

enlarged brain volume

autism = less activity of mirror neurons in frontal lobe

Neurobiology

- **Macrocephaly (20% cases)**
 - not observed at birth,
 - postnatal growth acceleration (0-12 mos)
 - Returns to normal range by adulthood
 - most prominent in the frontal lobes and anterior temporal regions
 - May indicate abnormal neural connectivity and a local processing bias (details>big picture) (White, 2009)

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Mirror Neurons in Autism = empathy

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↑ brain growth in first yr of life
thinking casein and gluten-free diets are better for ASD

ASD: Social Deficits

Individuals with autism look at mouths, rather than eyes in observing social interaction

Social Deficits

- * limbic system dysfxn
- * Theory of Mind difficulty conceptualizing other person's point of view

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Attention-Deficit & Disruptive Behaviors

- **ADHD: Attention-Deficit/Hyperactivity Disorder**
 - Must have impairment before age 7
 - Impairment in 2+ settings
- predominantly inattentive
- predominantly hyperactive-impulsive
- combined type
- ADHD NOS

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avoid eyes focus on mouth
prefer to look at objects rather than people

Genetics of ADHD

- Heterogenous yet highly heritable
 - Heritability 60-90%
- 18 + susceptibility genes found
 - DAT, D4 & D5 receptor genes among the most studied
 - DAT overactive?
 - Abnormal NE?

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Environmental impact on ADHD

- Low birth weight/prematurity
- Maternal smoking/alcohol
- Exercise
 - Improves executive function, ↑DA release?
- Diet
 - Western diet=probably bad
 - Elimination of dyes, food antigens
 - Omega-3 supplementation
 - More info: Millichap & Yee. 2012. The Diet Factor in Attention-Deficit/Hyperactivity Disorder. Pediatrics.

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Depression is about 40% heritability

stimulants ↑DA & NT frontal cortex, ↑DA in striatum

smaller total brain volume in all lobes & cerebellum
global thinning of all grey matter

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