

TTAC

Perinatal and Early Childhood
Mental Health Network

Training and Technical Assistance Center



An Introduction to Autism Spectrum Disorder in Young Children: Part I

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Who We Are

The New York City Perinatal and Early Childhood Mental Health Training and Technical Assistance Center (TTAC), is funded by the NYC Health Department.

TTAC is a partnership between the New York Center for Child Development (NYCCD) and the McSilver Institute for Poverty Policy and Research.

- **New York Center for Child Development** has been a major provider of early childhood mental health services in New York with expertise in informing policy and supporting the field of Early Childhood Mental Health through training and direct practice
- **NYU McSilver Institute for Poverty Policy and Research** houses the Community and Managed Care Technical Assistance Centers (CTAC & MCTAC), and the Center for Workforce Excellence (CWE). These TA centers offer clinic, business, and system transformation supports statewide to all behavioral healthcare providers across NYS.

TTAC is tasked with building capacity and competencies of mental health professionals and early childhood professionals in family serving systems to identify and address the social-emotional needs of young children and their families.



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With Contributions from: Dr. Corinne G. Catalano



Objectives

As an outcome of attending this presentation, participants will be able to:

- Describe the cardinal features of ASD and EAASD
- Differentiate the early signs and symptom profiles of ASD and EAASD
- Discuss the current understandings of neurodiversity, etiology and biological markers of ASD subtypes,
- Present current prevalence data and theories for the dramatic/ increase in diagnoses

Plan

- Starting Points
- Diagnostic Formulations
- Recent Understandings of Autism Subtypes
- Related Features
- Considerations on Causes of ASD
- An Integrative Model of ASD- Cumulative Adversity
- Prevalence of ASD and Early Identification
- Perspectives on Neurodiversity and Ways to Update your Understanding of ASD



Starting Points

- Autism is **NOT** caused by parents!
- Autism is **NOT** a disorder of behavior or a disorder of attachment.
- Autism spectrum disorder **IS** a **neurodevelopmental condition**, likely of genetic origins, affecting the structure and function of the brain which controls relating and communicating, reasoning, problem solving, memory, sensory processing, regulation and motor planning.
- Autism presents along a **continuum of severity (spectrum)** and has varied expressions reflecting human neurodiversity.

DC:0-5 Autism Spectrum Disorder (ASD)

Social Communication Symptoms

- *All three symptoms must be present*
 - Limited or atypical social-emotional responsivity, sustained social attention, and/or social reciprocity
 - Deficits in nonverbal social-communication behaviors
 - Peer interaction difficulties

Restricted/Repetitive Behaviors

- *Two of the four symptom must be present*
 - Stereotyped or repetitive babbling/speech, motor movements. or use of objects
 - Insistence on sameness/ritualized behaviors
 - Restricted interests
 - Atypical sensory behaviors

DC:0-5 Autism Spectrum Disorder (ASD)

- Symptoms of the disorder, or caregiver accommodations in response to the symptoms, significantly affect the infant's/young child's and family's functioning in one or more ways:
 - Cause distress to the infant/young child
 - Interfere with the infant's/young child's relationships
 - Limit the infant's/young child's participation in developmentally expected activities or routines
 - Limit the family's participation in everyday activities or routines
 - Limit the infant's/young child's ability to learn and develop new skills or interfere with developmental progress

DSM-5 ASD Severity Levels

Level 1: (Requiring Support)

- Without supports in place, deficits in social communication cause noticeable challenges

Level 2: (Requiring Substantial Support)

- Deficits in verbal and non-verbal social communication skills
- Social challenges apparent even with supports in place

Level 3: (Requiring Very Substantial Support)

- Severe deficits in verbal and nonverbal social communication skills

Early Atypical Autism Spectrum Disorder (EAASD)



Description: Severe social–communication abnormalities and restricted and repetitive symptoms; children who evidence early signs of impairment and symptoms of ASD, but do not yet meet full criteria

Age: 9 months to 36 months

Duration: No duration criteria

Developmental Features: Individual variation in developmental trajectories; both social–communication and repetitive and restricted behaviors may appear in the first year of life

Differential Diagnosis: Global Developmental Delay; Cognitive Delay; Reactive Attachment Disorder

Overview of DC:0–5 ASD & EAASD Diagnostic Criteria

- Social–Communication (SC) symptoms:
 - Limited or atypical social–emotional responsivity, sustained social attention, and/or social reciprocity
 - Deficits in nonverbal social–communication behaviors
 - Peer interaction difficulties

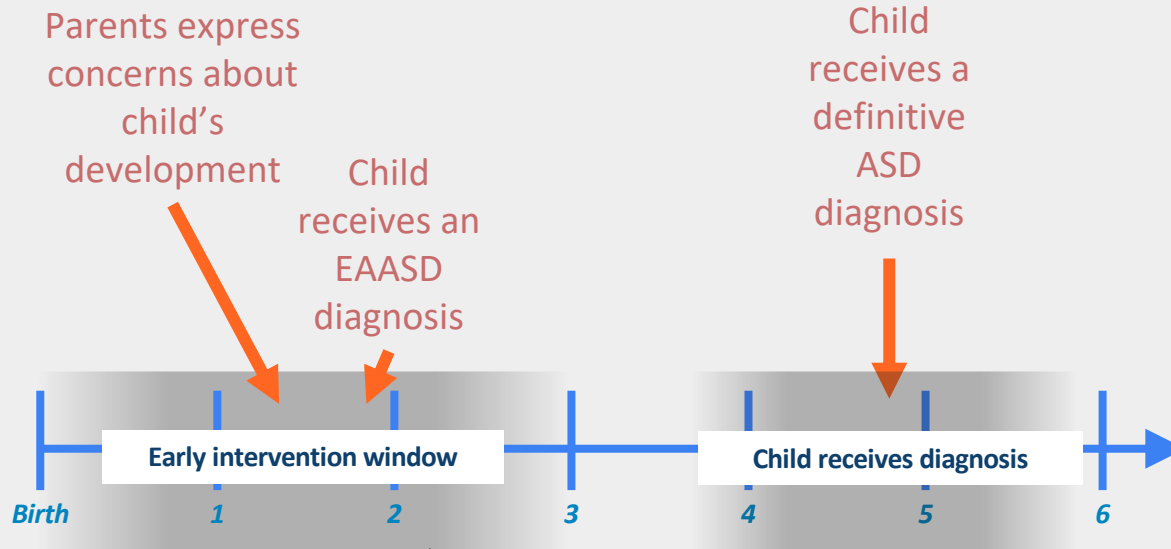


- Restricted/Repetitive Behaviors (RRBs):
 - Stereotyped or repetitive babbling/speech, motor movements, or use of objects
 - Insistence on sameness/ritualized behaviors
 - Restricted interests
 - Atypical sensory behaviors



The Diagnostic Timeline

Long delays between first concerns and ASD diagnosis



Nature Genetics, 2025

Four ASD subtypes

- <https://www.nature.com/articles/s41588-025-02224-z>
- Litman, A., Sauerwald, N., Green Snyder, L., Foss-Feig, J., Park, C.Y., Yun, H. Dinstein, I. Theesfeld, C.L. & Troyanskaya, O.G.(2025). Decomposition of phenotypic heterogeneity in autism reveals underlying genetic programs. *nature genetics*, 1611-1619.

2025 Study – ASD – 4 subtypes



Nature Genetics, 2025

Four ASD subtypes

1. Social/Behavioral Challenges – Approximately 37% - Social challenges, repetitive behaviors – reach developmental milestones – More likely to have anxiety, depression and ADHD
2. Mixed ASD with Developmental Delay – Approximately 19% - Reach milestones later with fewer mental health problems
3. Moderate Challenges – Approximately 34% - Mildest core autism traits, but usually reach milestones
4. Broadly Affected – Approximately 10% - Most severe and wide-ranging challenges, including cognitive impairments, early delays and require high levels of support.

Nature Genetics, 2025

Four ASD subtypes

- Each subtype showed different genetic patterns, with some linked to rare, high-impact mutations and others influenced by common psychiatric-related variants.
- The findings suggest autism is not a single condition but a collection of biologically distinct disorders.

Related Features of Autism

- About 30 % of children later diagnosed with ASD displayed a marked regression in skills around 24M
- About 82% of children on the spectrum exhibit some type of sensory atypicality.
- As many as 84% of children diagnosed with ASD are reported to also present with significant symptoms of anxiety despite the fact that anxiety is not part of the diagnostic criteria for ASD.
- More than one third of children (39.6) with an ASD diagnosis have an intellectual disability based on standardized measures and 42% have average to above average intellectual ability. (CDC, 2025; Maenner et al., 2020)
- Approximately one third of children diagnosed with ASD are non-verbal while others have varying verbal abilities. (Tager-Flusberg, 2006)

Related Features of Autism

- About 53% of children on the spectrum will form a secure attachment
- Twenty -30% of children on the spectrum have a comorbid seizure disorder
- Feeding difficulties are common (70-90%)
- Around 20-40% of adolescents on the spectrum will experience gender dysphoria
- Around 1 in 5 or 20% of children and adolescence experience 4 or more ACEs

Autism and Gender Dysphoria

- Autistic children are between 4 and seven times more likely to experience gender dysphoria or gender variance (Hisle-Gorman, et al. 2019).
- UK National Health Service reported that 32.4% of gender dysphoria cases had an ASD diagnosis.
- Possible reasons for heightened gender dysphoria in the ASD population:
 - Literal all or none thinking
 - Sensory atypicality
 - Body schema and body image distortions
 - Alienation from peers
 - Challenges coping with sexual and body changes associated with puberty

What causes autism?

- **There is no single answer or cause**
- ASD exhibits a high heritability (between 50-91%) indicating a genetic component (Turner & Eichler, 2022).

There is strong evidence that non-inheritable prenatal, perinatal and parental events play a role in the cause of ASD (Van de Water & Pessah, 2022).

- Antidepressant medications and affective disorders as well as advancing maternal age (greater than 35) and paternal age (greater than 40) show consistent relationships with autism
- Very preterm birth is a potent risk factor
- Maternal infection during pregnancy has been implicated
- Complex brain, Immune and endocrine systems relationships increase the risk for environmental insults that can impact negatively on neurodevelopment. The immune system of children with ASD appears to be particularly sensitive to toxicant exposure with strongest evidence for air pollutant and pesticides.
- Persistent organophalogenes (found in solvents, refrigerants, pesticides and flame retardants) influence gut microbiome that may contribute to immune and neurobehavioral abnormalities



What causes autism?

- Single gene disorders such as fragile X, tuberous sclerosis, Rett have similar but unique genetic pathways and are at high risk for comorbid ASD.
- ASD is associated with structural and functional changes in the amygdala and may contribute to difficulties in assessing social and emotional signals and contribute to pervasive abnormalities in social and communication skills.
- Vasopressin, a hormone produced in the hypothalamus and released in the pituitary, has been implicated in ASD.
- Hyperserotonemia is consistently observed in approximately 30% of individuals with ASD and serotonin dysregulation may be associated with the core symptoms of ASD.
- Structural brain imaging has identified alterations in overall brain volume found in 15% of ASD cases in early childhood and disproportionate megalencephaly in boys with ASD has been associated with poorer cognitive outcomes in late childhood.

(Hollander, et al., 2022)



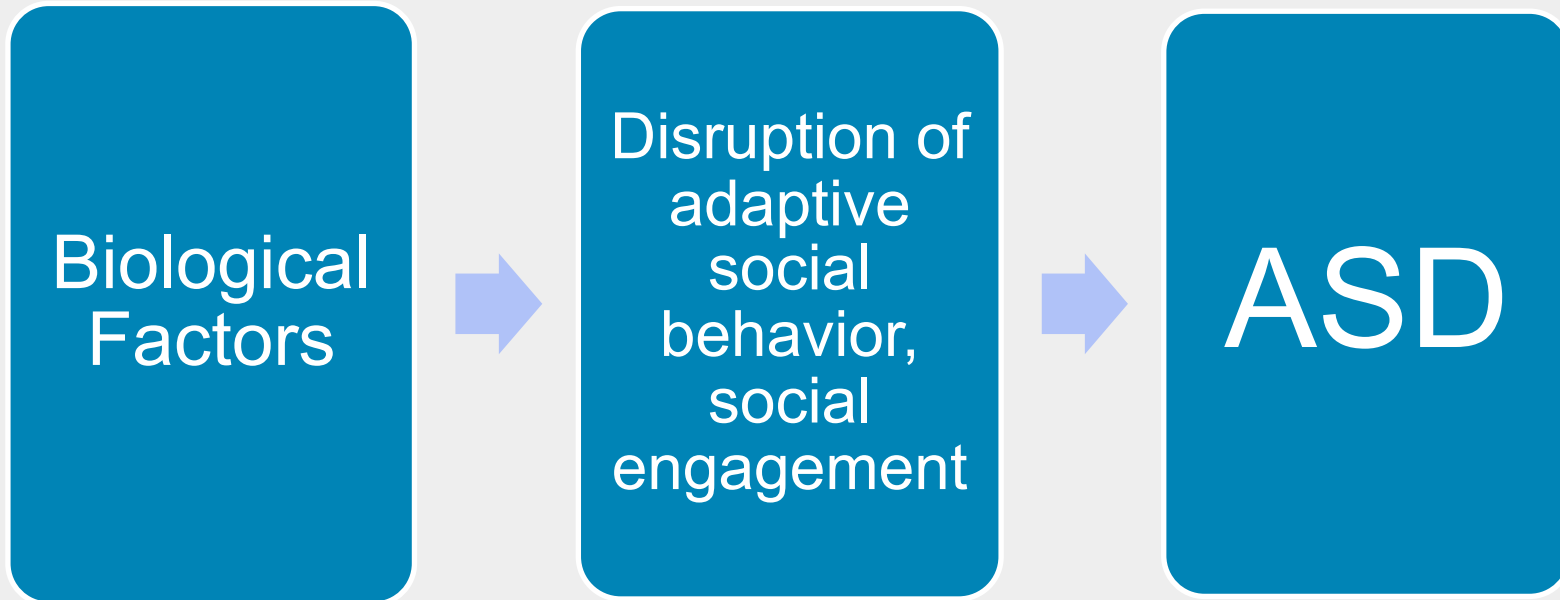
Epigenetics

- An area of scientific research that shows how environmental influences affect the expression of genes.
- Suspected drivers behind epigenetic processes include many agents.
- Combined with the effects of our environment, changes in these genes can also determine if we are *at risk* for various disorders.
- DNA mutations that are *de novo*, mean that they occur spontaneously rather than being inherited from a parent.



National Scientific Council on the Developing Child, 2010

A Cycle of Cumulative Adversity



(Singletary, 2015)

An Integrative Model of ASD

1. Abnormal brain development interferes with the infant's ability to make use of opportunities for social reciprocity to develop the capacity for social engagement and communication. (Pelphrey et al., 2011)
2. This disruption of child-caregiver interactions, results in experienced (environmental) deprivation of crucial social and emotional experiences.
3. Environmental deprivation leads to toxic levels of early life stress.

(Singletary, 2015)

Integrative Model

Deprivation and stress overload, in the context of existing neurobiological factors, drives maladaptive changes in the brain (neuroplasticity) leading to ASD characteristics (the behaviors we observe).

(Singletary, 2015)



How prevalent is autism?

- The existing worldwide prevalence estimates for autism worldwide since 2000 are 76 per 10,000 overall, with studies focusing on toddlers and preschoolers showing 136 per 10,000 (MacFarelane, et al., 2022).
- The 2025 CDC report shows that autism spectrum disorder now affects 1 in every 31 children in the U.S. by age eight. This marks a continued rise in diagnoses nationwide, compared to the previously reported 1 in 36 in 2023.
- Boys are 3.4 times more likely to be diagnosed than girls and approximately 27 % of diagnosed children present with profound autism
- The prevalence of 8-year-old Asian or Pacific Islander (A/PI), American Indian or Alaska Native (AI/AN), Black, Hispanic, and Multiracial children identified with ASD was higher than among 8-year-old White children.
- Among children with ASD, those born in 2018 were 1.7 times as likely as children born in 2014 to be identified as having ASD by 4 years of age.



What accounts for the increase prevalence rates of autism?

“Possible explanations for an increase in ASD within and across populations over time include:

- Changes in diagnostic criteria and practices
- Policies for special education
- Service availability and awareness of ASD in both the lay and professional public

Increases in ASD rates cannot directly be attributed to a true increase in the incidence of ASD due to multiple confounding factors” (MacFarlane, et al., 2022, p.-20).

Identification and Diagnosis of Autism

Early Signs of Autism

mayoclinic.org/parenting/early-signs-of-autism/

- **By 12 months, a child may not:**
 - Babble or coo
 - Respond to their name
 - React to back-and-forth interactions
 - Look at objects another person is pointing to
- **By 16 months, a child may not:**
 - Say single words
- **By 18 to 24 months, a child may not:**
 - Engage in pretend play
- **By 24 months, a child may not:**
 - Say meaningful two-word phrases
 - Show any interest in objects by pointing at them

Early Signs of Autism

mayoclinic.org/parenting/early-signs-of-autism/

- **Signs to be aware of at any age:**
 - Losing language or social skills
 - Repeating words or phrases without meaning
 - Preferring to look at objects rather than people
 - Avoiding eye contact
 - Showing a strong preference to be alone
 - Having extreme difficulty with small changes in daily routines or surroundings
 - Engaging in repetitive movements such as rocking, spinning, or hand flapping
 - Showing a high sensitivity to sounds, tastes, texture, lights or colors
 - Not seeming to be sensitive to pain or temperature
 - Showing little or no desire to be picked up or held
 - Showing little interest in toys or repeatedly focusing on one aspect of a toy

“Neurodiversity is the Movement to Understand Autism as a Nonpathogenic Entity” (Bolte, 2022, p.-663).

The word “Autism” and It’s Meaning: 15 Propositions that Challenge Current Views

1. Autism has ALWAYS existed in the human experience!
2. Naming a “disorder” changes the social, cultural, economic, and political views and responses, and creates an “othering” and power imbalance.
3. The meaning of autism varies by culture and society and changes over time within and among cultures.
4. The term “autism” may have value in as much as it helps in understanding and helping those whose individual differences need to be supported, and whose suffering must be relieved.

The word “Autism” and It’s Meaning: 15 Propositions that Challenge Current Views

5. The term “autistic” may have value as a tribal identity (Silberman, 2016).
6. Autism, as a way of being in a neurodiverse community, must be understood beyond disability and inability/deficits but as allowing unique gifts and strengths!
7. In the Disability Rights movement—“Nothing about us without us!”—a social and political voice exists that demands respect, inclusion, and full participation.
8. As is the case with all humans, there is a range of capacities and abilities, in the spectrum among individuals with autism. This means that we must honor the different ways in which those with autism live, learn, and communicate.

The word “Autism” and It’s Meaning: 15 Propositions that Challenge Current Views

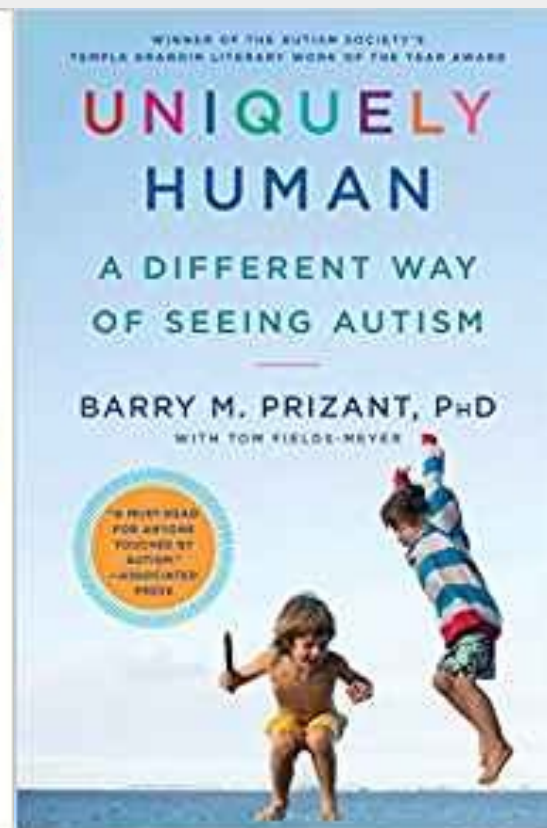
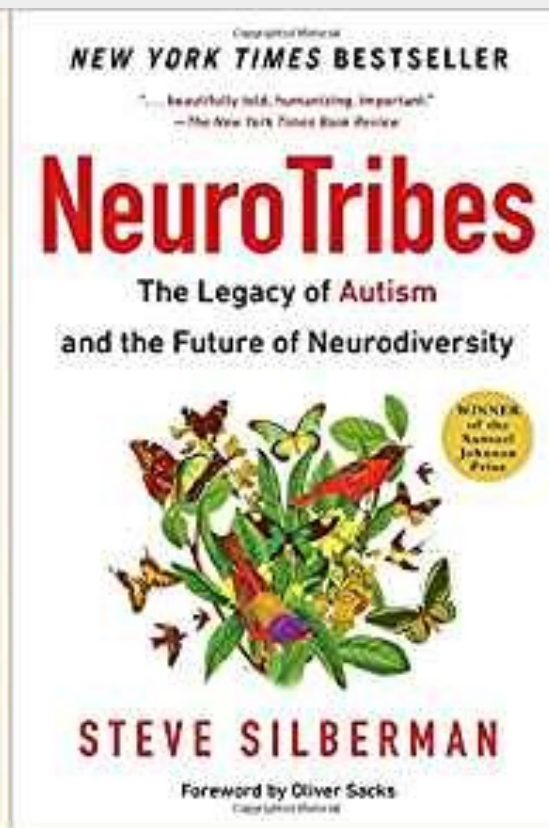
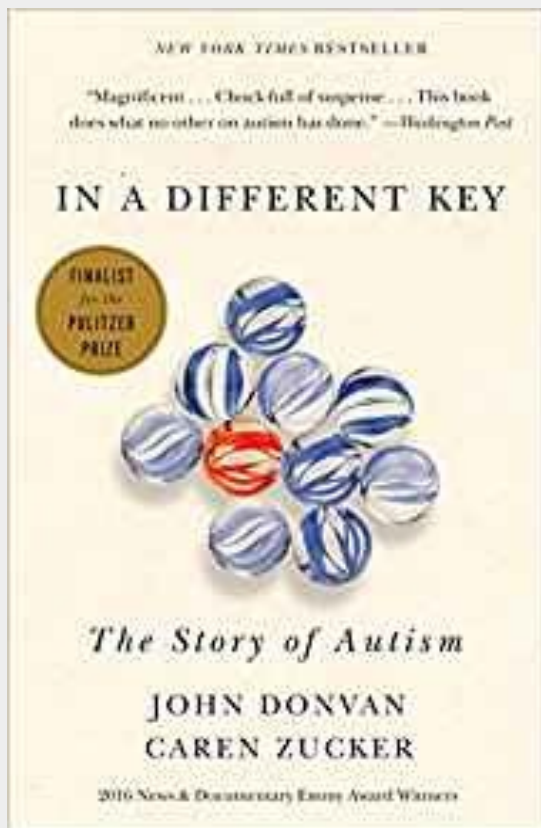
9. For any student, and that includes students with autism, we cannot have a one-size-fits-all approach to learning, relating, and communicating. Employ a Universal Design for Learning (UDL) view.
10. Presume COMPETENCY (Greenspan)
11. Embrace a “Competence-Moderator-Performance” framework.
Competencies in all of us can exist, but internal and external variables can moderate their manifestation in our performance.
12. Science must inform us about the underlying biological/constitutional forces that are at work in supporting regulation, engagement, relating, communication, and thinking.

The word “Autism” and It’s Meaning: 15 Propositions that Challenge Current Views.

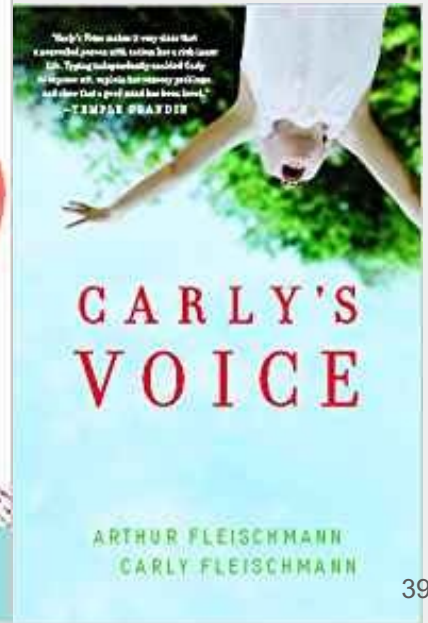
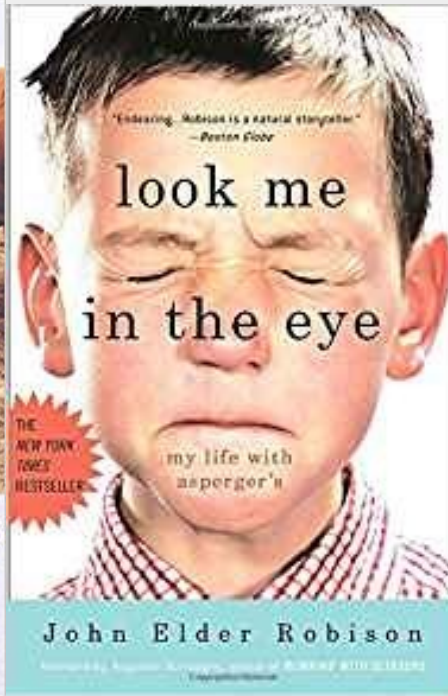
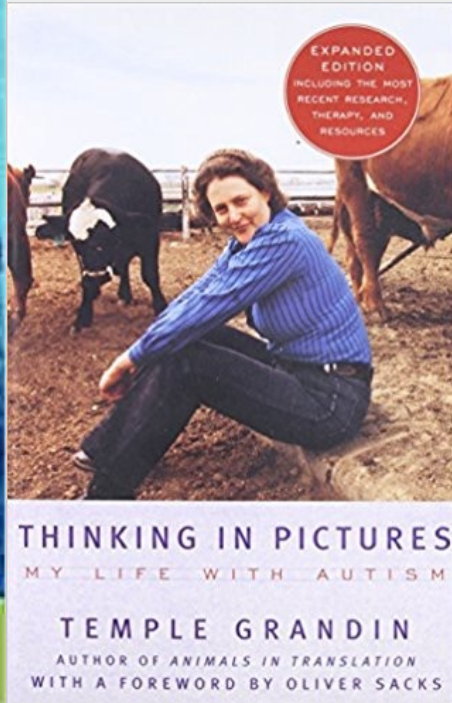
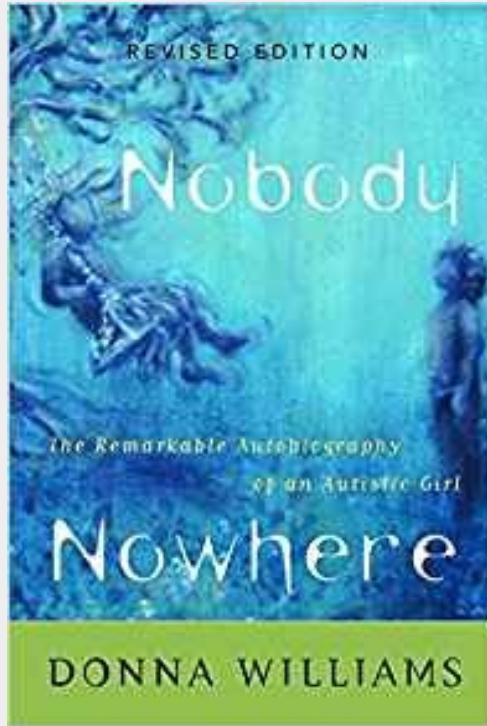
13. Support, education, and intervention must honor the unique individual differences, and the goal must be to promote full human development, not compliance to social norms or acquisition of human skills.
14. Research into the nature of autism and ways to support individuals on the spectrum, must embrace multidisciplinary sciences and the larger ecological context and embodiment implications. Searching for genetic markers alone is insufficient.
15. The phenomenological experience of ASD reflects the consequences of a human body, and the mental and emotional processes, associated with heightened levels of stress and dysregulation. This is an important area to help reduce suffering and enhance regulation, engagement, reciprocity, and higher forms of human development.

Ways to update your understanding of autism!

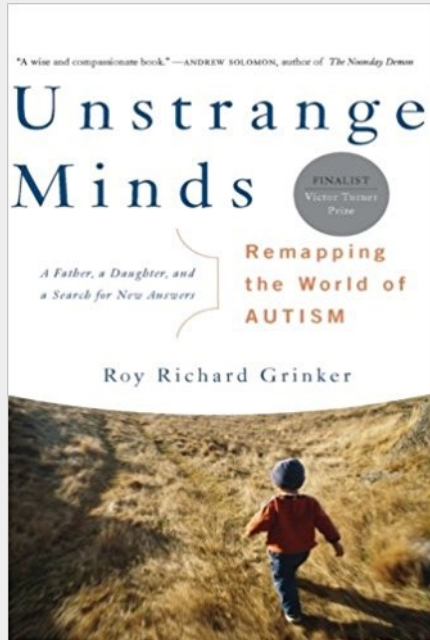
Read Histories and New Views of Autism



Read First Person Accounts: The “Lived” Experience



Roy Richard Grinker



When anthropologist Richard Grinker's daughter was diagnosed with autism in 1994, it occurred in only about 1 in every 10,000 children. Within ten years, rates had skyrocketed, and the media was declaring autism an epidemic. *Unstrange Minds* documents Grinker's quest across the globe to discover the surprising truth about why autism is so much more common today. Grinker shows that the **identification and treatment of autism depends on culture just as much as on science**. Filled with moving stories and informed by the latest science, *Unstrange Minds* is a powerful testament to a father's quest for the truth.



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What's Next? Join us for Part 2 on April 30, 2026

What to expect in Part 2:

- Screening and diagnosis of ASD
- Recent findings about autism in girls
- Evidence-based interventions and the impact of ASD on the family
- Unique features including sensory atypicality, anxiety and the question of attachment and autism

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