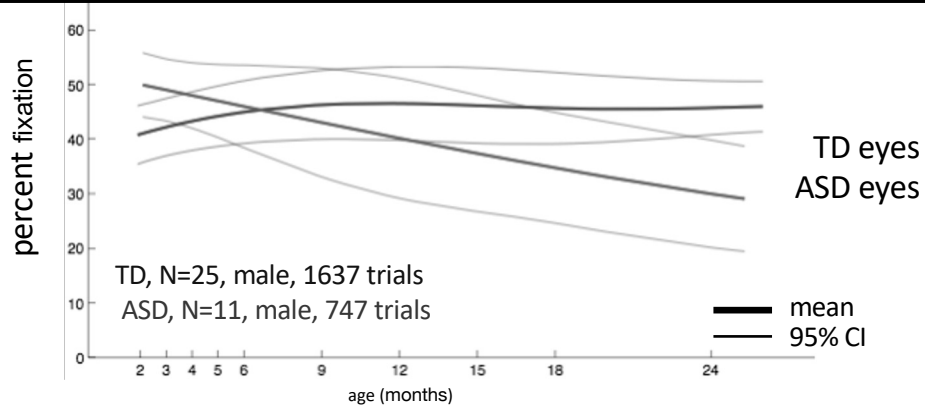
Less fixation time on eyes predicts more severe social disability.

108

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}

109

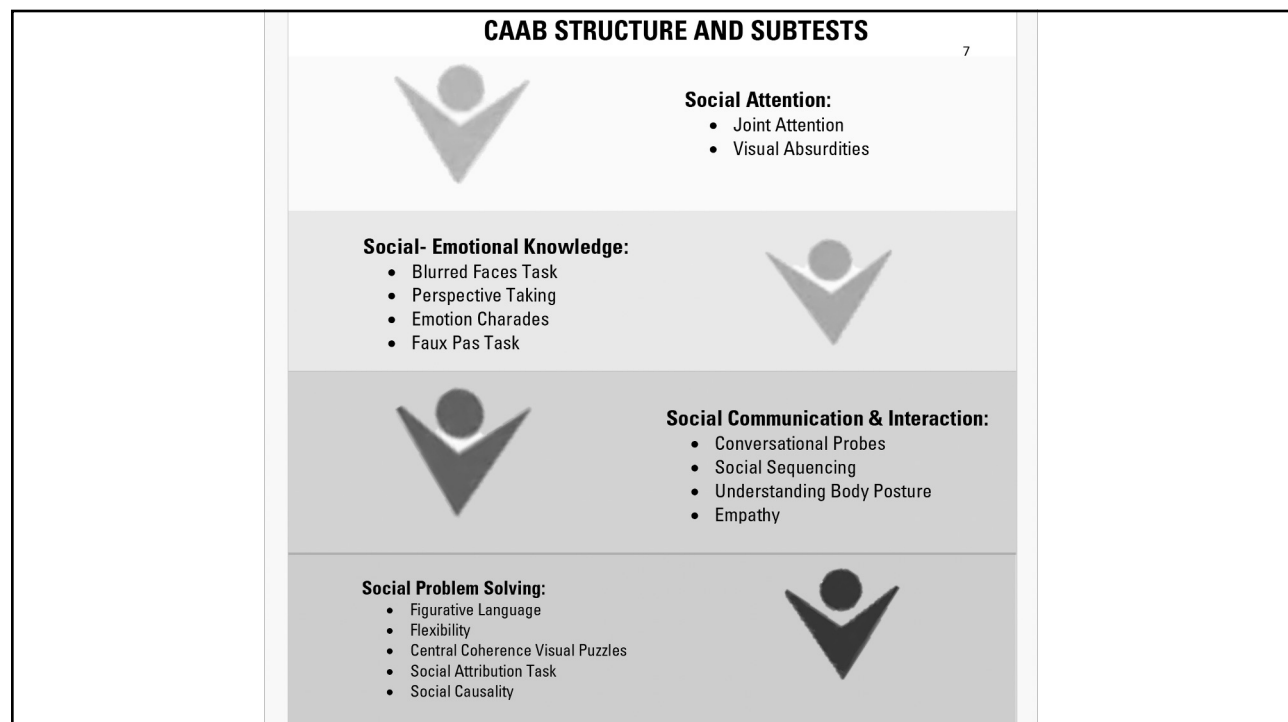


110

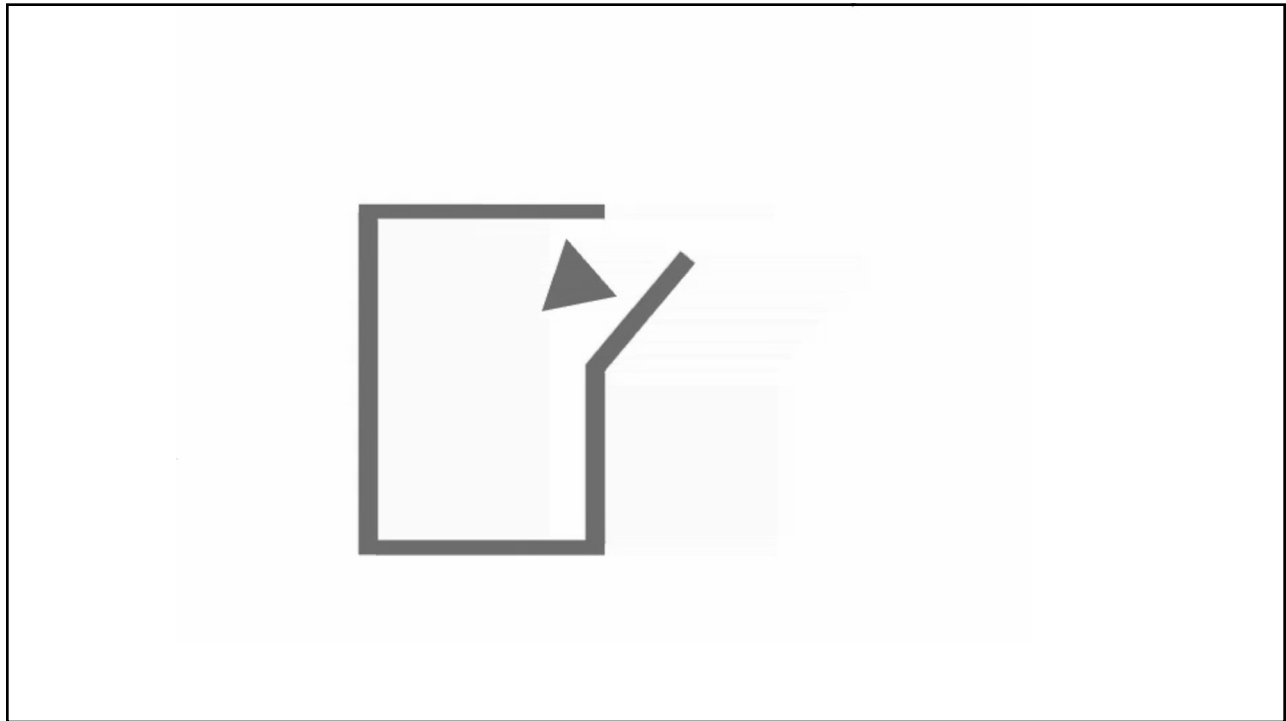
Characteristic Cognitive Impairments to Evaluate in ASD

- 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.

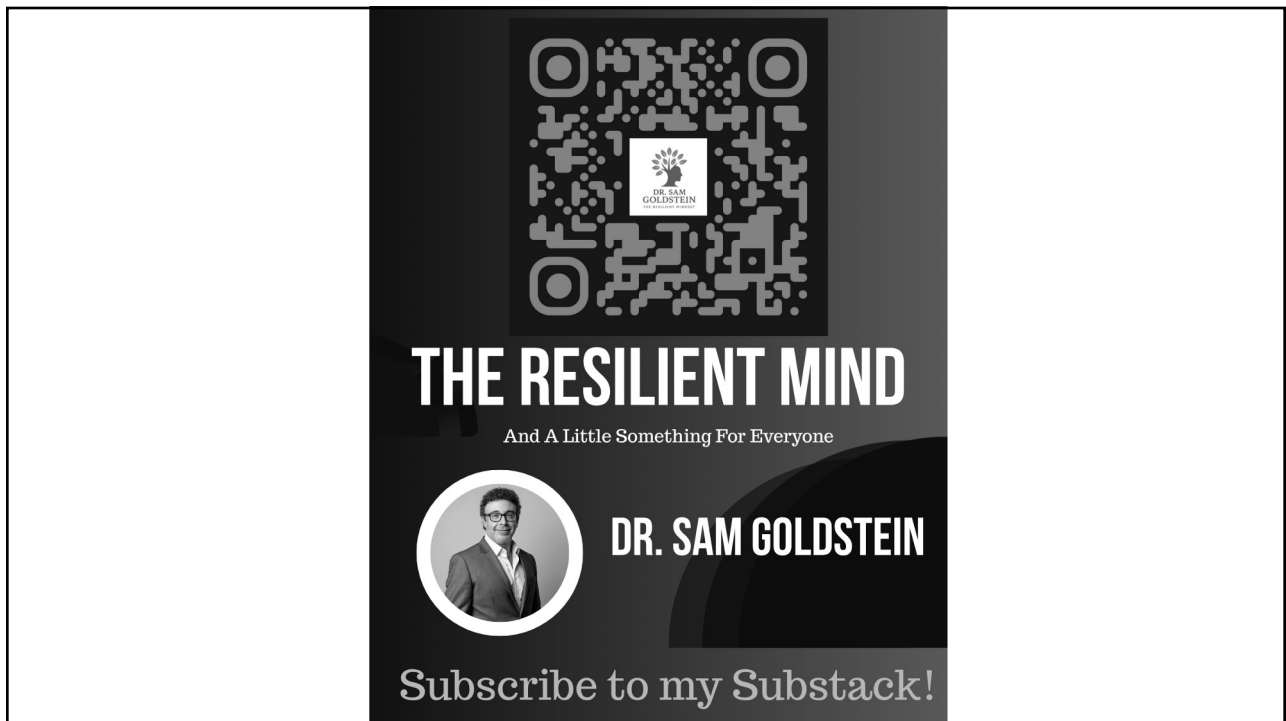
111



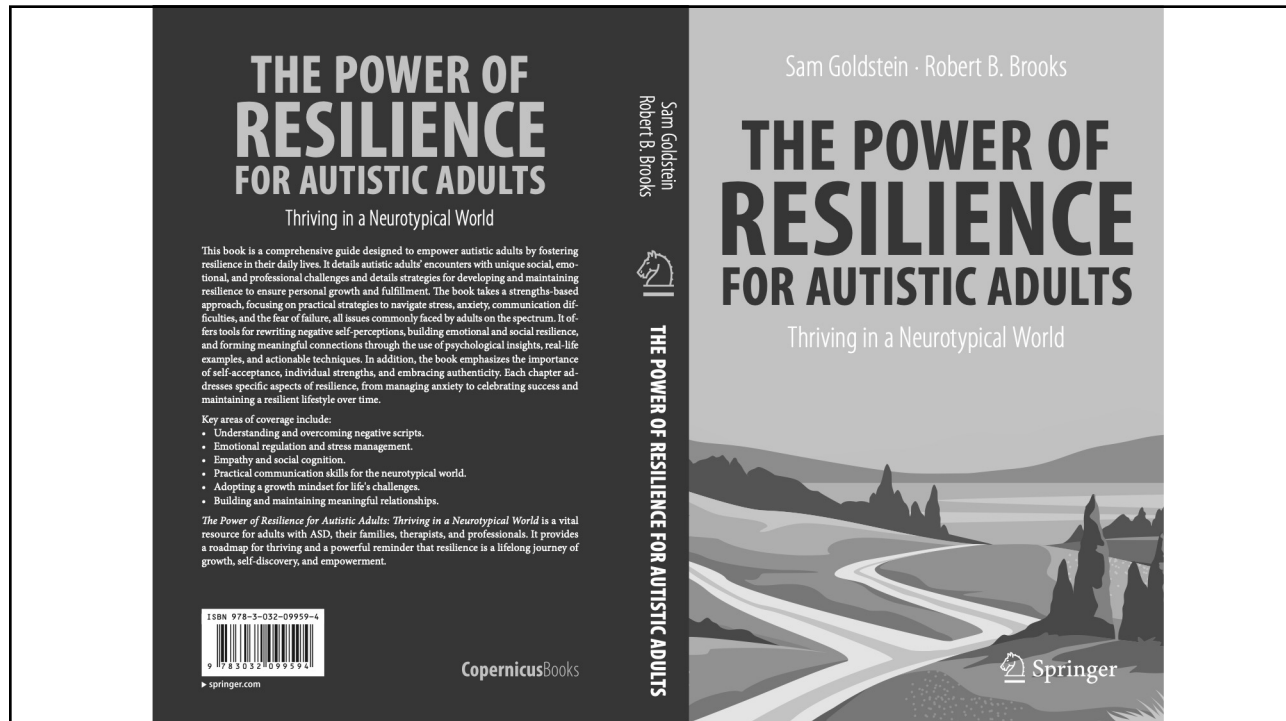
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Extreme Brains Podcast

EXTREME BRAINS is a lively, thought-provoking podcast in which Sam, David, and James—three friends with sharp wit and unique perspectives—gather around a microphone to critique current events, explore life's challenges, and unpack the absurdity of modern times. Whether dissecting the day's headlines, debating life's perplexing questions, or finding humor in the chaos, this podcast offers listeners an engaging mix of critical insight, camaraderie, and laughs.

Listen on:

#8 - Your Brain On Sex

#7 - Sleep: Is it Overhyp...

#6 - When Brains Pretend

#5 - When Good Brains ...

<https://extremebrainspodcast.podbean.com/>

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Questions?




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 [@CommonSenseScience](https://tiktok.com/@CommonSenseScience)



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