

# Autism Spectrum Disorders

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# Learning Objectives

- 👁️ What are ASDs and how do you diagnose them?
- 👁️ DSM-IV vs. DSM-5?
- 👁️ Who gets ASDs and why?
- 👁️ Understand the basics of assessment, diagnosis, treatment

# Brief History

- First described by Kanner in 1943
- Described 11 children with a “congenital inability to relate to other people but were quite sensitive to change in the nonsocial environment”
- Started in infancy, language aberrations followed
- 1970s – distinct from childhood onset schizophrenia – made official dx in 1980.

# Essential Features

- ① A.) Impairment in reciprocal social communication
- ① B.) Restricted, repetitive patterns of behavior, interests, or activities

# Social Communication

- ⑥ Persistent deficits across various contexts:
- ⑥ Deficient social-emotional reciprocity
- ⑥ Deficient non-verbal communication
- ⑥ Impairment in developing, maintaining, understanding relationships

# Social communication



# Social communication



# Social communication

- Impaired ability to recognize facial expressions on others.
- Striking difference between response to inanimate stimuli (TV credits) and social cues (parent's voice).

# Restricted, Repetitive Behaviors

- Stereotyped/repetitive motor activity/speech
- Inflexible adherence to routines, sameness
- Highly restricted, fixated interests
- Hyper-/hypo-reactivity to sensory input

# Motor stereotypies

- <http://www.youtube.com/watch?v=GRR9BXFLjoU>
- Stereotypies or repetitive behaviors can be relatively simple, complex, vocal, motor, etc.

# Routines

- Schedules
- Car rides (Niagara Falls, Wal-Mart)
- School day routines
- Counting, checking

# Restricted Interests

- Unusual objects (e.g., dog food bowls)
- Parts of objects (e.g., piano pedals)
- Non-functional objects (e.g., tape when not used to tape things)
- TV shows/movies (e.g., Blues Clues)

# Sensory Phenomena

- Marked sensitivity to textures (food, clothing), sounds
- Indifference to pain, temperature
- Fascination with certain lights, movements

# Video Clips

# Diagnosis

- ⑥ Criterion A (social communication)
- ⑥ B: Restricted/repetitive behavior
- ⑥ C: Sx present in early developmental period
- ⑥ D: significant impairment
- ⑥ E: disturbance not better explained by I.D. or global developmental delay.

# Diagnostic Specifiers

- With/without intellectual impairment
- With/without language impairment
- Association with medical, genetic, environmental factor
- Association with additional psych disorder
- With catatonia

# The Levels

- ③ Level 3: requiring very substantial support
- ③ Level 2: requiring substantial support
- ③ Level 1: requiring support

# Level 3

- Social communication severely impaired, and used almost solely to have needs met and respond to direct approaches.
- Behaviors so inflexible that they markedly interfere with functioning in all spheres, and cause great distress/difficulty shifting focus.

# Level 2

- ① Social communication very limited, speech limited to simple sentences, often confined to narrow range of interest.
- ① Behaviors inflexible enough that it is obvious to the casual observer, and often distressing.

# Level 1

- 👁️ Social communication awkward, namely within the “to-and-fro” of conversation, who struggles to make friends.
- 👁️ Behavioral inflexibility causes much difficulty switching between activities, and problems organizing/planning.

# Diagnostic Aids

- Autism Diagnostic Observation Schedule (ADOS); Autism Diagnostic Interview-Revised (ADI-R)
- Social Communication Questionnaire (SCQ)
- Social Responsiveness Scale (SRS)
- Multidisciplinary team, collateral data

# Social Communication Disorder

👁️ Persistent difficulties in the social use of verbal and nonverbal communication, incl:

- 👁️ Communication for social purposes
- 👁️ Contextual changes
- 👁️ Following rules/cues for conversing
- 👁️ Making inferences

# ASD vs. SCD

- ① ASDs include a history of restricted, repetitive behavior; SCDs do not.
- ① Restricted, repetitive behaviors sometimes abate with time and treatment, and need only be present by history.

# Cont'd Differential Dx

- Language disorders
- Sensory impairments (e.g., deafness)
- Reactive attachment disorder
- Obsessive compulsive disorder
- Intellectual disability
- Childhood-onset schizophrenia

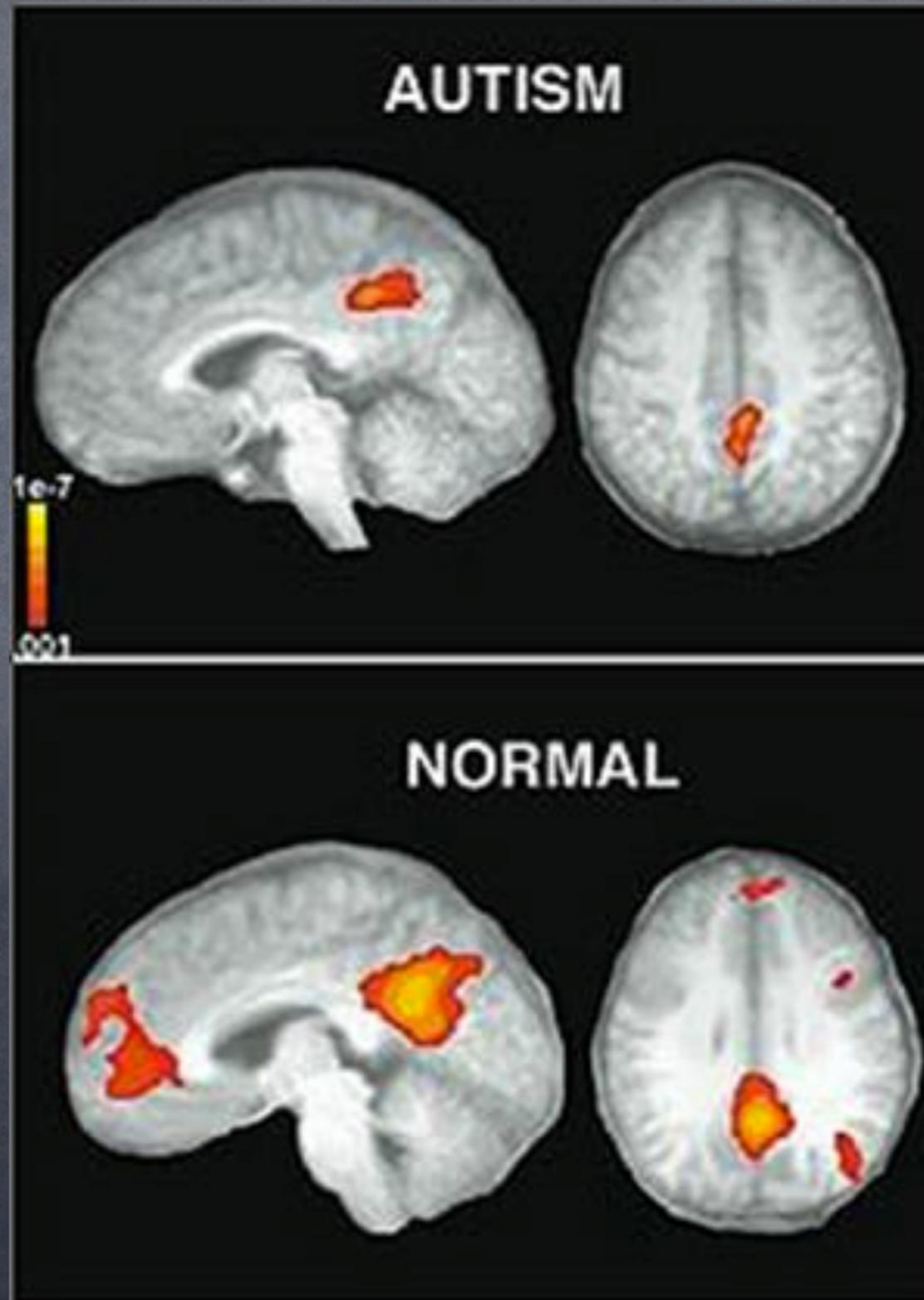
# Etiology

- 👁️ Neurobiology
- 👁️ Genetics
- 👁️ Environment
- 👁️ Unsubstantiated theories

# Etiology – Neurobiology

- ① EEG abnormalities and/or seizure disorders in 20–25% suggest neurobiological hypothesis.
- ① Differences in levels of serotonin, dopamine, brain size, tract formation, etc. further support this.

# fMRI – facial recognition

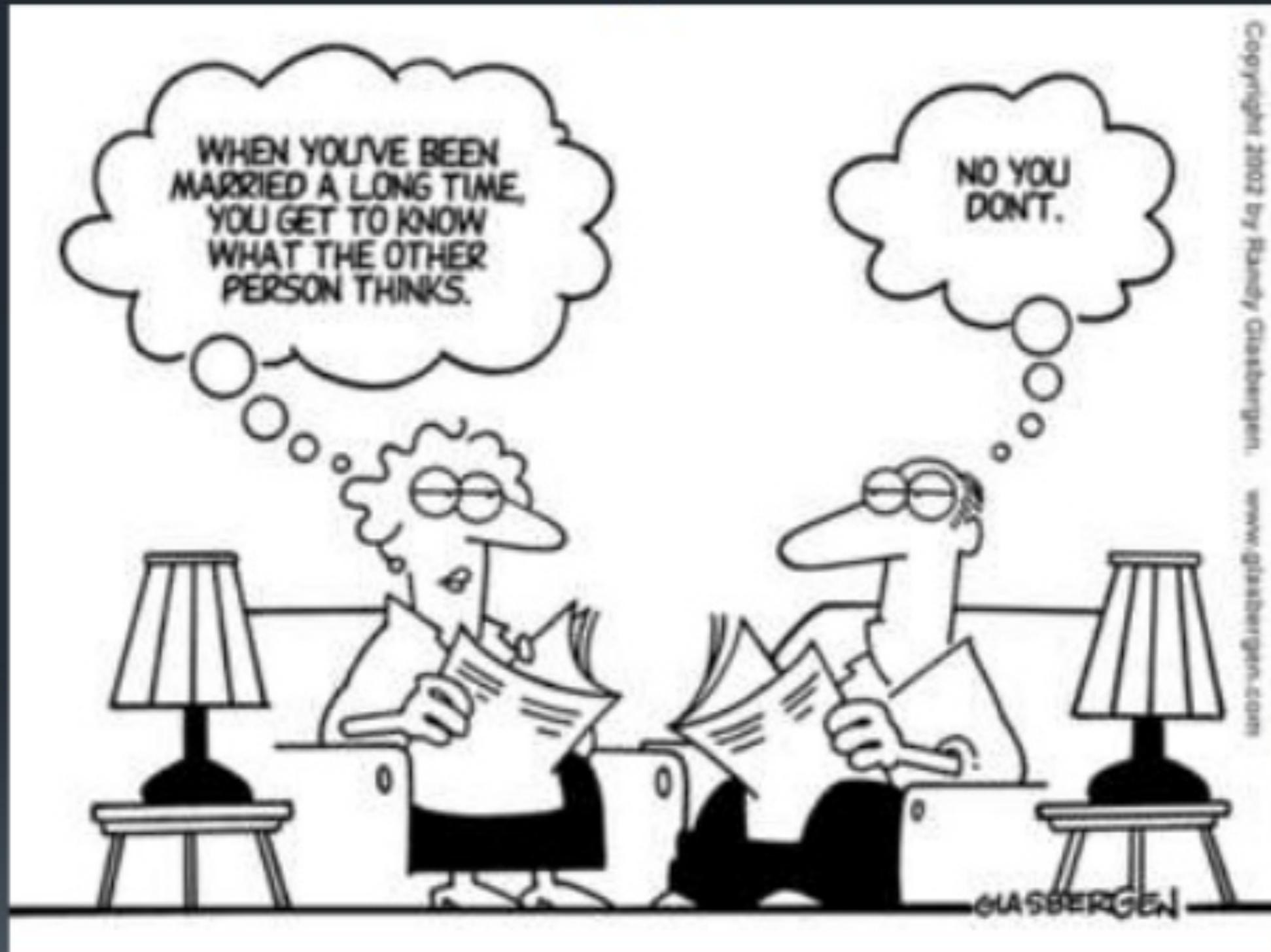


# Etiology – Neurobiology

- Impairments in executive functioning (e.g., simultaneously engaging in multiple tasks)
- Weak central coherence (integrating data points into meaningful information)
- Concept formation (e.g., playing Scattegories)
- Deficits in Theory of Mind tasks (taking another person's perspective)

# Theory Of Mind

1



Dr (Maj) Ashutosh Ratnam  
Resident Psychiatry

# Etiology – Genetics

- ⑥ 37–90% concordance MZ twins
- ⑥ 15% associated with known mutation
- ⑥ Likely hundreds of genetic loci
- ⑥ 4:1 male:female ratio; esp. unrecognized in female without comorbid I.D.

# Environmental Risks

## 👁️ Tons of recent hypotheses

- 👁️ Advanced paternal age (and maternal age > 30)
- 👁️ Fetal exposure to valproate
- 👁️ Low birth weight (birth < 26 weeks)
- 👁️ Inadequate language exposure

# Advanced Paternal Age

- General supposition that older sperm more likely to have endured genetic mutation

# Unsubstantiated Theories

- 👁 Vaccines – Andrew Wakefield scandal

- 👁 Plastics, air pollution, alcohol, smoking, illegal drugs, prenatal stress, infectious diseases.

# THE LANCET

The Lancet, [Volume 351](#), [Issue 9103](#), Pages 637 - 641, 28 February 1998  
doi:10.1016/S0140-6736(97)11096-0

This article was retracted

## RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

Dr [AJ Wakefield](#) FRCS <sup>a</sup> , [SH Murch](#) MB <sup>b</sup>, [A Anthony](#) MB <sup>a</sup>, [J Linnell](#) PhD <sup>a</sup>, [DM Casson](#) MRCP <sup>b</sup>, [M Malik](#) MRCP <sup>b</sup>, [M Berelowitz](#) FRCPsych <sup>c</sup>, [AP Dhillon](#) MRCPsych <sup>a</sup>, [MA Thomson](#) FRCP <sup>b</sup>, [P Harvey](#) FRCP <sup>d</sup>, [A Valentine](#) FRCR <sup>e</sup>, [SE Davies](#) MRCPsych <sup>a</sup>, [JA Walker-Smith](#) FRCP <sup>a</sup>

### Summary

#### Background

We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

#### Methods

12 children (mean age 6 years [range 3–10], 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

RETRACTED

# Co-morbidities

- 👁 Up to 80% with sleep problems
- 👁 8-25% with seizures
- 👁 Psychiatric disorders (widely variable est.)
- 👁 Minor malformations (mostly associated with ID)

# Treatments

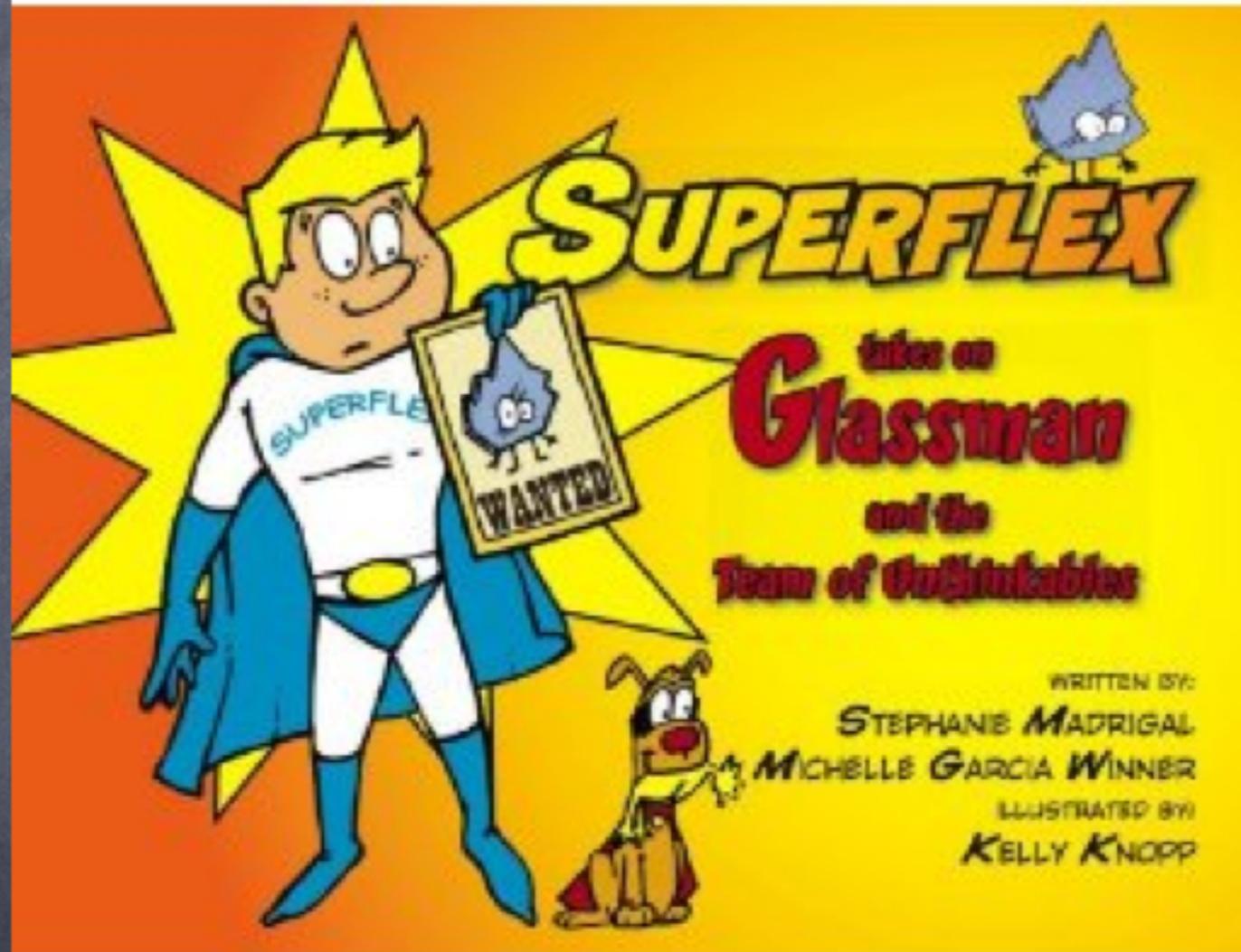


*Walt Reed*

Herman likes to stay in his "comfort zone".

# Social Treatments

- 👁️ Speech and Language therapy (group, 1:1)
- 👁️ Occupational therapy
- 👁️ Special education (IEPs, integrated vs. inclusion, dedicated schools)
- 👁️ Social skills training
- 👁️ Caregiver supports



# SUPERFLEX

takes on  
**Glassman**  
and the  
**Team of Unthinkables**

WRITTEN BY:  
STEPHANIE MADRIGAL  
MICHELLE GARCIA WINNER  
ILLUSTRATED BY:  
KELLY KNOPP



Rock Brain - I make people get stuck on their ideas.



Glassman - I make people have huge upset reactions.



D.O.F. - I make people overly competitive.



Mean Jean - I get people to act mean and bossy.



Space Invader - I get people to invade other's personal space.



# **SUPERFLEX** *takes on the Unthinkables!*



One-Sided Sid - I get people to only talk about themselves.

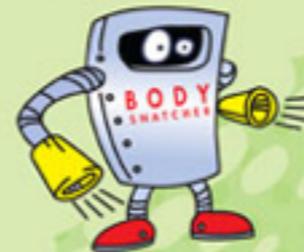
Superflex helps a citizen be a more flexible thinker, which allows the person to better control his or her brain and change how he or she thinks. He helps a citizen think about how to act and behave to keep others (and himself/herself) feeling good. He helps a citizen be a better problem-solver by thinking of many different solutions to one problem. He helps a citizen notice when an Unthinkable is becoming more active in his brain and then quickly comes up with a strategy to defeat the Unthinkable.



Wasfunny - I get people to use humor at the wrong time, the wrong place or with the wrong person.



Brain Eater - I distract people.



Body Snatcher - I move people's bodies from the group.



Energy Hare-y - I give people too much energy.



Topic Twistermeister - I make people jump off topic.



Worry Wall - I make people worry too much.



Oh-Wonderer - I don't like people to socially wonder about others.



Grump Grumpazing - I put people in grumpy moods.

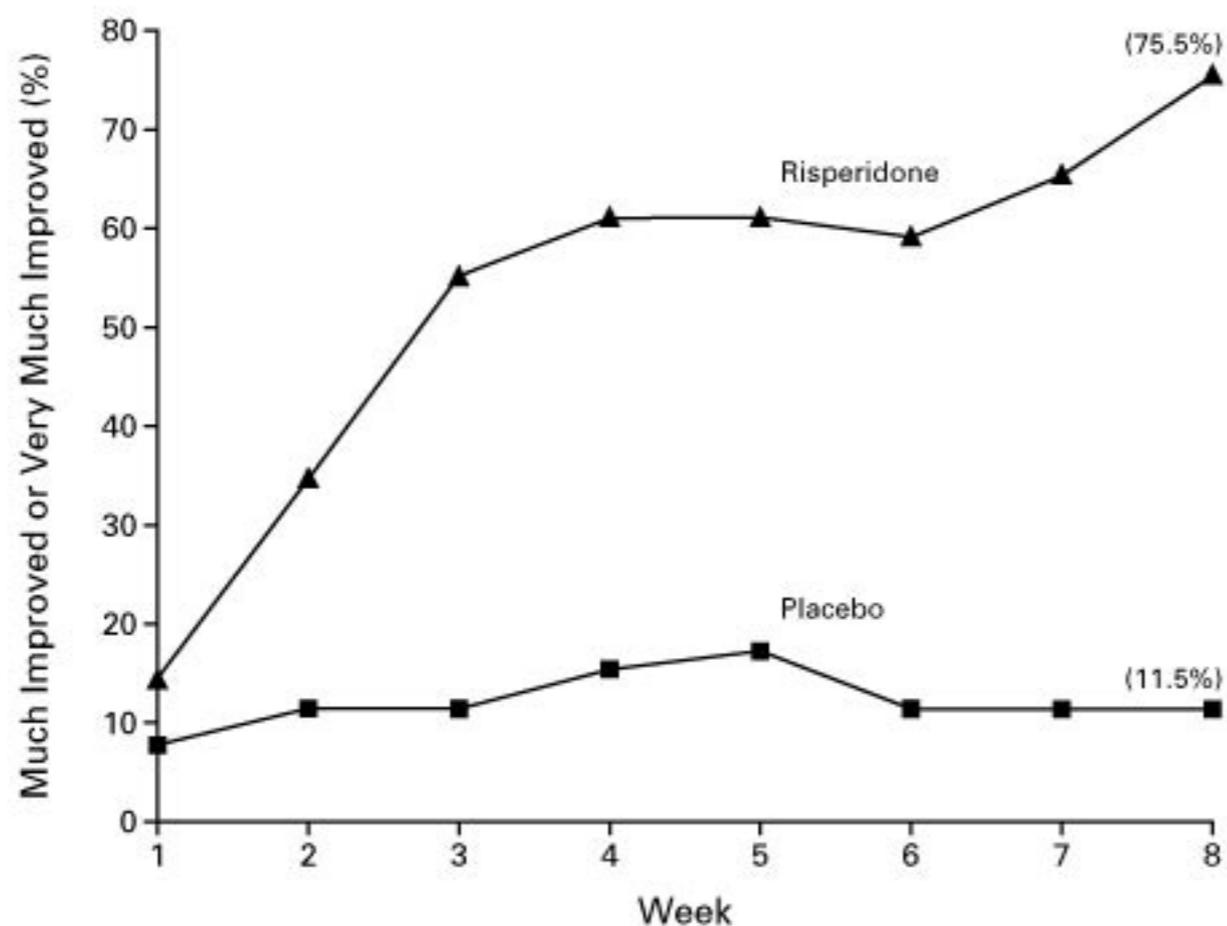
# Psychological Treatments

- ⑥ Applied Behavior Analysis ("ABA" – 25–40 hrs/ week at young ages.
- ⑥ Antecedent → Behavior → Consequence – understanding function of behaviors
- ⑥ "Simple" rewards/consequences
- ⑥ Parent training
- ⑥ CBT, supportive–expressive therapies for the less impaired

# Psychiatric Medications

- 👁 Overall, lesser efficacy and more SEs.
- 👁 Risperidone and Abilify approved for “irritability associated with Autistic disorder”
- 👁 Anecdotal data for other antipsychotics, anti-manic agents, SSRIs, stimulants, alpha-2 agonists, atomoxetine
- 👁 Benzodiazepines and anticholinergic medications often disinhibiting

# Risperidone, RUPP Study



**Figure 2. Percentage of Children with a Rating of Much Improved or Very Much Improved on the Clinical Global Impressions — Improvement Scale during the Eight-Week Trial.**

Data are for all 49 children assigned to the risperidone group and for all 52 assigned to the placebo group.

# Pitfalls of Treatment

- 👁 Frustration
- 👁 Medication side effects
- 👁 Poor coordination of care
- 👁 Inadequate funding

# DSM-IV vs. DSM-V

Primary concerns related to:

- 👁️ Service delivery (e.g., ABA)
- 👁️ Individual identity (self-identified "Aspies")
- 👁️ Diagnostic integrity (better reliability with levels that with Autism/Asp/PDDNOS)

# No More Asperger's

- 👁️ Asperger's and "high-functioning Autism" used interchangeably, but not understood as the same (e.g., lack of friendships).
- 👁️ Cultural bias - wealthy white males  
Asperger's, minority youth PDD-NOS

# Rationale for Deleting:

- 👁️ PDD-NOS: sx not pervasive (restricted to SC and RRB), and cutoff too vague
- 👁️ Rett: may or may not have Autistic sx, can co-occur
- 👁️ Childhood disintegrative disorder: extremely rare, different pathogenesis, loss of bowel/bladder control

# Justification of ASD

- ⑥ Reliable separation of ASD v. normal, but not of individual ASDs.
- ⑥ Similar time course and treatment response.
- ⑥ New diagnostic specifiers more meaningful than making inferences

# Criticisms of ASD

👁️ “New research not comparable to old research.”

- 👁️ But - ADOS and ADI-R will remain research instruments; most publications already using ASD

👁️ Service delivery

- 👁️ But - many believe this should actually improve

# Lame Analogy

- Distinguishing Autism, Asperger's, PDD-NOS like distinguishing between Buffalo and its specific suburbs from far away.
- Levels 3 – 2 – 1 analogous to distinguishing between downtown, suburban, rural.

# Autism Epidemic?

- ① Minimal reliable evidence, although some reasonable hypotheses
- ① Changes in terminology
- ① More push for evaluations today

# Thanks!

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