

Developmental Psychology & Individual Differences

A black chess piece, likely a king or queen, stands on the left. To its right, a row of white chess pieces, likely pawns, are arranged in a line. The pieces are on a reflective surface, and the background is a soft, out-of-focus green.

ECPS5014
DR JUDITH MARSHALL

Developmental Psychopathology

Links study of typical development to study of developmental disorders

Abnormality is normal

- we all can act oddly

Disability is changeable

- disability level can change over time

Adulthood may be better or worse
e.g. may overcome disability or
struggle more as adult level skills
become more important

DSM:

Psychopathology may reside “..not in the individual, but in the adaptiveness of the relationship between the individual and context.” (*Sameroff and McKenzie, 2003, p.613*)



Autism Spectrum Disorders

A solid green horizontal bar at the bottom of the slide.

‘Can you make it to the end?’

<https://youtu.be/aPknwW8mPAM?si=WXjr8RcN0fEDjDDF>

What is an autism spectrum disorder?

A pervasive neurodevelopmental disorder characterized, in varying degrees, by difficulties in social interaction, verbal and nonverbal communication and repetitive behaviours.

Causes?

No link to vaccinations supported in research; original study has been found to be fraudulent

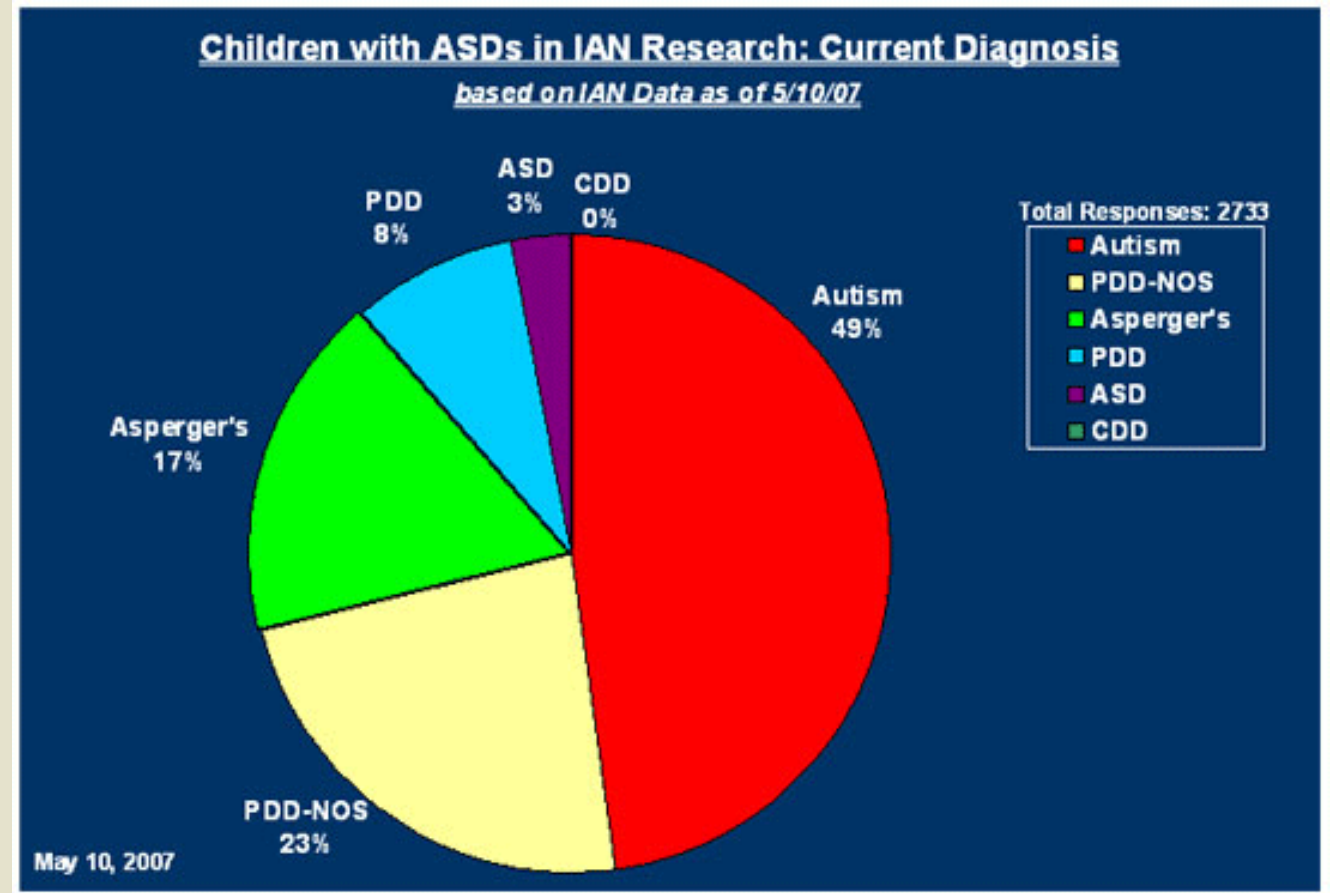
Recent research did find a sensitivity to gluten but no relationship with Celiac's disease

Abnormalities in brain development – 'Neuroatypical'

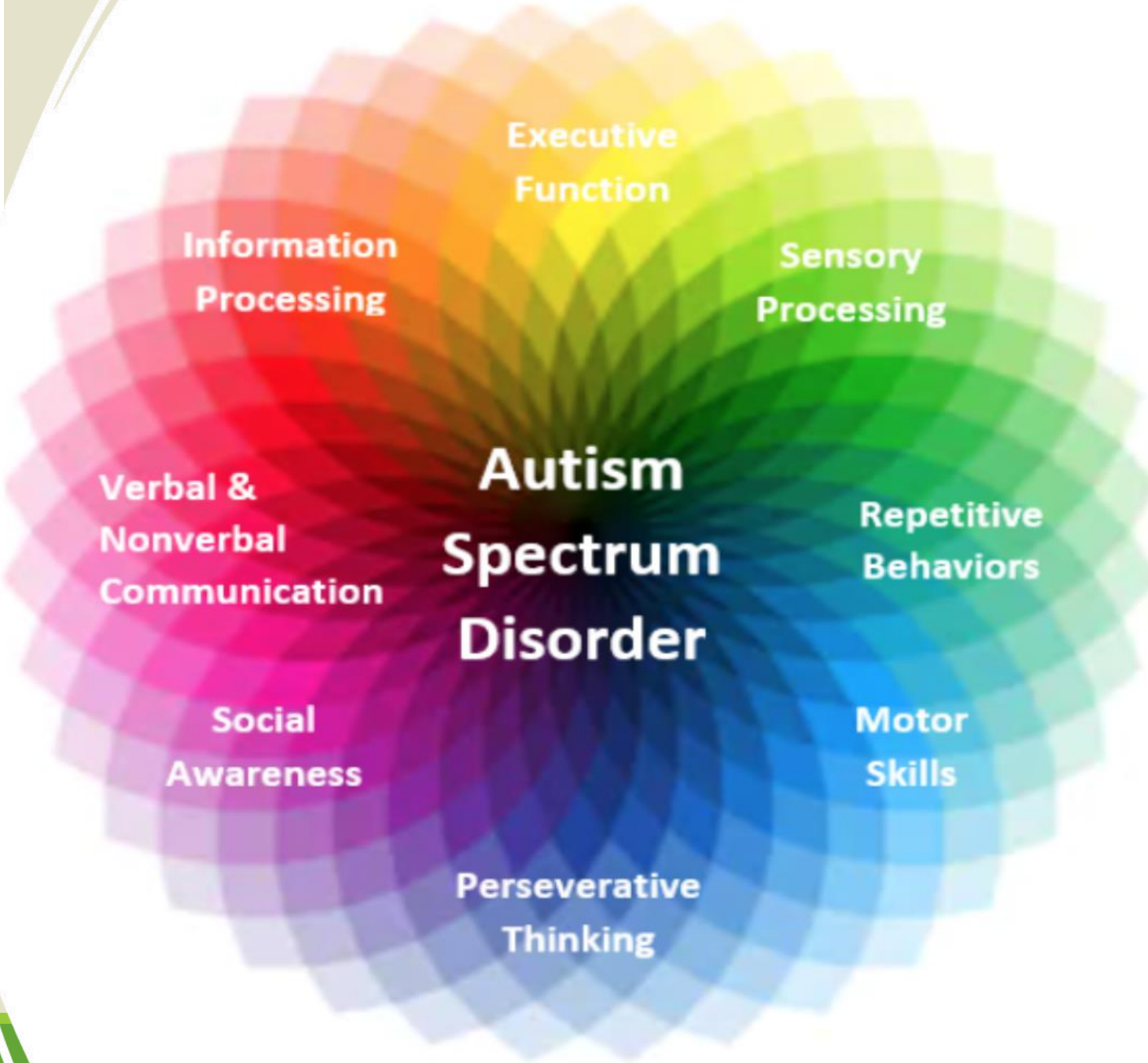
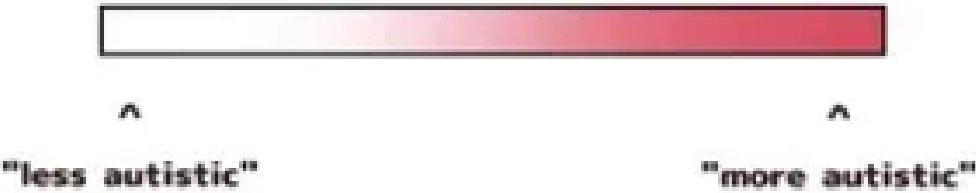
Brain scans have shown differences in shape and structure

Genetic: odds increase if a parent or sibling have ASD

Lecture focus: Autism & Asperger's Syndrome



What people think the autism spectrum looks like:



DSM-V

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).

These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.

Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Autism in the UK

Scale

1% of the population are on the autism spectrum



That's
140,000
school age
children



And
2.8m
lives that are
touched by
autism every day

Education

40%

of children on the autism spectrum have
been bullied at school



1 in 5

children on the autism spectrum have been
excluded more than once from school



Relationships

72%

of children on the
autism spectrum
reported being
judged or
misunderstood



Autism Spectrum

Kanner (1973): term 'Autistic'

- Communication deficits
- Good, but atypical cognitive potential
- Behavioural problems e.g. obsessiveness, repetitive actions and unimaginative play
- Fundamental disturbance: an inability to relate to people and situations
- 'Happiest when left alone', 'like in a shell', acting as if people weren't there'



Triad of impairments



e.g. Werner et al 2000

Red Flags of Autism Spectrum Disorder ^{6,7}

Impairment in Social Interaction

Lack of appropriate eye gaze

Lack of warm, joyful expressions

Lack of sharing interest or enjoyment

Lack of response to name

Impairment in Communication

Lack of showing gestures

Lack of coordination of nonverbal communication

Unusual prosody

Repetitive Behaviors and Restricted Interests

Repetitive movements with objects

Repetitive movements or posturing of body, arms, hands, or fingers

Triad of Impairments: Social Interaction

Subtle differences in infancy/early years

- Less likely to be visually responsive
- Less likely to respond to their name
- More likely to show aversion to being touched by another
- Fail to track people visually
- Avoid eye contact
- Exhibit an 'empty gaze'
- Fail to respond with emotional expression and positive affect
- Show little interest in being held

(e.g. Werner et al 2000; Stone, 1997)

Triad of Impairments: Social Interaction

- Joint attention interactions: lower level of pointing and eye contact (shared experience)
- Impaired facial recognition/memorization ability (*Dawson and Toth, 2006*)
- Impaired recognition of facial expression
- Atypical facial processing – focus on mouth not eyes
- Lack of understanding of social cues
- Aloofness, disinterest and lack of reciprocity – lacks engagement with peers
- May have problems forming friendships throughout life

Triad of Impairments: Communication

Disturbed verbal and non-verbal communication – sometimes absence of speech
Approximately 30% of children with autism never develop spoken language

(Dawson and Toth, 2006)

- Language ability usually delayed or abnormal (tone, pitch, rhythm)
- Echolalia (echoing back another speech)
- Pronoun reversal (others referred to as I or Me, the self as He/She/Them/You)
(also noted in schizophrenia and blindness)
- Irrelevant details, inappropriate shifts in topic, disregard of normal rules of conversation (or no conversation at all)
- Hyperlexia – very good single word reading, but little comprehension

But some do function highly – can read, tell stories and communicate better when prompted

Triad of Impairments: Restricted, Repetitive Behaviours

- Inflexible adherence to ritual/routines *(Richler et al, 2007)*
- Frequency and severity of self-stimulation behaviours e.g. head banging
- rocking; walking on their toes, whirling; arm, hand or finger flapping *(Klinger et al, 2002)*
- Higher order repetitive , obsessive activities and interests – more common in older children...
 - Unusual preoccupations with aspects of the environment (e.g. numbers/objects)
 - May compulsively collect items
 - Overly-preoccupied with hobbies
 - Motor routines (e.g. rearranging objects; mealtime/bedtime rituals)
 - Distressed by changes in the environment

Associated Sensory/perceptual impairments

Oversensitivity to stimulation *(Dawson and Toth, 2006)*

Sensory input – disliked, feared or avoided

Under-sensitivity to stimulation

Failure to respond to sounds, verbal communications or sight of others

(Rogers and Ozonoff, 2005)

Contradiction

May ignore loud clock noise , but be fascinated by a quiet watch ticking

(Volkmar and Klin, 2000)

Overselectivity

Obsessive attention to a particular stimulus, while ignoring competing stimuli

Failure to attend to range of stimuli affects child's learning

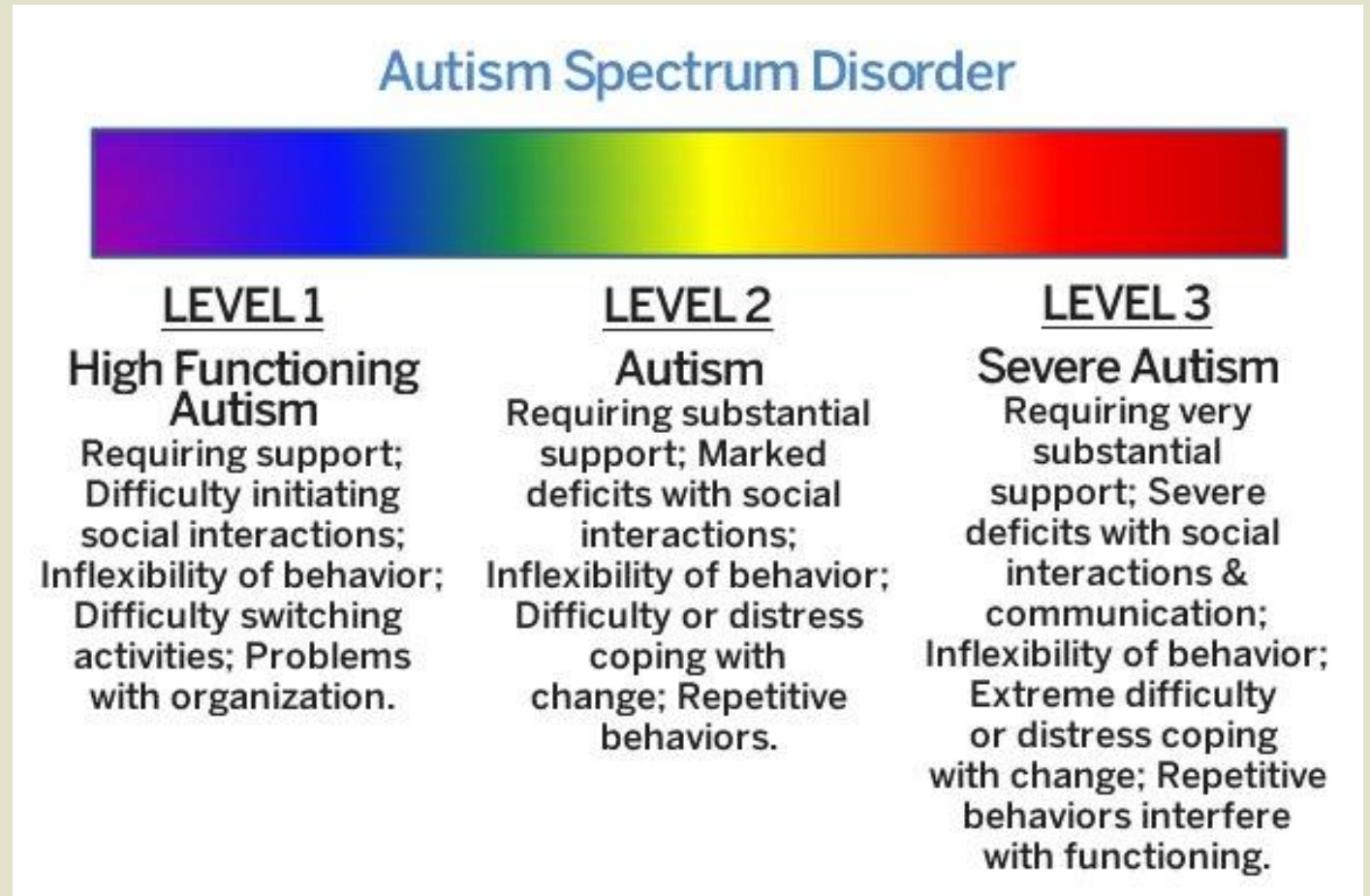


Presentation of Autism

Symptoms and characteristics can present themselves in wide variety of combinations, from mild to severe

Associated impairments
Sensory/perceptual impairments
Intellectual performance

“If you know one person with autism, you know ONE person with autism” (Kluth, 2003)



Intellectual Performance

- Wide range of intelligence in autism
- 70-75% - mental deficiency. Many have severe or profound deficiency
- IQ – important difference between people with autism
 - Higher IQ: less severe autistic symptoms and a greater chance of normal functioning in later life (*Howlin et al, 2004*)

Generally - uneven cognitive development.



Deficits in...

- Abstract and conceptual thinking
- Language development
- Social understanding

Relative strengths...

- Rote learning
- Rote memory
- Visuo-spatial skills

Intellectual Performance: Savantism

John Longdon Down (1887): '**Idiot Savant**'

Savant abilities - small minority of youth exhibit 'splinter skills'

- Much higher level than expected on basis of their general intelligence
- Much higher level than normally-developing youth (*Miller, 1999*)
- More frequent in males • Prevalence 1-10% in autism
- Etiology: unknown

Examples include: Exceptional memory • Computational skills • Artistic abilities • Musical skills

Example: Art

- 18ft drawing of the New York skyline created by autistic artist **Stephen Wiltshire**
- He had spent just 20 minutes in a helicopter gazing at the panorama
- Details of every building are sketched in to scale.



Example: Music

- **Leslie Lemke** grew up blind and cognitively disabled.
- Never had a lesson in his life - skills are innate and extensive.
- Leslie has spasticity in his hands - difficult to even hold eating utensils - spasticity disappears when he sits at the keyboard.
- Leslie can play back a musical piece of any length flawlessly after hearing it once.
- Played Tchaikovsky's *Piano Concerto No. 1* after hearing it for the first time on the sound track of a movie



Nadia Chomyn - autistic with severe learning difficulties.

Broke all the accepted rules of the development of graphic representation in children.

Most prolific period of drawing, between three and seven.

- No communicative speech

- Excessively passive and unresponsive to any form of social engagement

- Could not dress herself

- Could not manage a knife and fork.

Began to draw less frequently.

Also started to draw like an infant - for a period, her two styles coexisted, sometimes on the same piece of paper.

- Gradually and inexorably, she lost the ability to draw realistically.

- Nadia's ability was lost.

Loss of Savant Ability



Autism in the UK

- 34% of children on the ASD say that the worst thing about being at school is being picked on (Reid, 2011).
- 63% of children are not in the kind of school their parents believe would best support them (Reid, 2011).
- 17% of autistic children have been suspended from school; 48% of these had been suspended three or more times; 4% had been expelled from one or more schools (Reid, 2011).
- 70% of autistic adults say that they are not getting the help they need from social services (Bancroft et al,2012).
- At least one in three autistic adults are experiencing severe mental health difficulties due to a lack of support (Rosenblatt, 2008).
- Only 15% of autistic adults in the UK are in full-time paid employment (Redman, et al, 2009).
- Only 10% of autistic adults receive employment support but 53% say they want it (Bancroft et al,2012)

Bruno Bettelhiem: said to be a Hungarian psychotherapist

Late 1940's - "refrigerator mothers" (unfeeling, cold parents).



It was discovered in the later 1990's that he had worked in the family lumber business and earned a degree in art history with **no expertise in autism** (Sicile-Kira, 2004)



Unfortunately, his theory of "refrigerator mothers" was widely accepted for two decades.



Because of Bettelheim's inaccurate representation of autism, the disorder was treated as a mental illness as opposed to a developmental disability. This greatly limited the treatment options for individuals with autism.

When can Autism be diagnosed?

Research has shown that ASD can be diagnosed as early as 1 year of age

- No big smiles or other warm, joyful expressions by six months or thereafter
- No back-and-forth sharing of sounds, smiles or other facial expressions by nine months
- No babbling by 12 months
- No back-and-forth gestures such as pointing, showing, reaching or waving by 12 months
- No words by 16 months
- No meaningful, two-word phrases (not including imitating or repeating) by 24 months
- Any loss of speech, babbling or social skills at any age

Autism at 6 months?

Reports of typical presentation at 6 months in children with autism...

- Eye contact and affective responses to mother (Young et al., 2009)
- Social reciprocity and attention (Bryson et al., 2006; Zwaigenbaum et al., 2005)
- Verbal and nonverbal skills (Landa et al., 2007)

Emerging consensus that overt symptoms of ASD begin to emerge between 6 and 12 months

Possible factors responsible for these findings:

- Natural course of autism
- Limited sensitivity of existing behavioural methods

Diagnostic Assessment Battery for Toddlers

Developmental tests: e.g., Mullen Scales of Early Development

Autism-specific delays and abnormalities: Autism Diagnostic Observation Schedule –Toddler Version

- a semi-structured, standardized assessment of communication, social interaction, play, and restricted and repetitive behaviours. It presents various activities that elicit behaviours directly related to a diagnosis of ASD. By observing and coding these behaviours, you can obtain information that informs diagnosis, treatment planning, and educational placement.

Communication: Communication and Symbolic Behaviours Scale

http://firstwords.fsu.edu/pdf/Checklist_Scoring_Cutoffs.pdf

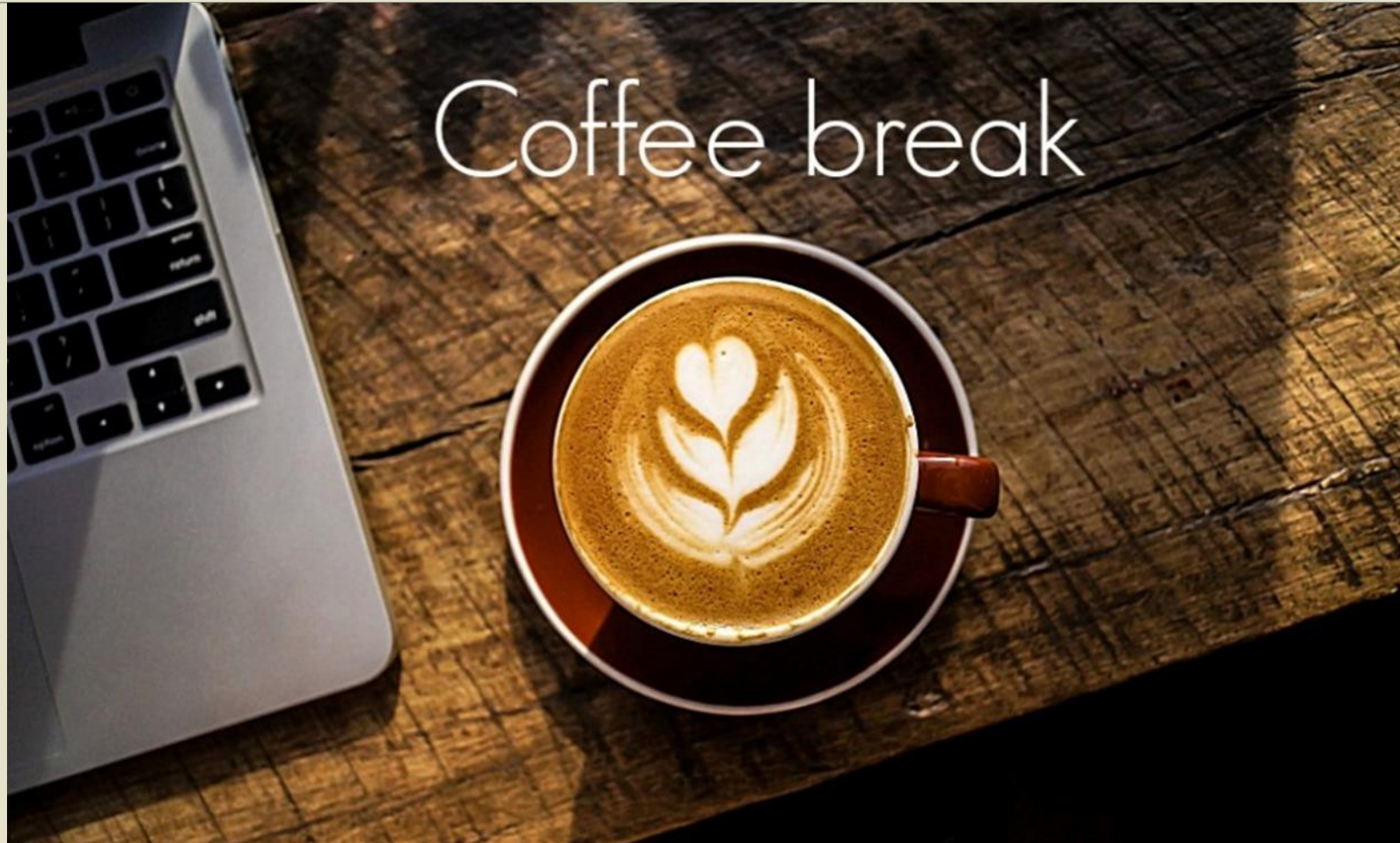
Adaptive skills: Vineland Adaptive Behaviours Schedules-II

<http://www.pearsonclinical.com/psychology/products/100000668/vineland-adaptive-behavior-scales-secondedition-vineland-ii-vineland-ii.html>

Medical and developmental history interview

Genetic and neurological testing

10 MINUTES!

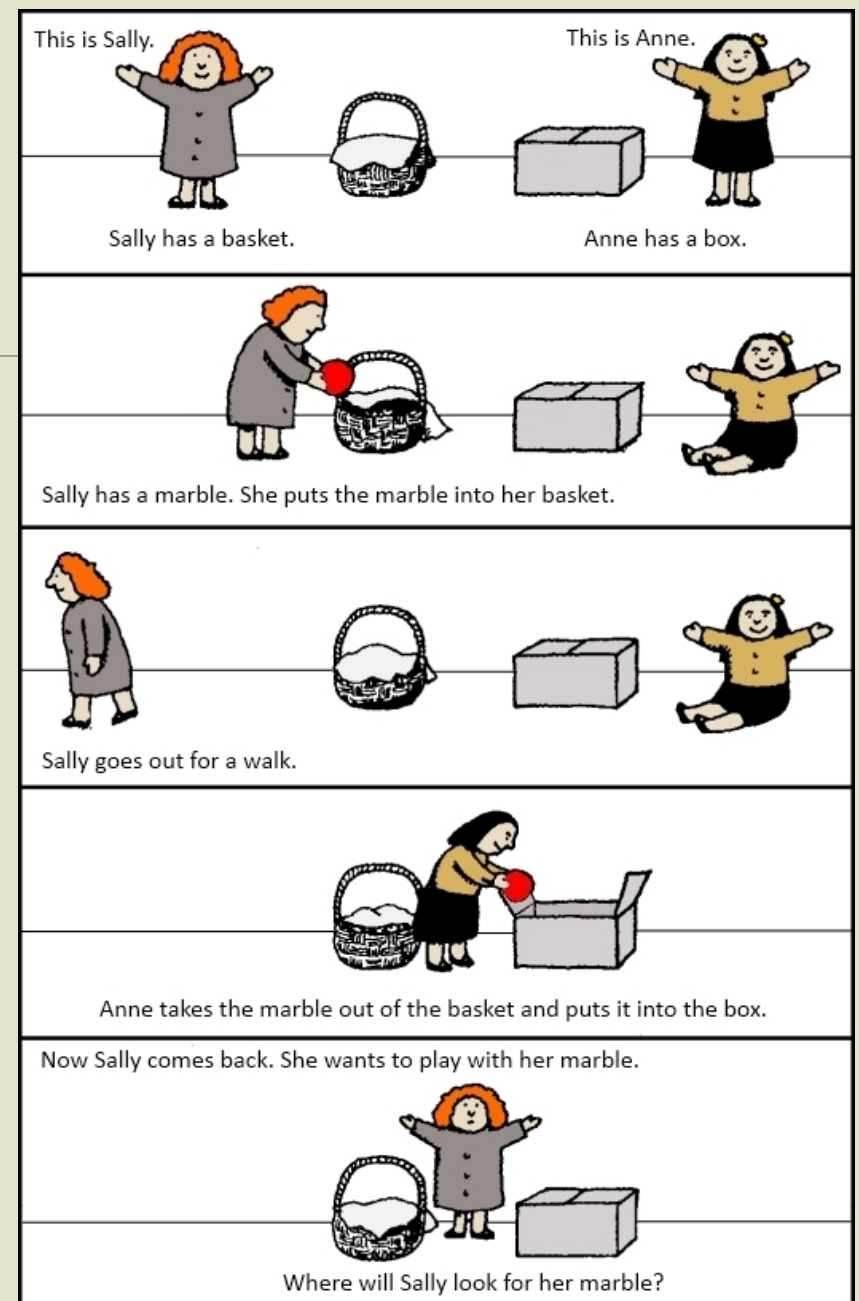


Theory of Mind (Autism)

- Baron-Cohen et al (1985)

Sally-Anne false belief test

- Typically developing children aged 4 years
- Children with Autistic Spectrum Disorder with mental age over 4 years
(age of success on f-b test for typically developing children)
- Down Syndrome children with mental age of 4 years



Sally-Anne Test: Findings

80% 'typical' children and 80% Down syndrome children succeeded at task

Only 20% Autistic Spectrum children succeeded

Unlikely to be due to general learning difficulties, as children with Down Syndrome were successful

ASD children - problems understanding that another person may have a false belief

Suggested: Lack of ToM – a causal role in ASD

Theory of Mind (Autism)

Baron-Cohen (1986): Asked children to reassemble picture stories
(4 pictures in each)

- **Mechanical** story – no people
e.g. a balloon blowing away and bursting on a tree
- **Behavioural** story – included people but did not require an understanding of what they were thinking
e.g. boy going into shop and buying sweets
- **Mentalistic** story – required an understanding of the beliefs about the characters in the pictures
e.g. mother eats last biscuit from box while boy out playing



Story Tests: Findings

- Baron-Cohen (1986) Findings
 - ASD children
 - Success at Mechanistic and Behavioural stories
 - Mentalistic stories...
 - pictures put in jumbled order.
 - could not explain why boy looked surprised when he came in and opened the box

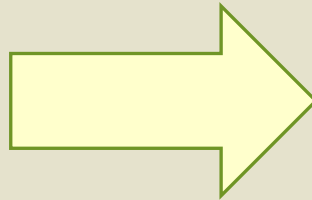
Executive Function (Autism)

A set of functions deemed necessary for flexible, future-oriented behaviour, often in novel circumstances

Two essential features of EF:

Retention of information in working memory

Inhibition of prepotent responses (responses with immediate reinforcement available)

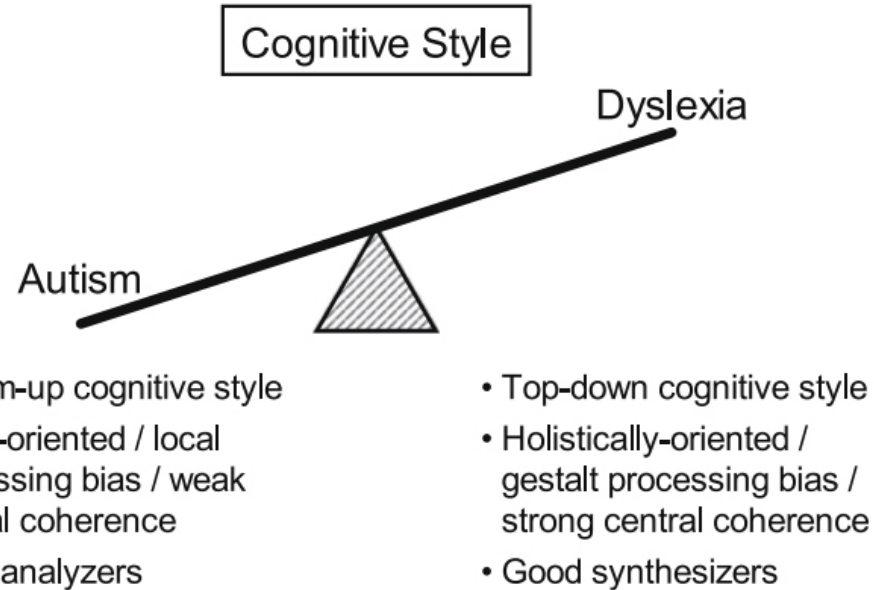


Causal role in ASD

Developing around time of development of theory of mind (approx. 4 yrs)

Advancements in ToM and EF linked (executive role implicated in ToM tasks) (*Pellicano, 2007*)

Weak Central Coherence (Autism)



Processing bias

More focus on featural or local information

Impaired ability to see the larger context in everyday life (the big picture)

Research emphasis on processing bias / cognitive style rather than a core deficit in central processing

Exists alongside deficits in social cognition (e.g. theory of mind).

– **not** suggested to cause/explain ASD

(Happe and Frith 2006)

Asperger's Syndrome

Hans Asperger – a Viennese medical student– 1944 – his work not translated into English until 1981 and entered into the DSM IV in 1994

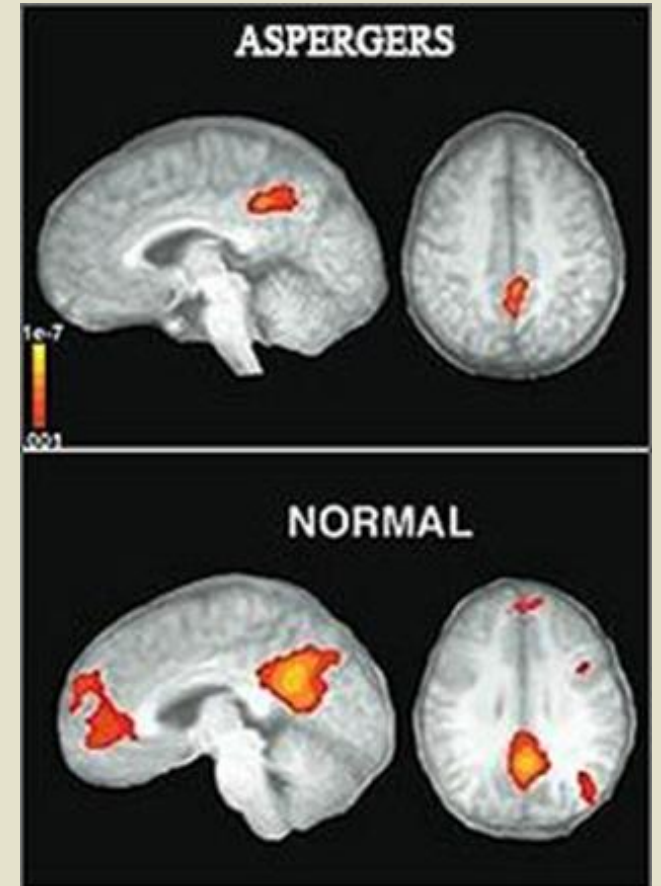
- Impairments in social interactions, and presence of restricted interests and activities
- Social impairment, restricted interests, repetitive behaviours
- 'Eccentric', 'odd' behaviours – nonverbal learning disability, need for sameness, physical awkwardness, social skills issues, emotional instability
- Not associated with severe delay in language development, social interactions or age-appropriate self-help skills
- Usually appears later than in other ASDs
- Average to above average intelligence



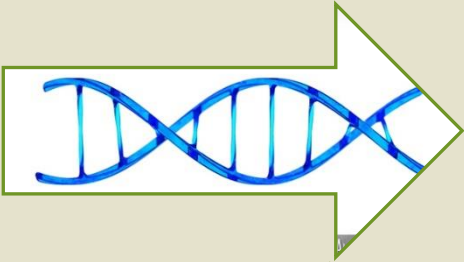
Asperger's Syndrome

Linked to:

- Severe, sustained impairment of interpersonal interactions (facial expression, body postures, gestures)
- Failure to develop peer relationships (National Autistic Society: <https://www.autism.org.uk/about/communication/social-isolation.aspx>)
- Higher rate of suicide during adolescence than among typically developing adolescents (e.g. Fitzgerald, 2007)

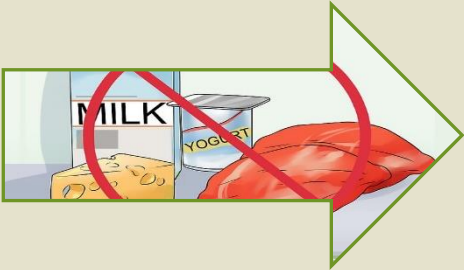


Aetiology of Autistic Spectrum Disorders: Genetics



Tiny and rare variations in genes increase risk of Autism Spectrum Disorder (ASD) (*Autism Genome Project, 2007*)

‘Faulty wiring’ – glutamate neurotransmitter system



Often co-occurs with PKU (*Smalley, 1998*)
Implies a genetic link



Twin studies – concordance rates

MZ twins: between 60 and 91% DZ twins: between 0 and 9%

Triad of impairments: social impairments, communication impairments and repetitive behaviours show high levels of heritability (*Ronald et al, 2006*)

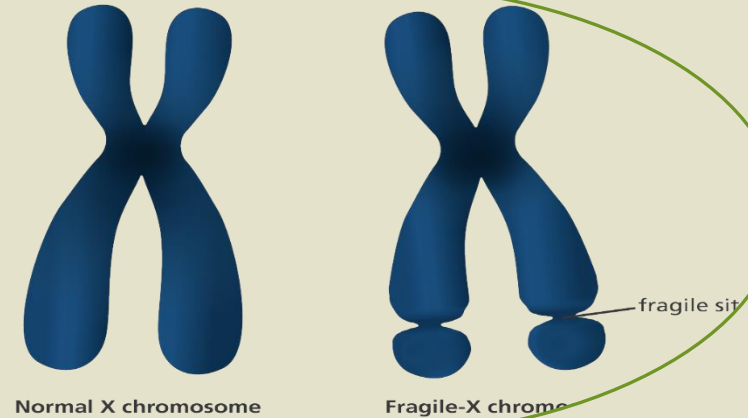
Aetiology of Autistic Spectrum Disorders: Chromosomes

Link with a number of chromosomal disorders including tuberous sclerosis and fragile X syndrome

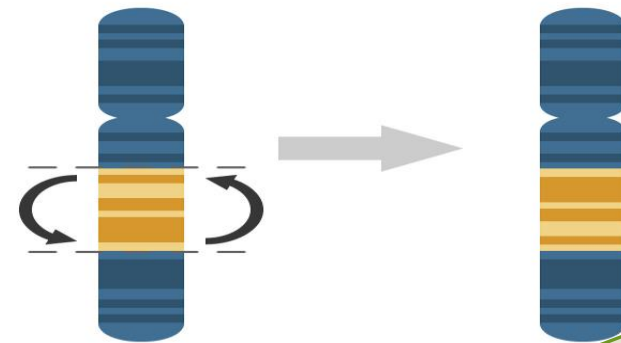
Autistic disorder linked to duplications, deletions and inversion of chromosomes
(*e.g. Wolpert et al, 2001*)

But accounts for relatively few instances (fewer than 10%)

(*Folstein and Rosen-Sheidley, 2001*)



Inversion



Aetiology of Autistic Spectrum Disorders: Biochemical factors

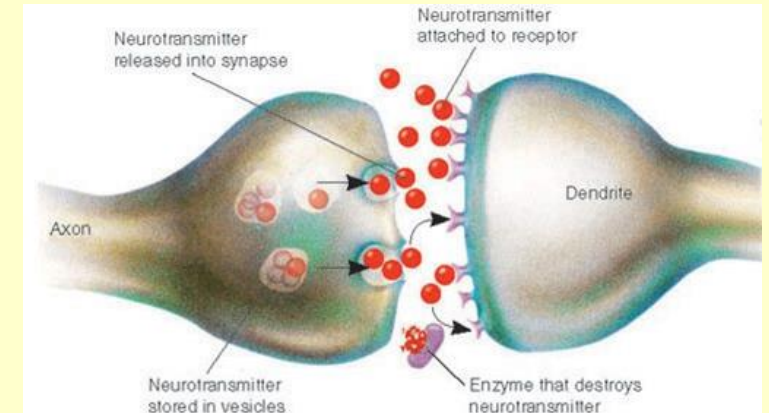
Neurotransmitters

Early studies suggested low levels of dopamine and serotonin – essential for effective cognitive, behavioural and motor functioning and mood regulation (*e.g. Ernst et al, 1997*)

Possibly due to destruction of neurotransmitters by
degradative enzymes

But - research has been inconclusive – methodological issues

e.g. small samples sizes, different research methodologies, experiment control issues



Aetiology of Autistic Spectrum Disorders

Perinatal factors

Prenatal factors (e.g. rubella during pregnancy, intrauterine exposure to certain drugs, depressed maternal immune functioning) generally found in individual case reports – probably account for small percentage of cases of ASD (*Frombonne, 2002*)

- e.g. rubella almost eradicated from Western countries

Postnatal events

- Recent studies failed to identify link between infectious diseases in first two years of life and autism
 - e.g. inflammatory bowel disease,
 - MMR vaccine (*Wakefield et al, 1998*) now discredited

Aetiology of Autistic Spectrum Disorders: Brain Abnormalities

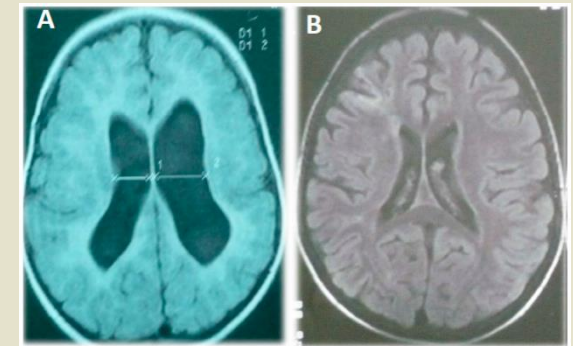
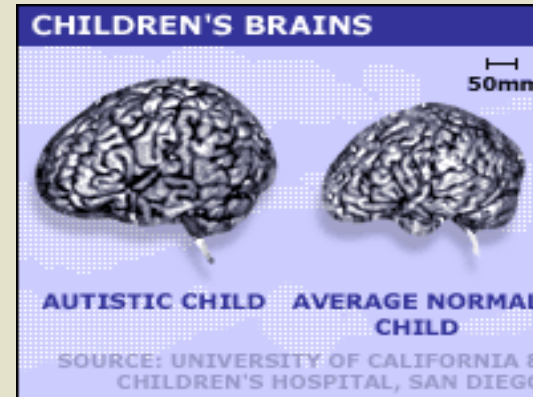
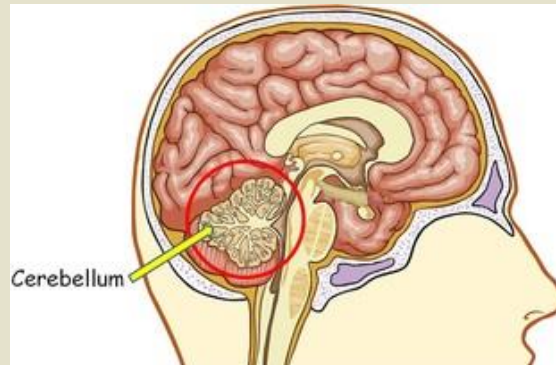
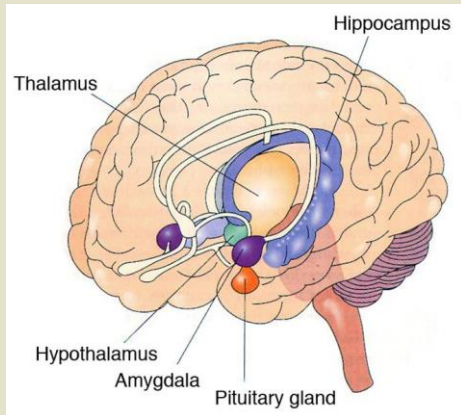
Autopsy studies, fMRI and EEG studies – evidence of link between abnormal brain development and autism

Autopsy studies findings include...

Limbic system – smaller and more dense than normal, dendrites shorter and less well-developed

Cerebellum – associated with motor skill deficits (e.g. balance, dexterity and grip)

Overly large brain size and enlarged ventricles in the brain



Aetiology of Autistic Spectrum Disorders: Brain Abnormalities

fMRI

Frontal lobes, limbic system, cerebellum, basal ganglia

(Sokol and Edwards-Brown, 2004)

Confirm larger brain size and poorer neural connectivity

Lack of theory of mind – linked to decreased activation of prefrontal cortex and amygdala *(Castelli et al, 2002)*



EEG

- Abnormal EEG pattern in frontal and temporal lobes, some clinical seizures *(Dawson et al, 1995)*



Treatment and Care

Difficult due to a range of factors, including...

- resistance to change, lack of response to outside world, lack of interest in reinforcers, over-selective attention (learning situation specific?)

Drug treatments:

Antipsychotic most common to help control behaviours

Can reduce repetitive behaviours, social withdrawal, aggression and challenging behaviour (hyperactivity, tantrums, mood swings, self-abuse)

But:

Not all children responsive to these drugs.

Side effects include dizziness, sedation, appetite increase, dyskinesias (*Campbell et al, 1997*)

Treatment and Care

Behavioural training methods:

Basic self-help, social and communication skills

Modelling and Conditioning e.g. reinforcement of eye-contact, toileting behaviours, play with peers...

Sign language if required

Few assessments of the efficacy of training methods, but may be the most effective way of promoting social functioning over the long-term

Time-consuming and repetitive

Need to train parents

Child learns appropriate behaviours for familiar environments

Treatment and Care

Inclusion strategies:

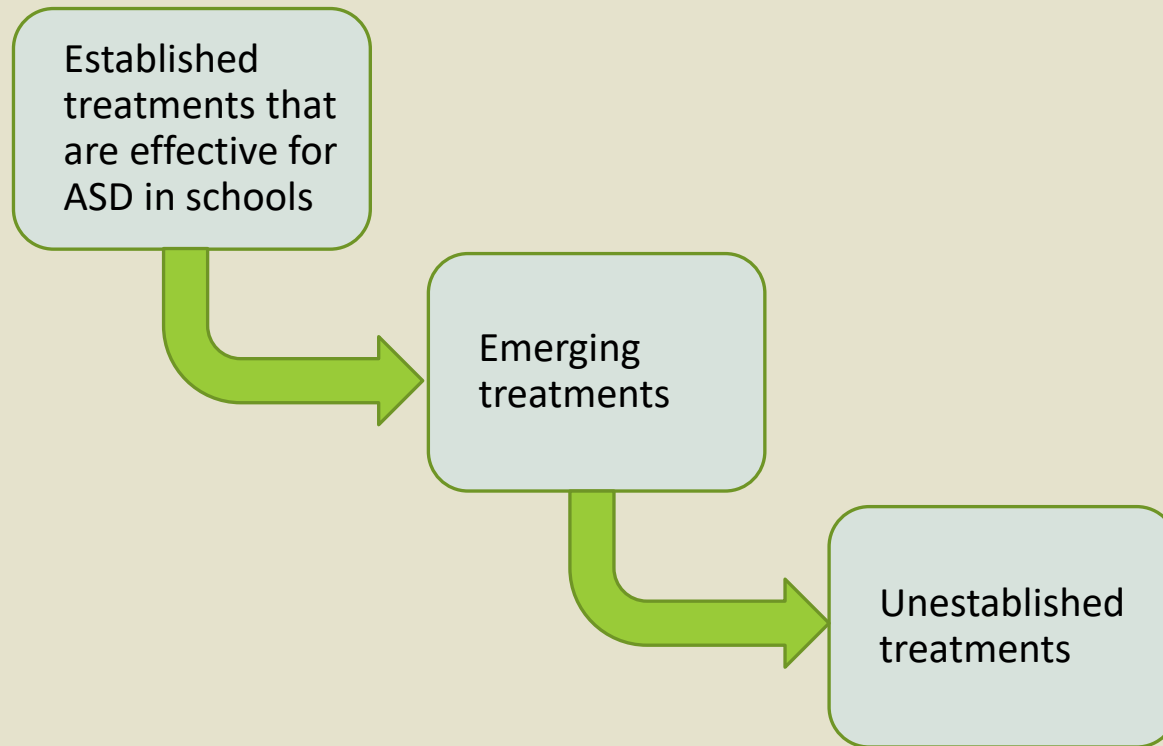
Help with important life skills and transitions e.g. finding and maintaining employment – ‘supported employment’ (supports employee and employer)

Increases rates of employment *(Mawhood and Howlin, 1999)*

Increases integration, satisfaction and self esteem *(Kilsby and Beyer, 1996)*

Treatment and Care

School Based Treatment and Intervention



Established Treatments

1. Antecedent Package
2. Behavioural Package
3. Comprehensive Behavioural Treatment for Young Children
4. Joint Attention Intervention
5. Modelling
6. Naturalistic Teaching Strategies
7. Peer Training Package
8. Pivotal Response Treatment
9. Schedules
10. Self Management
11. Story Based Intervention Package

Treatment and Care

Asperger's specific treatment

- Psychotropic medication (antidepressant, antipsychotic)
- Mood stabilizers (e.g. lithium)
- Behavioural treatments e.g. social-behavioural learning strategy intervention (*Bock, 2007*)

Reduces problem behaviour, improves co-operative learning activities with peers

ASD across cultures

de Leeuw, Happé and Hoekstra (2020):

- Autism research is heavily skewed toward western high-income countries
- A clear overview of the possible cultural and contextual factors that may affect the process of identifying and diagnosing individuals with autism spectrum disorders (ASD) is missing

Golson, Ficklin and Haverkamp (2022):

- Culture is an influential factor in expectations for, and demonstration of, social communication and interaction skills
- There is limited research published in autism journals on this topic.

ASD across cultures

Atherton, Morimoto, Nakashima and Cross (2023)

- Cross-cultural research from several domains reveals the subjectivity inherent to what is considered “normal” across cultures
- Research into the prevalence and lived experiences of autistic people and their families in Japan reveals the complexity of understanding neurodevelopmental conditions in non-Western countries

Roche, Bush and D’Angelo (2018)

In the United States, cultural minorities with autism spectrum disorder (ASD) are

- Diagnosed less frequently and later in life than are White Americans
- Less likely to receive evidence-based interventions, and they often start receiving treatment at later ages.

A photograph of a young child with short, light brown hair, seen from behind. The child is wearing a mustard yellow corduroy jacket with red sleeves. They are standing in a field of purple heather, looking out over a vast, slightly hazy landscape. The lighting is soft, suggesting late afternoon or early morning.

**"A child with autism is
not ignoring you, they
are waiting for you to
enter their world."**

 **AUTISM SPEAKS®**

Useful reading - Culture

Atherton, G., Morimoto, Y., Nakashima, S., & Cross, L. (2023). Does the study of culture enrich our understanding of autism? A cross-cultural exploration of life on the spectrum in Japan and the West. *Journal of Cross-Cultural Psychology*, 54(5), 610-634.

de Leeuw, A., Happé, F., & Hoekstra, R. A. (2020). A conceptual framework for understanding the cultural and contextual factors on autism across the globe. *Autism Research*, 13(7), 1029-1050.

Golson, M. E., Ficklin, E., Haverkamp, C. R., McClain, M. B., & Harris, B. (2022). Cultural differences in social communication and interaction: A gap in autism research. *Autism Research*, 15(2), 208-214.

La Roche, M. J., Bush, H. H., & D'Angelo, E. (2018). The assessment and treatment of autism spectrum disorder: A cultural examination. *Practice Innovations*, 3(2), 107.

Useful Reading - General

Baron-Cohen, S. (2001). Theory of mind and autism: a review. *Special Issue of the International Review of Mental Retardation*, 23, 169. (on Google Scholar)

Butcher, J. N., Mineka, S., Hooley, J. M. (2007). *Abnormal Psychology (13th edition)*. London : Pearson/Allyn and Bacon

Davey, G. (2008). *Psychopathology: Research, Assessment and Treatment in Clinical Psychology*. Oxford : Wiley-Blackwell

Happé, F., Frith, U. (2006). The weak coherence account: detail focused cognitive style in autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 36 (1), 5-25.

Pellicano, E. (2007). Links between theory of mind and executive function in young children with autism: clues to developmental primacy. *Developmental Psychology*, 43 (4), 974-990.

Pellicano, E., (2010b). Individual Differences in Executive function and central coherence predict developmental changes in theory of mind in autism. *Developmental Psychology*, 46, 530-544.

Roth, I. (2010). *The Autism Spectrum in the 21st century: exploring psychology, biology and practice*. London : Jessica Kingsley