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The Origins of Autism

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Abstract

The neurobiological and naturally selective roots of autism revolve around the testosterone effect, the extreme male brain theory and various post-hoc hypotheses that state the advantages of neurodivergence in the ancestral plain. Then reverting to a modern-day context, testosterone and lower-functioning autism cases are on the decline, however, neurodivergence as a whole is on the increase. Papers on the inbreeding of hominid ancestors explain the overlap of neurodivergent genes such as Attention-Deficit Hyperactivity Disorder (ADHD) and autism. Then it comes to an ultimatum that without the inhibition of testosterone, autism returns to its naturally selective roots in an information-based, individualistic society and shows that we as a society must become far more educated and understanding of neurodivergence as it will continue to become increasingly common as we are all integrated into the spectrum.

Keywords: Attention-deficit hyperactivity disorder; Autism; Sally-Anne test; Neanderthal; Testosterone

Review of Literature

Autism is a communicative disorder characterised by its introversion and inability to comprehend social cues. Research in this specific area is an emerging field as only in the 1980s with the Sally-Anne test have we been able to show a distinction between autistic children and those with Down's syndrome and that the absence of a theory of mind is a trait exclusive to autism [1]. The DSM-IV was the first edition to recognise autism as a spectrum disorder due to the variety of autistic functioning. It was initially believed that 10% of people with autism demonstrate a special skill but a recent study suggests it could be as high as 1 in 3 [2]. It is estimated that 1% of the population has autism, however, due to it becoming increasingly common over the generations and is more common in some places of the world than others such as the UK where the percentage of the population undiagnosed with autism could be as high as 1 in 50 [3,4]. Due to these findings, it has been suggested that autism itself could be naturally selective as autism heritability is suggested to be around 90% [5]. The solitary forager hypothesis states autism genes have been naturally selected as they create cognitive and adaptive advantages that allow us to forage alone better, being independent of their mothers and not being distracted by social norms and environments allows them to efficiently gather more resources which has then allowed them to appeal more to the opposite gender via these resources [6]. A Darwinian approach to medicine also states that autism

could have had an advantage in the ancestral environment. Overlaps with other genes such as ADHD have also shown that these genes may be grouped together causing an overlap in autism and ADHD cases, again this is reflected in modern society as a lot of scientists and famous people are autistic such as Einstein, Elon Musk, Isaac Newton, George Orwell, Mozart, Carl Jung and Benjamin Franklin.

Geist et al., explored evolutionary combat [7]. This later became the close-combat hypothesis in which certain autistic stimming or sensory traits have been seen as beneficial in combat such as walking on tip toes, biting, chasing and mimicking animal sounds. Leif Ekblad proposed the neanderthal theory for autism based on Geist's research and later verified the correlation between neurodivergence and these specific traits in the Aspie quiz [8].

A recent study found autistic participants had a higher prevalence for rare Neanderthal-derived genetic variants compared to non-autistic controls. These genetic variations occur in less than 1% of the population and were found to be more common in certain ethnic groups than others [9]. The researchers explained this as the effect of hybridisation which is the inbreeding of multiple hominid species on the evolutionary tree, these genes for naturally selective neurodivergence such as autism and ADHD then become interlinked as they are found in the same gene pools and



are passed down the generations. Although this evidence proves the genetic component to autism, its natural selective component was disputed by a study that suggested autism and other forms of neurodivergence are merely natural human variations and gave no significant advantage in the ancestral plain due to low functioning cases [10].

There is evidence to suggest that autism is caused by prenatal testosterone exposure in the womb [11]. If autism was caused by testosterone exposure then a significant amount of women with autism would be more typically masculine. Yet autism is incredibly hard to diagnose in women due to their natural social sensitivity and awareness causing an increased in masking autistic traits. Lower levels of blood oxytocin levels have also been found in autistic children which provides a biological explanation for their social aversion [12]. The extreme male brain theory for autism states that testosterone may be the causing factor of autism as a typically autistic brain's structure is emphasised in the areas that are larger in males such as a more disconnected corpus callosum, less neural pruning and less lateralised thinking which results in being drawn to systemising (which causes their lack of imagination) as opposed to empathizing [13].

Testosterone levels in men are at an all-time low and autism is at an all-time high as 1 in 36 children are suspected to have autism whereas Baron-Cohen's paper 4 decades prior stated it to occur in 4 in every 10,000 children [14,15]. Approximately 30-70% of autism cases are high functioning, if testosterone did overload the genes for autism then cases of low-functioning autism should be decreasing whereas autism itself continues to increase as it retakes its naturally selective roots without the inhibition of testosterone [16]. As autism is still beneficial today in regards to education and climbing higher in an information-based society then that may explain the rise in autism as it has become more socially acceptable and autism awareness programs help to educate people about the forms of autism.

Autism could continue to rise as we are all integrated into the spectrum due to the lack of testosterone causing the communicative disorder to stabilise. However, what we know about autism could drastically change as all we know comes from autism's correlation to the male brain structure and its associated behaviours such as social aversion and systematic thinking. The autism genes may conflict with the emphasised male brain structure causing the lowered functioning. However, without it's inhibition, our course of evolution could be steered by

these autism genes.

References

1. Baron-Cohen S, Leslie AM, Frith U (1985) Does the autistic child have a "theory of mind"? *Cognition* 21: 37-46. [Crossref], [Google Scholar], [Indexed]
2. Howlin P, Goode S, Hutton J, Rutter M (2009) Savant skills in autism: Psychometric approaches and parental reports. *Philos Trans R Soc Lond B Biol Sci* 364: 1359-1367. [Crossref], [Google Scholar], [Indexed]
3. (2024) What is autism? National Autistic Society.
4. O'Nions E, Petersen I, Buckman JEJ, Charlton RA, Cooper C, et al. (2023) Autism in England: Assessing underdiagnosis in a population-based cohort study of prospectively collected primary care data. *Lancet Reg Health Eur* 29: 100626-100626. [Crossref], [Google Scholar], [Indexed]
5. Sandin S, Lichtenstein P, Kuja-Halkola R, Hultman C, Larsson H, et al. (2017) The heritability of autism spectrum disorder. *JAMA* 318: 1182. [Crossref], [Google Scholar], [Indexed]
6. Reser JE (2011) Conceptualizing the autism spectrum in terms of natural selection and behavioral ecology: The solitary forager hypothesis. *Evol Psychol* 9: 207-238. [Crossref], [Google Scholar], [Indexed]
7. Geist V (1978) *Life strategies, human evolution, environmental design: Toward a biological theory of health*. Springer-Verlag, New York. [Google Scholar]
8. Pfuhl G, Ekblad L (2008) Neurodiversity traits linked to Neanderthal admixture. [Crossref], [Google Scholar]
9. Pauly R, Johnson L, Alex FF, Casanova EL (2024) Enrichment of a subset of Neanderthal polymorphisms in autistic probands and siblings. *Mol Psychiatry* 29: 3452-3461. [Crossref], [Google Scholar], [Indexed]
10. Jaarsma P, Welin S (2012) Autism as a natural human variation: Reflections on the claims of the neurodiversity movement. *Health Care Anal* 20: 20-30. [Crossref], [Google Scholar], [Indexed]
11. Dooley N, Ruigrok A, Holt R, Allison C, Tsompanidis A, et al. (2022) Is there an association between prenatal testosterone and autistic traits in adolescents? *Psychoneuroendocrinology* 136: 105623. [Crossref], [Google Scholar], [Indexed]
12. Hess P (2022) The connection between oxytocin and autism, explained. *Spectrum*.
13. Baron-Cohen S (2002) The extreme male brain theory of autism. *Trends Cogn Sci* 6: 248-254. [Crossref], [Google Scholar], [Indexed]
14. Smith J (2024) Why are men's testosterone levels decreasing? *Medichecks*.
15. Robison JE, Gassner D (2023) There is no epidemic of autism. It's an epidemic of need. *STAT*.
16. Zauderer S (2024) What Percentage of autism is high functioning? *Cross River Therapy*.