

What an Epigenetic Factor Eventually Develops Autism Spectrum Disorder

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LAY SUMMARY

The autism spectrum disorder (ASD) often refers to individual living with mental disorder featured in society-life phobic and almost absent interests when likely self-abundance in repetitive dull behaviors [1] and more commonly manifested at 2 years old. Besides come with a long-haul physical/mental management and without better references wherewith to protocols, these children most often have to experience their worse prognosis—premature mortality for organs fail. Well, to ASD prevalence soaring, parents have to concern their offsprings nowadays exposure. When synchronize incidence with 2017 and 2021 around the world [2], there is almost double elevation 1/127 on the ground of 1/247 over time, and the magnitude of total wrecks are speculated already up to 61.8 million. Firstly, genetic factors should shed light on this developmental disorder [3] due to questionnaire and consulting both work on those families with autistic members and, always contributes two cases or more than in someone. Meanwhile as a corroboration knocks off certain genomes in female mice the *in vivo*, treated dams may deliver autistic offsprings [4]. Yet, how to explain these aberrant genes are transmitted smoothly downstream among people available to willfully wreak incidences everywhere while spot the less likelihood for these autistic adults going into marriage in favor of themselves procreation which oxymoron motivates that presented genetic disorder at most contributes the minority in epidemiology.

Of course, to medical attention commonly updating last years, many cases discovered is credited; at least correlates to applications including the new diagnostic criteria to contain much more and the novel etiological technology for precisely lesion located and government spares resources to warrant specific health Action against ASD in effect. With data released from CDC [6] that show the results from ASD surveillance among children aged between 4 and 8 years; in the case of medical attention disparity between California and Texas both within a nation, it is hard to conclude that nuance existing among two available to contribute up to 5 folds of incidence. Conversely, while spot myriad coronaviruses already invaded into human communities last two decades, the CDC data can be interpreted so: The ASD prevalence escalating relevant to covid rampage on the earth especially since 2020 sparked SARs-COVID-19 surge. Accordingly, myriad epigenetic factors induce genetic expressions go wrong [5] in either mother, fetus, or neonatal to develop ASD as well is another mainstream. Secondary to maternal infection in trimester autistic labor develops that has already been thought much of [7] that refers to the hazard ratio 2.98 especially to bacterial during the first trimester; second decreases to 1.42. Notwithstanding, an interesting zoopery in MIT or Harvard laboratories, infection fever can perform dual roles [4]—what with as a demon who reaches out to wreak autistic labors; what with as an angel, works for these autistic infant mice to experience reversal symptoms thus to spark a hope ever aroused in an anecdote early circulating in folk since 1980 [8] during flu season that parents reported autistic symptoms improving while their autistic children with pyrexia and then referred to some caregivers to testify. These instances have long been objective evidence absents.

Besides infection, we may have other investigation upon preterm birth [9] and lower birth weight and small for Gestational Age Infants [10] contrasting with parental advanced age [11], even to maternal eating disorder [12] or maternal medication [13] the iatrogenic; however, the cited pathology, as good as in infection postulation, mostly is speculated the neonatal cerebral cortices or subcortices initialized in deformity which grey/white matter may manifest in thickness [14] measurable in magnetic resonance imaging. Well, speculate down the way from maternal conditions to their offsprings but what is the pathological conduction to retard or tackle neonatal mental progression? To answer this question, we propose a pathology other than above-mentioned hypotheses: The autonomic nervous system (ANS) performs poorly, nonorganic but due to glucose famine.

Keywords: The Fourth Ventricle; Autism Spectrum Disorder; Autonomic Nervous System; Etiopathogenesis; Sexual Hormone; Mucosal Hypoplasia; Trimester

Abbreviations: ASD: Autism Spectrum Disorder; CSF: Cerebrospinal Fluid; FV: Fourth Ventricle; ANS: Autonomic Nervous System; FVD: Fourth Ventricle Disorder; TRCP: Trans-Rhino cranium Pathway; NW: Nervous Whipping; ENS: Empty Nose Syndrome; GI: Gastrointestinal; FRO: Female Reproductive Organs; T2DM; Type II Diabetes Mellitus

The Fourth Ventricle Disorder

A reservoir full with cerebrospinal fluid (CSF) denoted by fourth ventricle (FV) is situated for ventral to the brainstem; and dorsal to cerebellum. It is well-known that inside brainstem is there vegetated/involuntary centers we call autonomic nervous system (ANS) with myriad neurons or neuronal clusters distributing to fulfill several innervated tasks, wherein not only the vagal nerve mixed with sympathetic and parasympathetic to work all viscera regulation in body; or reward system consisted of substantia nigra and nucleus accumbens which exerts dopaminergic impulse bound for amygdala; and reticular formation to modulate consciousness, cardiovascular, posture, muscle tensor, breathing rhythm or patterns, and etc. In sum, they sustain involuntary/autonomic motor to survive host such as the inner diameter of air pipe for breath which present number may result from a balance yielded among temperature, humidity, oxygenic saturation, and myriad recessive factors exposure while human can scarcely sense this regulation so frequently in lining on contrary, sensitive to a bit of paresthesia occurring. Hereby, the phrase of "fourth ventricle disorder" (FVD) as a general name conferred to denote ANS with energy-metabolism disorder. Herein context is glucose shortage correlative to a specific pathway we call trans-rhinocranium pathway (TRCP) which transmits glucose, and found in our practice of antagonizing covid symptoms with nasal sterilization just through which, we observed individual with asynergia a manifestation of totter [15] after nasal lining exposed in cryogenically ethanol solution. Obviously, down this way nasal mucosa can cast itself effectively influence on FV.

Answer why there is a so-special energy canal rarely mentioned among literatures available to well-established should at all thank to neurons fail in glycogen synthesization like liver or muscle with glucose [16]. For glucose import into CSF, blood-brain-barrier is often cited as a gate responsible to separate CSF from serum even more secures necessary exchanging including glucose's transcranial transferring. Regard to this mechanism, we boldly assume that CSF which main task is securing a regular demand presenting the means of all neurons in cranium enough for subsisting anything but to maintain a component required with quick-responding like ANS which busy yielded to varieties stresses occur and corresponding peripheral sensory signals generated. In way of frequently raising or suppressing blood pressure correspondingly to secure ANS uptake glucose, *per se* is unworthy for spare a global alteration frequently to release a local soaring deficiency since likely impacts elsewhere in body significantly. TRCP applied actually sounds a solution with cost-effectiveness well obtained of on its own way to feed ANS at any time and the importance is ANS may routinely work while less disturbs blood pressure. As contributor to TRCP mechanism, nasal mucosa certainly can be the Achilles' heel for its spontaneous exposure to external milieus when pathology attack severely curtails the glucose supply to FV, accounted for starving.

Mental Whipping

If try to shed light on ASD secondary to FV starved thus ANS less works, then first to get across the role ANS performs inside the innervated regulative complex: As an inferior executive agency accepts orders from those superior cortices or subcortices such as amygdala as well as whereto the dopaminergic impulse emitted. These orders will be modulated equal to be translated to varieties of signals as instruction to drive organs [17]; moreover, when success such an instructed regulation, cortices involved can relieve its corresponding somatosensory attack and a message may be dopaminergic impulse released immediately meanwhile, this event experienced likely to be translated as a part of memory build in hippocampus as learning instance [18] referenced as sophisticated exertion. Additionally, ANS and organs can commonly constitute an autonomic machinery to do routine regulation when dependent on nervous reflex that embodies auto-responding in which, hippocampus data reference may render indispensable of smart exertion. Nevertheless, with dominance of consciousness responding to somatosensory information, cortices involved still can dictate whether reach out to interfere with ANS regulation for correction or further enhancement by orders.

It can be seen that while FV malfunction means duplex communication between amygdala and ANS is virtually cut off. Result not only in that viscera regulation absents to let intervention downstream from superior cortices involved bound for ANS becomes insignificant, much less to relieve somatosensory attack, we call this wrought mental symptom *nervous whipping* (NW). The serious presentation may be dopaminergic metabolism almost ceases in cingulate [19,20] *in vivo*. The cingulate as the anterior agency to modulate afferent signals for hippocampus [21] which failure may be interpreted learning in mice hippocampus thus absents for which smart and high-efficiency loses ANS amounting to exacerbate NW attack by increasing onset times or corresponding duration prolonging. For such mental attack, however, a systematic compensation strategy can be first to proactively evade exogenous stresses like social-interplaying or learning that is why autistic children stubbornly present so. To attack as a complication at least occurs in typical adolescent, individuals should be confused in why the experience of theirs always brings themselves to experience psychiatric suffering instead of successful emotion, yet the all may be less odds to improve. In terms of the pathogeny on nasal mucosa, we subdivide ASD into two phenotypes, primary and secondary.

Primary and Secondary

The above-mentioned ASD zoopery [4] intended to ascertain an anecdote by here we interpret as: The pro-inflaming agent IL-17a exposure brings the autistic mice's nasal epithelia with aseptic inflammation this may motivate individuals experience reversal symptoms. This is a recessive impetus of a tandem pathological process originally can promote delivering much more glucose through TRCP in

typic ones; now just relieves FV's hunger briefly. The similar story is as well in circulation that hydrophilous (water loving) [22] trait inhabits in autistic individuals. Hypoosmotic moisture exposure can exert hypotonic influence results in cations (H^+ or Ca^{+2}) escaping out from mucin film this covers nasal epithelia for cytoprotective [23] thus leaving phosphate or sialic acid roots profoundly in film complex which fixed results in stagnation lets mucin molecule lose electric neutral and turns to with negative electric charges amounting to mucosal exposure to electric shock. This strong physical stimulus likewise avails to proinflammation yielding and inflicted on epithelial membrane also promotes a reversal-symptom experience. This is a strong temptation, anyway, sometime likes Nymphs' seduction trapped the Greek Hylas; children likely drown in rivers or ponds in realistic.

As a trauma it also is dreadful, for example, ASD secondary to turbinectomy used to reshape air pipe for ventilation improvement to which, some practitioners select aggressively nasal dilatancy procedure. The patients likely complain of besides severe post-opt symptoms amid which the paresthesia appears in air pipe for which, Otolaryngological experts diagnose with the empty nose syndrome (ENS) [25] which etiopathogenesis thus far unclear, said impossible to improve at present. Nowadays, we can shed light on nasal mucosa overcut that prone to a possible progression to secondary FVD on the ground of etiopathology of ours. With a low responding or order/signal modulation, ANS this machine is unable to work parameters updated for ventilation by the help of learning in hippocampus for which means endless somatosensory signals blaming paresthesia rampage on air lining for air dynamic change. Whereas fail to adaptive ventilated regulative machinery availably works to develop ENS, for those tracheas and their branches henceforth which smart plasticity absents and replaced with stiff and cold experience in breathing like leaden pipe. This functional failure kind of motivates why those patients, innocent before; when carried out turbinectomy, today who suddenly resolved to inflict sanguinous violences on their specialists [24].

The failure relatives also occur in other organs with primary ASD, such as the highly prevalent aliment canal disorder [26] which most often presents gastrointestinal (GI) symptoms in malign constipation [1]. Since along with children growing, their trophic structure is updated from breast-feeding with a few of nutrient elements to tough food of grain and meats abounding for uptake; autistic children whose GI also presents hard to adapt these recipes altered from micro flora, autoimmunity, nutrient, or growthy demands corresponding to every growing phase. That thus explains these individuals with primary ASD whose lifespan; as though there are some arguments on figures of years [27], *status quo* is still quite shorter than typic ones. The interesting is both phenotypes, primary and secondary, sharing a nidus yet to which several mental symptoms sound a clinical difference may come down to cumulation of what individuals experience over time, rare versus rich respectively wrought learning malfunctions for primary insertion or adaptive update.

Sexual Difference Implicate a Recessive Nexus

The challenge, where it is at what the homogenous recessively presented in heterogenous maternal conditions *vide supra* may develop prospective autistic delivery. Compare to as complication secondary to great deficiency in mucosa that may implicate the pathologically hypoplasia occurs fetal nasal mucosa. Another main may come from sexual hormones because gender difference manifests in prevalence for male contribute the higher odds or majority of severe cases than female between 4:1 and 3:1 [28]. This figure implies the hyperandrogenism exposure in embryo is the potential culprit, at least involved. Depart from a fact that the testosterone (T) can enable Mullerian duct degenerates wherefore fails to develop to female reproductive organs (FRO) in male embryo within a typic development. While presume nasal mucosa and Mullerian duct are homo-histology with same receptors influenced by T, the *vide supra* why of gender difference presented in prevalence is acquired to explain though; yet, *de facto* is not that any male embryo must develop to with ASD although innate with Y chromosome always contributes a strong T expression; moreover, likely enhanced by exogenous, from maternity. Antagonize T is almost from mothers into embryo, the progesterone (P) exposure which protection, must reach out to umbrella FRO developing from T expression damage in Mullerian duct and, should in nasal mucosal, too. Nevertheless, the correlation between both hormones to influence nasal mucosal development still absents, still less to discuss is there the existence of critical third.

Over the interrogation trying to reveal the causal relationship between autistic delivery and hormones, there has been a deal of literatures contribute to this subject in the world. The commonly accepted results refer to higher titer of T in offspring serum [29] even relatives like female with congenital adrenal hyperplasia [30] more likely contribute autistic delivery. Additionally, P prevention works in dams' offsprings [31] is also well cited. The interesting is females with ASD and their parents referred to questionnaire. Besides mothers' high T [32], a profound influence most often entails in their offsprings' traits such as sexual oriented and their FRO development in future. Therefore, our etiopathogenesis sounds varieties of epigenetic factors eventually come down to genetic expression disorder that presents convergent on nasal mucosa.

Envision

The kernel inside our ASD etiopathogenesis involves maternal hormonal disorder, nasal mucosal pathology, and FVD and nasal mucosa and Mullerian duct share homogenous histology is the nexus to associate mother with her autistic children; at length defines this innervated disorder that significantly avails diagnosis, or prognosis, or specific medical attentions progress. For example, for FV's relieving hunger, we can consider the percutaneous way: Coating nose with sugar. We have reported an episode named BP of Honey Attack—via sugar's percutaneous uptake FV can cloy to develop hypertension [33]. Well, an importance derives from our innervated framework is

FVD develops hyperglycemia in serum that is not an anecdote [34] but the academic reports six out of eight (6/8) prevalence of type II diabetes mellitus (T2DM) in population with ASD. Against FV in hypoglycemia, high blood sugar may be a systemic compensation more common accounted for the resistant phenotype of T2DM.

References

- Autism Research Institute. What is Autism.
- Santomauro D, Erskine H, Ana M Mantilla Herrera, Paul Anthony Miller, Jamileh Shadid, et al. (2024) The global epidemiology and health burden of the autism spectrum: findings from the Global Burden of Disease Study 2021. *The Lancet Psychiatry* 12(2): 111-121.
- Jeremy Brown (2025) Who Carries the Autism Gene – Mother or Father.
- David Orenstein (2024) Understanding why autism symptoms sometimes improve amid fever.
- CDC Releases New Autism Prevalence: 1 in 31 Children in the U.S. Identified with Autism.
- Andreas RB Deolinda (2025) Epigenetics and Autism: Is There a Link.
- Atladóttir HÓ, Thorsen P, Lars Østergaard, Diana E Schendel, Sanne Lemcke, et al. (2010) Maternal Infection Requiring Hospitalization During Pregnancy and Autism Spectrum Disorders. *J Autism Dev Disorder* 40(12): 1423-1430.
- What Does High Body Temperature Reveal About Autism?
- Lin CH, Lin WD, I-Ching Chou, Inn-Chi Lee, Syuan-Yu Hong (2021) Is Preterm Birth a Risk Factor for Subsequent Autism Spectrum Disorder and Attention Deficit Hyperactivity Disorder in Children with Febrile Seizure? A Retrospective Study. *Life (Basel)* 11(8): 854.
- Lampi KM, Lehtonen L, Phuong Lien Tran, Auli Suominen, Venla Lehti, et al. (2012) Risk of autism spectrum disorders in low birth weight and small for gestational age infants. *J Pediatr* 161(5): 830-836.
- Lyall K, Song L, Kelly Botteron, Lisa A Croen, Stephen R Dager, et al. (2020) The Association Between Parental Age and Autism-Related Outcomes in Children at High Familial Risk for Autism. *Autism Res* 13(6): 998-1010.
- Mantel A, Ortvist AK, Angelica Lindén Hirschberg, Olof Stephansson (2022) Analysis of Neurodevelopmental Disorders in Offspring of Mothers with Eating Disorders in Sweden. *JAMA Netw Open* 5(1): e2143947.
- Zerbo O, Qian Y, Cathleen Yoshida, Judith K Grether, Judy Van de Water, et al. (2015) Maternal Infection During Pregnancy and Autism Spectrum Disorders. *J Autism Dev Disorder* 45(12): 4015-4025.
- Mensen VT, Wierenga LM, Sarai van Dijk, Yvonne Rijk, Bob Oranje, et al. (2016) Development of cortical thickness and surface area in autism spectrum disorder. *Neuroimage Clin* 13: 215-222.
- Tan Y (2025) Nasal Disinfection Managing Upper Respiratory Infection Reveals the Detriment of Autonomic Nervous System Ensuing Neurodegeneration Develops Neuropsychiatric Disorder or Systemic Hypometabolism Responsible for a Variety of Idiopathic Disorders. *Med Discoveries* 4(8): 1271.
- Pang Y, Yang J, Jingjing Liu, Zhengyi Xie, Jin Wang, et al. (2026) Metabolic interactions in the brain: the crucial roles of neurons, astrocytes, and microglia in health and disease. *Front Neurosci* 20: 1731771.
- Wang T, Tufenkjian A, Olujimi A Ajijola, Yuki Oka (2025) Molecular and functional diversity of the autonomic nervous system. *Nat Rev Neurosci* 26: 607-622.
- Benarroch Eduardo E (2021) 'Monoaminergic Systems', Neuroscience for Clinicians: Basic Processes, Circuits, Disease Mechanisms, and Therapeutic Implications. New York 2021, Oxford Academic, pp. 352-374.
- Haznedar MM, Buchsbaum MS, T C Wei, P R Hof, C Cartwright, et al. (2000) Limbic circuitry in patients with autism spectrum disorders studied with positron emission tomography and magnetic resonance imaging. *Am J Psychiatry* 157(12): 1994-2001.
- Thanos PK, Hanna C, Kenneth Blum, Abdalla Bowirrat, Keerthy Sunder, et al. (2024) Dopamine Dysregulation in Reward and Autism Spectrum Disorder. *Brain Sci* 14(7): 733.
- Klein MO, Battagello DS, Ariel R Cardoso, David N Hauser, Jackson C Bittencourt, et al. (2019) Dopamine: Functions, Signaling, and Association with Neurological Diseases. *Cell Mol Neurobiol* 39(1): 31-59.
- Christopher Bloh (2025) Autism and Water: What's the Connection?
- Blum K, Bowirrat A, Sunder K, Chaturvedi M, Kumar M, et al. (2011) A review on mucoadhesive polymer used in nasal drug delivery system. *J Adv Pharm Technol Res* 2(4): 215-222.
- Galaverni G, Adamo D, Anjana Chathanchirappattu Raj, Vincenzo Giuseppe Genna, Graziella Pellegrini (2026) Evidence-based approaches for Empty Nose Syndrome management: a systematic review highlighting current treatments and future directions. *Front Bioeng Biotechnol* 14: 1778266.
- Wen FB, Zhao S, Yang Yang, Dong-Lei Liu, Kai Wu (2015) Empty Nose Syndrome May Be the Chief Criminal Behind Many of the Worst Atrocities against Rhinologic Medical Staff in China. *J Surg Surgical Res* 1(2): 030.
- Madra M, Ringel R, Margolis KG (2021) Gastrointestinal Issues and Autism Spectrum Disorder. *Psychiatr Clin North* 44(1): 69-81.
- Jeremy Brown (2025) Autism Life Expectancy: What Parents Need to Know. *Autism Parenting Magazine*.
- Napolitano A, Schiavi S, Piergiorgio La Rosa, Maria Camilla Rossi-Espagnet, Sara Petrillo, et al. (2022) Sex Differences in Autism Spectrum Disorder: Diagnostic, Neurobiological, and Behavioral Features. *Front Psychiatry* 13: 889636.
- Dan Qiao, Chenyu Mu, Huan Chen, Di Wen, Zhao Wang, et al. (2025) Implications of prenatal exposure to hyperandrogen for hippocampal neurodevelopment and autism-like behavior in offspring. *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 136: 111219.
- Knickmeyer R, Baron-Cohen S, Briony A Fane, Sally Wheelwright, Greta A Mathews, et al. (2006) Androgens and autistic traits: A study of individuals with congenital adrenal hyperplasia. *Horm Behav* 50(1): 148-153.
- Mirza R, Sharma P, GT Kulkarni, Bhupesh Sharma (2024) Progesterone attenuate autism-like-phenotype through modulation of cerebral inflammation and oxidative stress. *Indian J Physiol Pharmacol* 68(2): 140-148.
- Erin Ingudomnukul, Simon Baron-Cohen, Sally Wheelwright, Rebecca Knickmeyer (2007) Elevated rates of testosterone-related disorders in women with autism spectrum conditions. *Hormones and Behavior* 51(5): 597-604.
- Yong Tan (2026) Myriad Evidence and Presentations Spell out Upper Respiratory Infection Should be Responsible to the Essential Hypertension Especially the Systolic Phenotype that Is a Functional Compensation Counteracting Chronic Hypoxia Attack on Ventral Brain. *Am J Biomed Sci & Res* 30(1).
- Chieh AY, Bryant BM, Kim JW, Li L (2021) Systematic review investigating the relationship between autism spectrum disorder and metabolic dysfunction. *Res Autism Spectr Disord* 86: 101821.

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