

# Medical Consultation Medical Aspects of Autism

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# Understanding Cause

Airplane Crashes Outside Pittsburgh  
Kills All Aboard

# Understanding Cause

Preceded by an incident everyone remembers:

Space Shuttle Explodes After Launch

Teachers on board

No survivors

# Why Did These Disasters Happen? Which Means: How? What Do We Expect?

- Identifying the exact mechanisms responsible for these accidents is key to ensuring they don't happen again
- What do we expect to be done to find out?
- What principles do we expect the cause to follow?

# Plausible & Implausible Thinking

- We really do know that there are principles that govern how things work; they vary across topic
- Taught in school as fact now, but evolved based on scientific observation & cumulative knowledge of centuries:
  - Earth is round
  - Earth circles sun
  - Gravity pulls objects toward earth
- Technology & its products: trains, planes, cars, radio, telephone, tv, computers

# Can You Pet the Fur Off Of A Cat?



# Anthropomorphism in Autism

- Definition: suggesting human characteristics for animals or inanimate things; or human intents or motives for the brain
- Anthropomorphism of brain: forgetting centuries of neurology, neuroscience, & neuroanatomy
- Why does this happen?
- Everyone an expert? Panic?

# The Myth That Science Gets It Wrong

- The myth is in thinking that there is a finite simple answer to questions in science & medicine & that answers can be arrived at quickly & definitively
- Science is a process much like archaeology. And the human brain is the most complex entity on this planet.
- Perfection does not exist on earth.



# Appropriate Expectations For Science

- Meticulous pains-taking effort using highly specialized knowledge & technology to give reliable & valid results
- Played out over time to examine impact of all variables and independence of results from individual laboratories & investigators
- Principles of disease or biology are discerned over time, like a figure emerging from a fog bank, but are the result of extensive studies

# Science & Medicine Work: Status Check

- Life span increased 30 years in a century
- Killers of old tamed; cars, autos, computers, phones, transplants, cures for childhood leukemia
- New molecular based mechanisms leading to more specific, more effective treatment
- Will lead to prevention and cures of many more disorders and diseases, with significant clinical improvements in the interim
- Limitation: translation of science to practice; fidelity of translation; resources vs time

# Score Card for Judging Science

- Biologically plausible hypothesis?
- Academic faculty and site?
- Design & methods rigorous & appropriate?
- Analysis & statistics appropriate?
- Interpretation within the limits of study findings?
- Study repeated at other academic centers?
- Science evolves; no quick answers; it is a dinosaur hunt & dig-matures over time
- These standards also apply to interventions

# The Ever Changing Face of Autism

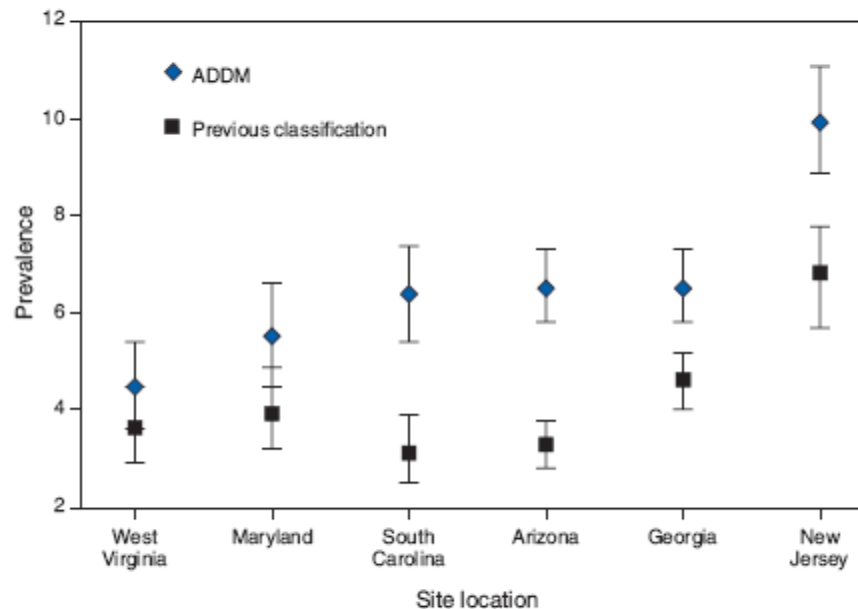
Or, Who's in and Who's out now?

“Study supports theory that rise in autism is related to changes in diagnosis” Bishop et al, 2008

- Research suggests that many children diagnosed with severe language disorders in 1980's-1990's would today be diagnosed with autism.
- 38 adults age 15-31 diagnosed with DLD reassessed for early and current evidence autism; 25% were diagnosed as having autism with today's criteria
- Rise in autism mirrored by decline in DLD dx in UK General Research Database

# ADDM Network MMWR

**FIGURE 3. Overall prevalence of autism spectrum disorders (ASDs) per 1,000 children aged 8 years and prevalence of children aged 8 years classified as meeting the case definition\* for ASD and having a previous ASD classification — Autism and Developmental Disabilities Monitoring Network, six sites, United States, 2000**



\* Children born in 1992 who had at least one parent or legal guardian who resided in the surveillance area during 2000 were classified by clinician reviewers as having an ASD if they displayed behaviors from abstracted evaluations during 1992–2000 that were consistent with *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* criteria for diagnosing 1) autistic disorder; 2) pervasive developmental disorder, not otherwise specified, including atypical autism; or 3) Asperger disorder (15).

## Where Are The Adults? “For some reason, you guys don’t read your own books...”

“Let's see, each generation there is about 500,000 autistics, and there is usually 1.5 to 2 million autistics living and walking around at any given moment in the United States alone! But, there are very few services catered to Adult autistics! Hmm. There is a definite disconnect here! Thus, the so called "experts" try to fudge the numbers and talk of the "wave" of new autistics getting older. WRONG! They are here but are just mislabeled as something other than autistic, and normally living in an institution, group home, or living with their parents. The lucky few get their own apartment but have few friends because of their "odd personality."

## The Future Awaiting Them

“It is funny how I have to do the "teaching" these days, when I was the "student" until I was 30, too long, because of the autism...Just say I am a 38 year old female who was diagnosed with PDD-NOS, NVLD and a math disability at age 35. I needed to be diagnosed NOT because of a mental health problem, but because of an "employment problem." I was being discriminated against because I didn't meet typical standards. That is what awaits the more high functioning autistics when they get out of school! If we got more understanding, I will tell you there would be less "mental health issues" that would be needed to be addressed.”



# A Uni-Tasking Mind in a Multi-Tasking World

“Another problem is my hours will be cut. No, not because of the bad economy, but because, again, " I am deemed too slow." My job? A Janitor. Yep, the lowest of the low, and I can't even meet expectations as a janitor. Yep, you don't deal with people as much, which is good if you have autism, but you have to "multi-task" as a janitor, even though it is quite repetitive. If I didn't have a good memory, I would be gone from this job too!

So, I live with my parents, and will be working only 3 hours a night as a janitor! That, according to Div. of Vocational Rehabilitation is a success, case closed!”

## A Different Mind in Today's Intolerant Multi-Tasking, Rapid Processing World

- “I think it is insulting, for somebody who has 2 degrees, a BA and an AAS degree. I have been told there are no jobs that best fit my particular needs...Unlike Temple, I don't have a portfolio that I can show off to an employer to get into the door!”

# Genes and Multi-Organ Involvement

- 2.27 relative risk of autism diagnosis conferred by the CC genotype MET receptor tyrosine kinase. MET signaling is involved in neocortical and cerebellar development, immune function, and gastrointestinal repair, consistent with the multi-organ symptoms reported in autism

Campbell et al. PNAS 2006, 45: 16834-16839