



# Neurodiversity

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Student Support

Awareness and  
Education

Neurodiversity at  
Work

Neurodiversity  
Wellness

Who We Are

Stanford  
Neurodiversity  
Summit



UCD Neurodiversity Project now in development: Phase 1 – Awareness raising

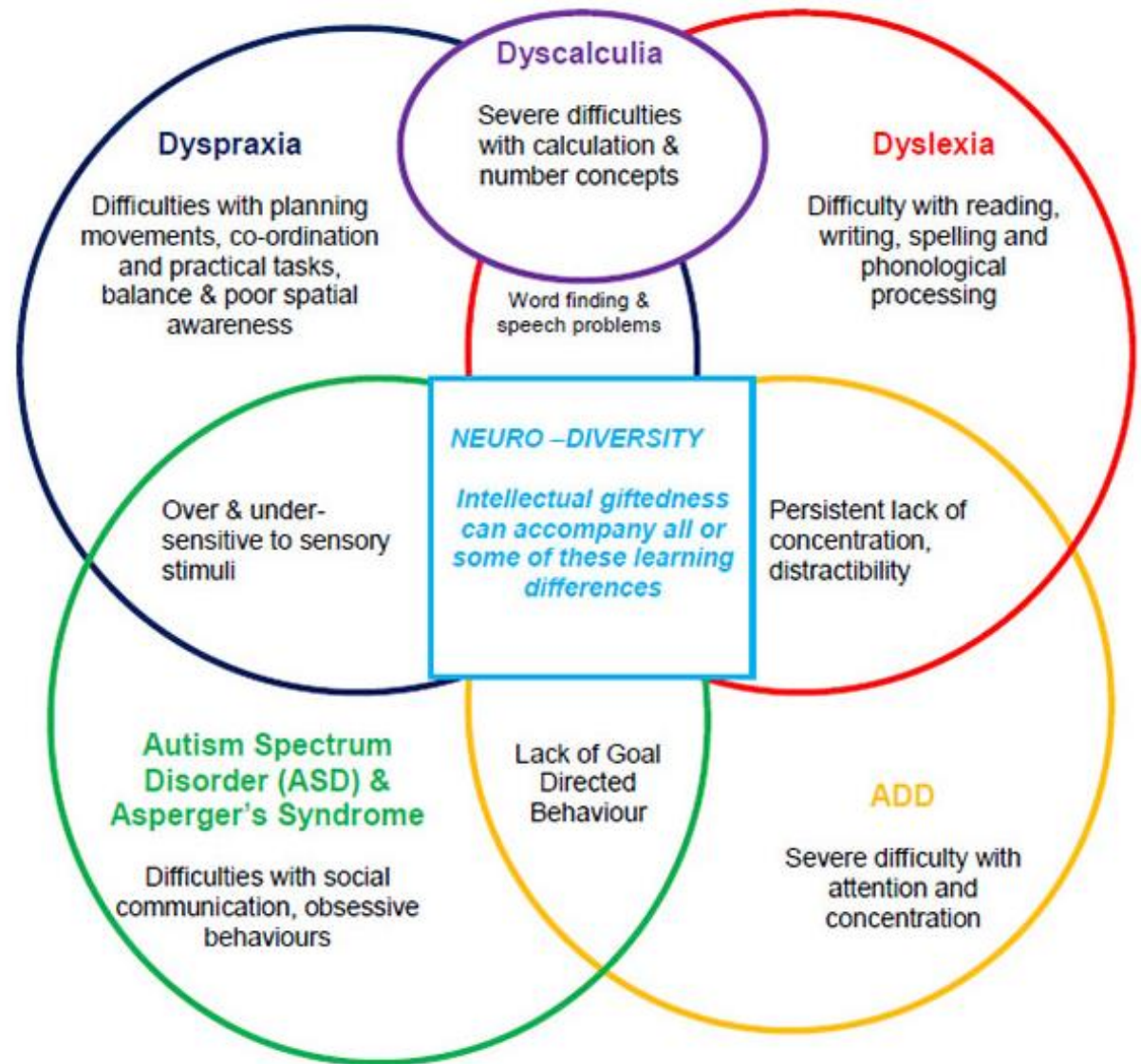
# What is neurodiversity?

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- Neurodiversity is a term coined by Judy Singer (sociologist, Australia) in the 1990s to describe variation in human brain functions relating to sociability, learning, attention and mood
  - Neurodiversity encompasses conditions such as Autistic Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), Dyslexia and Developmental Coordination Disorder.
  - The term is designed to conceptualise these neurodevelopmental conditions as reflecting the 'neurological diversity' of the human brain rather than pathologising difference.
- 



Conditions  
often coexist



<https://differentlywired.co.uk/what-is-neurodiversity>

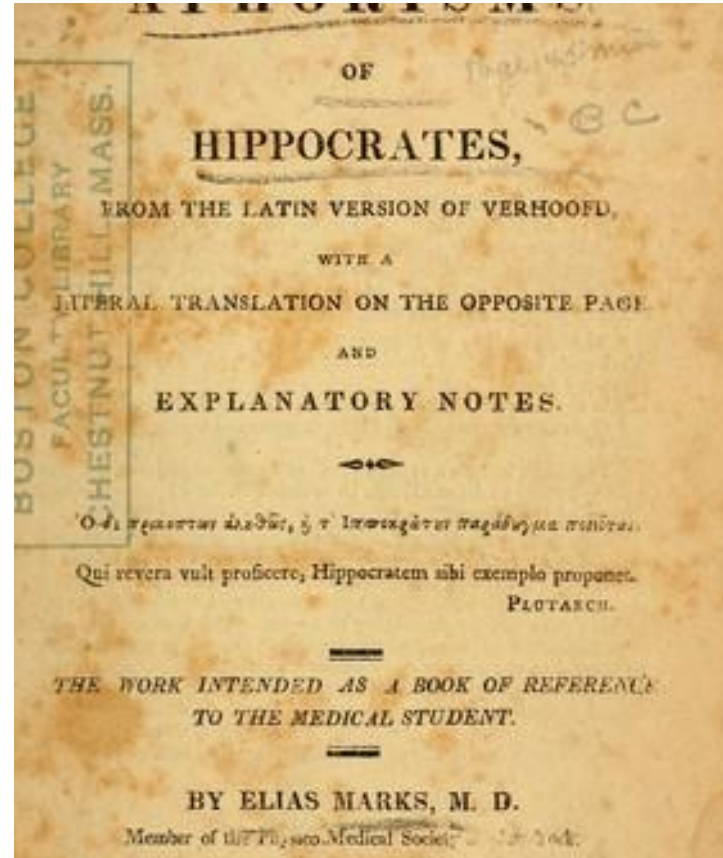
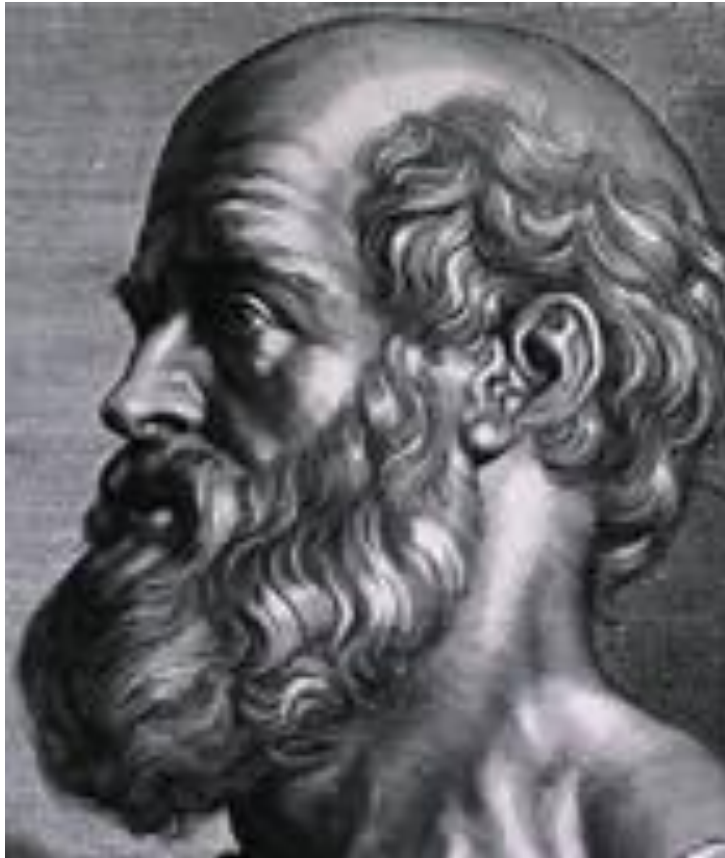
For further information:

Neurodiversity in Higher Education Edited by David Pollak  
Developmental Adult Neuro-Diversity Association (DANDA)



HISTORY

# Early descriptions of 'neurodifference'.



- The Aphorisms of Hippocrates contain what is described as the oldest description of ADHD.
- He described people who had ' quickened response to sensory stimulus, but also less tenaciousness because the soul moves on quickly to the next impression'.
- He saw this as being caused by an 'overbalance of fire over water'

# The Goulstonian Lectures

ON

## SOME ABNORMAL PSYCHICAL CONDITIONS IN CHILDREN.

*Delivered before the Royal College of Physicians of London on March 4th, 6th, and 11th, 1908.*

BY GEORGE F. STILL, M.A., M.D. CANTAB., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN FOR DISEASES OF CHILDREN, KING'S COLLEGE HOSPITAL; ASSISTANT PHYSICIAN TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

### LECTURE I.

*Delivered on March 4th.*

PRESIDENT AND GENTLEMEN,—The particular social conditions with which I propose to deal in these lectures are those which are concerned with an abnormality of moral control in children. Interesting as these conditions may be as an abstruse problem for the professional psychologist to puzzle over, they have a very real practical importance which I venture to think is hardly sufficiently recognised. For some years I have been

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Features



## Neurodiversity as a competitive advantage

Schools stand to gain from an array of learning profiles, says Geoff Richman

In 2016, the research arm of International Schools Consultancy      The trend toward more open acceptance policies over the

Richman, G. (2018). Neurodiversity as a competitive advantage. *International School : IS*, 20(2), 20-21.





# ADHD

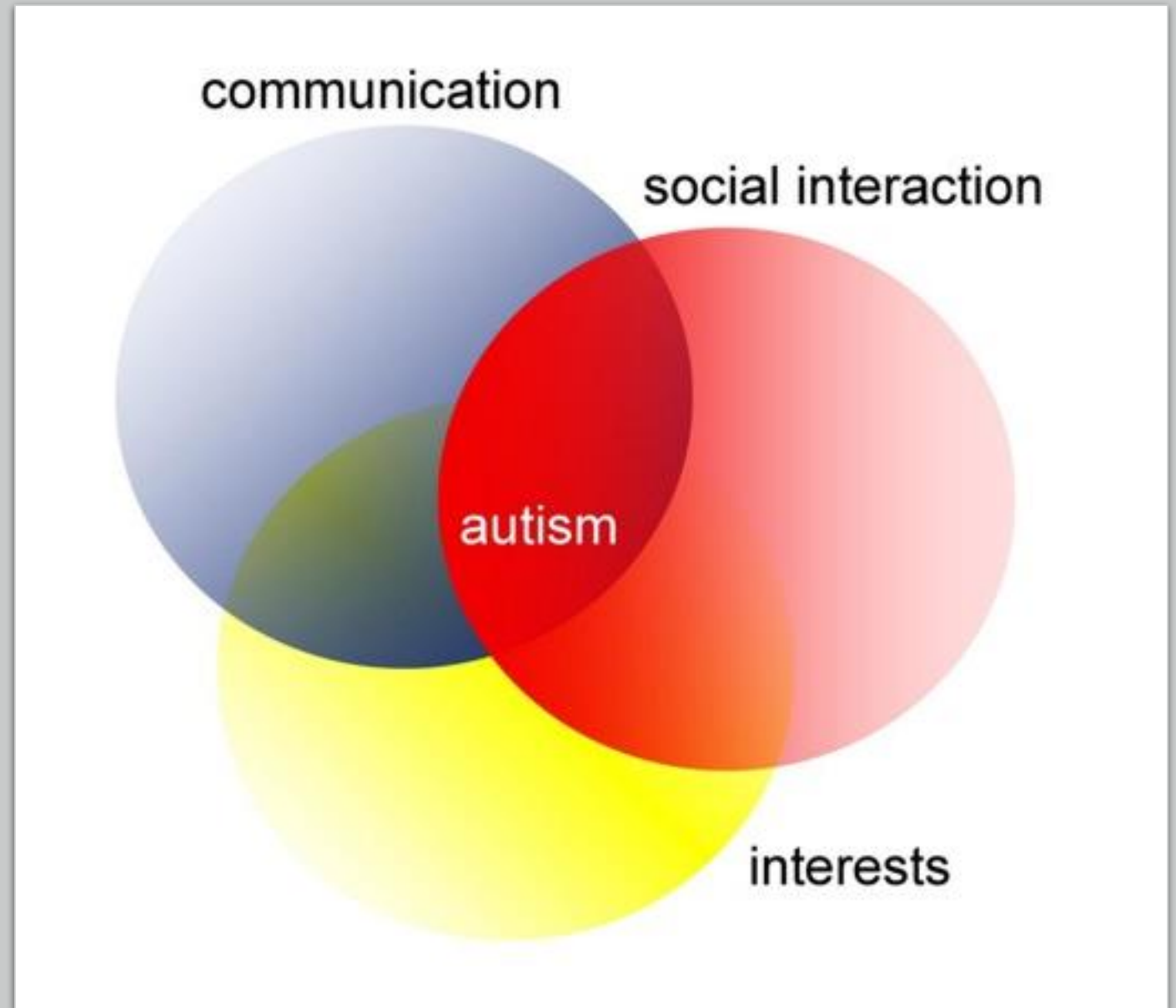
## Characteristics

- Characterised by developmentally inappropriate levels of activity, impulsivity and inattention
- Underdiagnosis common – in Ireland diagnosis five-fold lower than prevalence

# ASD: Characteristics

Triad of characteristics relating to:

- Social Interaction
- Communication (verbal & non-verbal)
- Behaviour patterns & interests

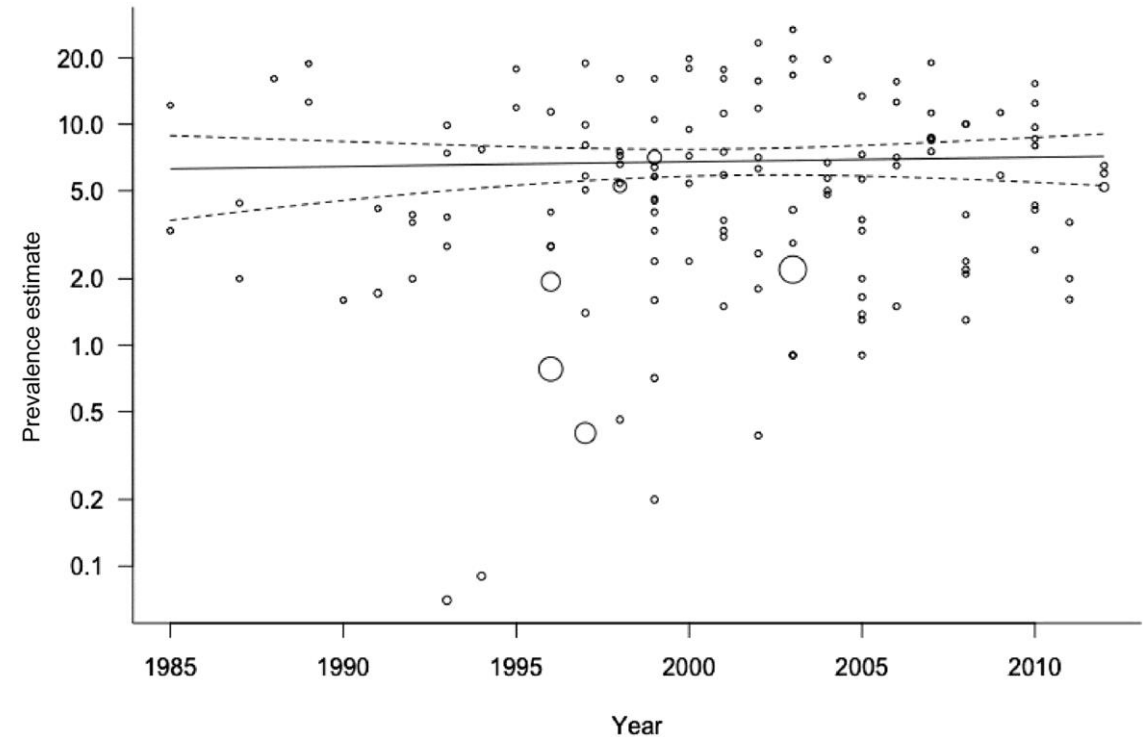


# ADHD Prevalence

- 3-5%
- 30-50% of children referred to child psychiatry clinics have ADHD
- Diagnosed in males 3-4 times more often than in females
- Persists in 30-50% of patients into adolescence and adulthood (symptom profile may change)

## ADHD prevalence estimates across three decades: updated systematic review and meta-regression analysis

Polanczyk et al., Int J Epidemiol 2014; 43: 434-442

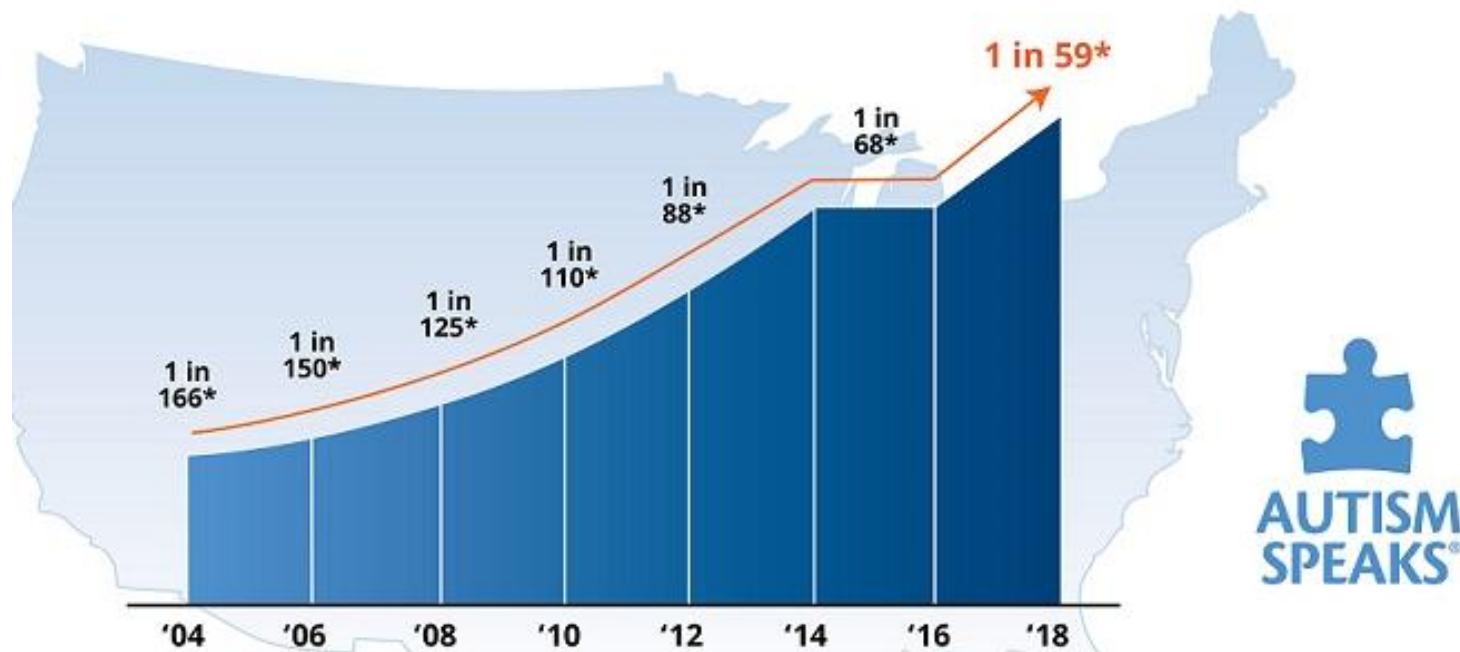


135 studies included

ADHD prevalence estimates as a function of year of study publication

# ASD Prevalence

## Estimated Autism Prevalence 2018



\* Centers for Disease Control and Prevention (CDC) prevalence estimates are for 4 years prior to the report date (e.g. 2018 figures are from 2014)

Apparent increase in prevalence:

- ? Real
- ? Increased Awareness
- ? Improved Diagnosis



Causes?

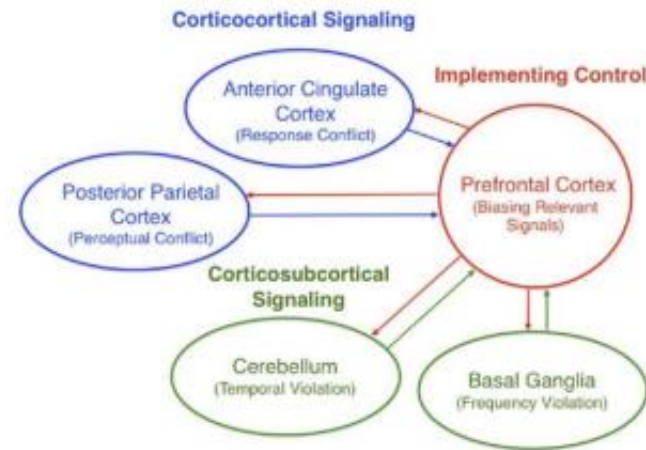
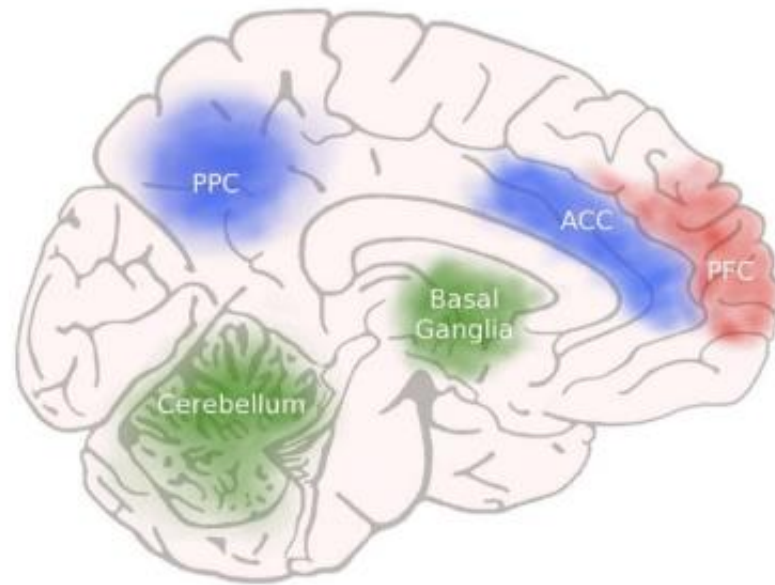
## Genetics

- MZ:DZ concordance is high suggesting genetic influence is significant.
- This is reflected in these traits clustering in families.



# Brain networks implicated in ADHD

Lister et al., Biological Psychiatry 2011



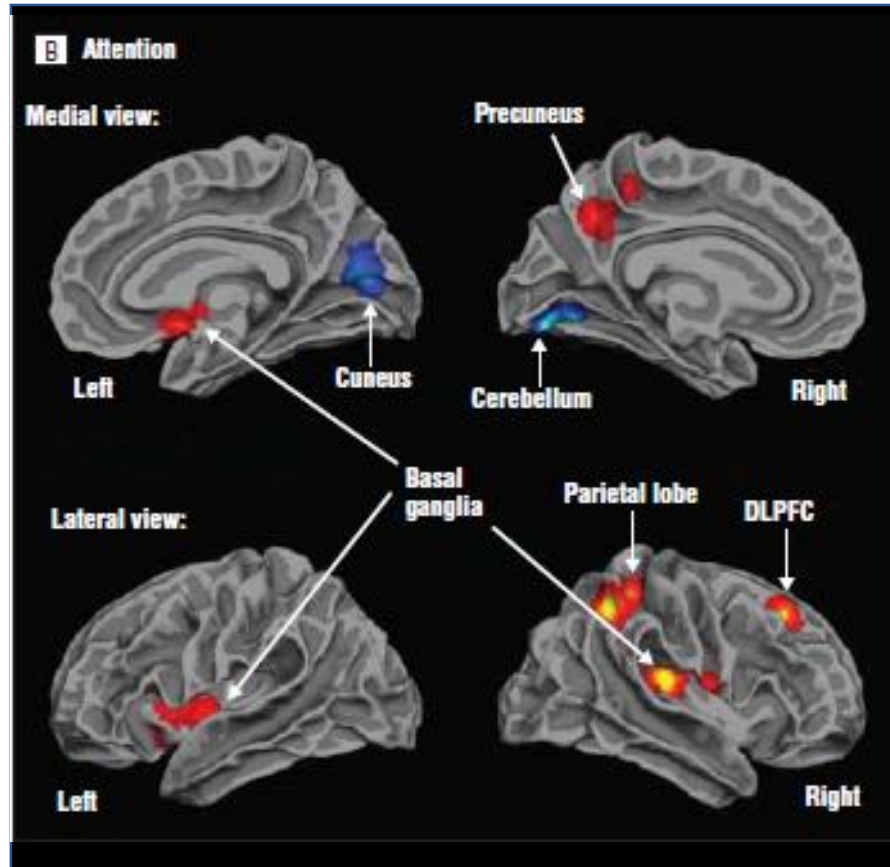
## Replicated structural MRI findings in ADHD:

Total brain volume ↓, cortical thickness ↓, grey matter ↓,  
ACC ↓, PFC ↓, basal ganglia ↓

# Meta-analysis of functional fMRI studies in ADHD

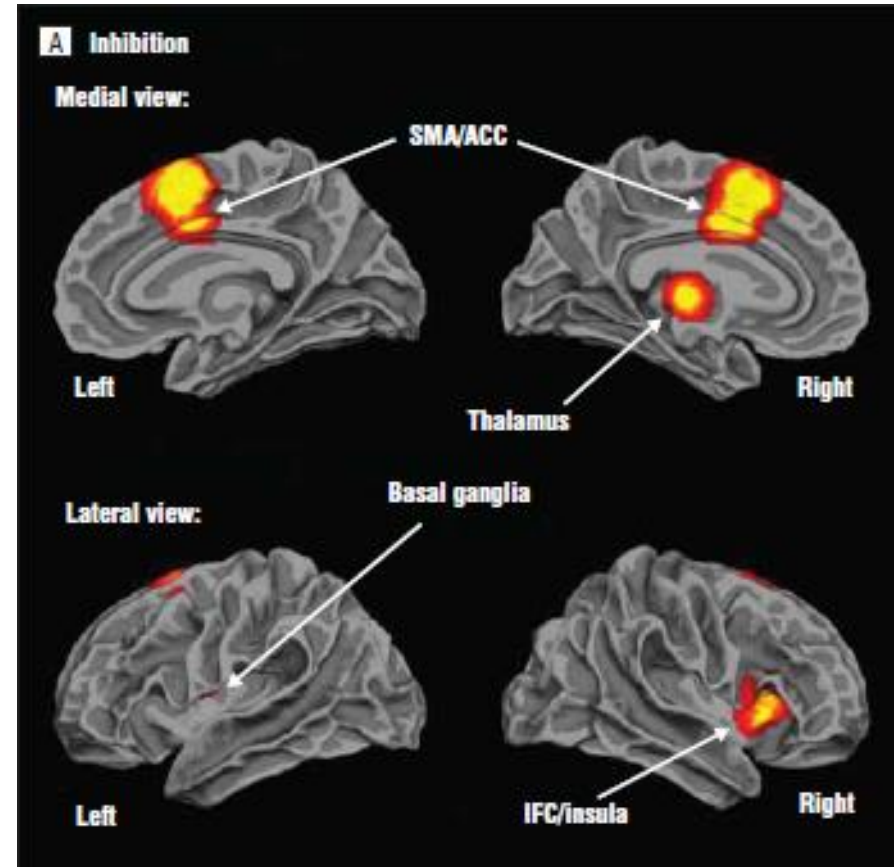
Hart et al., Arch Gen Psychiatry 2013; 70: 185-98

**Reduced** / **increased** activation in attentional networks



13 data sets (171 patients with ADHD / 178 controls)

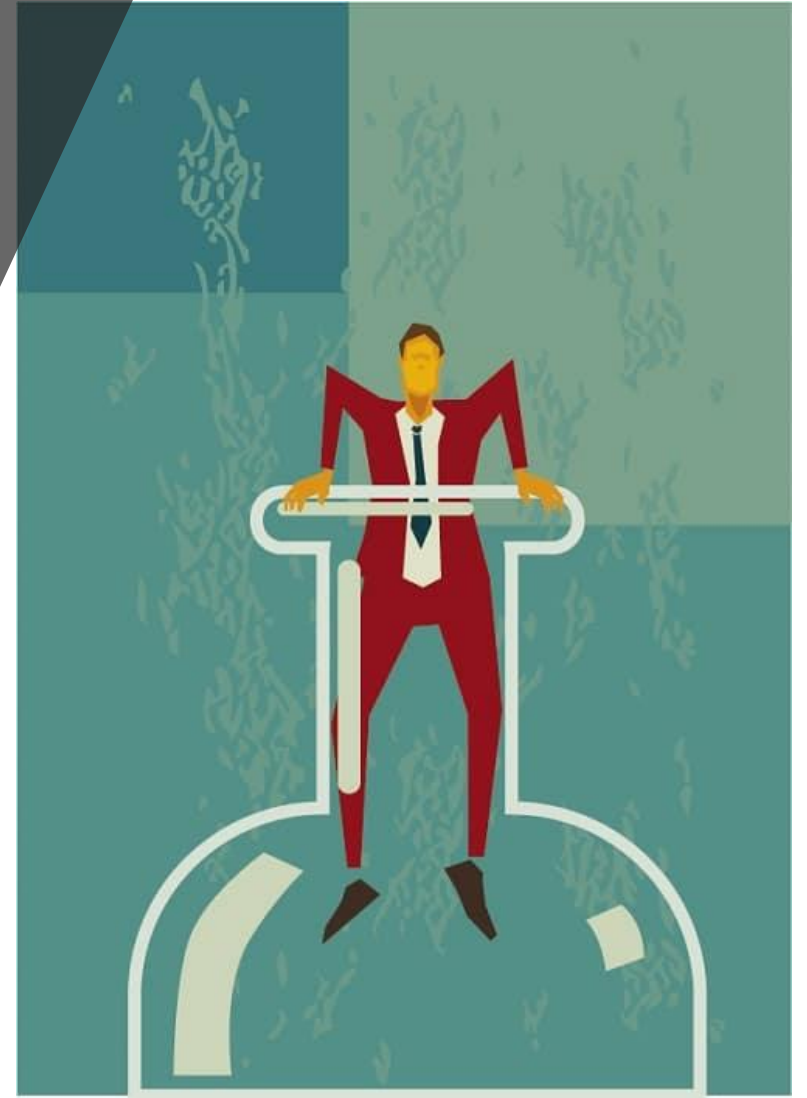
**Reduced** activation in inhibitory networks



21 data sets (287 patients with ADHD / 320 controls)



# Outcomes



THE  
**SOUNDTRACK**  
TO MY.....  
**LIFE**



# Outcomes in Higher Education

JOURNAL OF CLINICAL CHILD & ADOLESCENT PSYCHOLOGY  
<https://doi.org/10.1080/15374416.2020.1867990>



## Academic Trajectories of College Students with and without ADHD: Predictors of Four-Year Outcomes

George J. DuPaul<sup>a</sup>, Matthew J. Gormley<sup>b</sup>, Arthur D. Anastopoulos<sup>c</sup>, Lisa L. Weyandt<sup>d</sup>, Jeffrey Labban<sup>c</sup>, Aliza Jaffe Sass<sup>a</sup>, Chelsea Z. Busch<sup>a</sup>, Melanie K. Franklin<sup>e</sup>, and Kaicee B. Postler<sup>c</sup>

<sup>a</sup>Department of Education and Human Services, Lehigh University; <sup>b</sup>Department of Educational Psychology, University of Nebraska-Lincoln; <sup>c</sup>Department of Human Development and Family Studies, University of North Carolina-Greensboro; <sup>d</sup>Department of Psychology, University of Rhode Island; <sup>e</sup>Nemours Children's Health System



What can I  
do?



# CHANGING THE NARRATIVE ABOUT AUTISM

THROUGH AWARENESS, EDUCATION AND ENGAGEMENT.

INTRO

AT LEAST ONE IN TEN PEOPLE ARE **NEURODIVERGENT.**

"Neurodiversity may be every bit as crucial for the human race as biodiversity is for life in general. Who can say what form of wiring will prove best at any given moment?"

— Harvey Blume, The Atlantic, 1998



<https://www.neurodiversityhub.org/>