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Review Article

INCOMPATIBLE FOODS AND NEURODEVELOPMENTAL DISORDERS IN CHILDREN: A REVIEW OF THE EVIDENCE

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Article info	ABSTRACT
Article info Article History: Received: 27-05-2025 Accepted: 23-06-2025 Published: 07-07-2025 KEYWORDS: Autism, ADHD, Manasa roga,	Neurodevelopmental disorders such as Attention Deficit Hyperactive Disorder (ADHD), autism and anxiety are becoming more common in India, posing a significant economic and social burden on the country. Despite extensive research the exact causes of ADHD and autism remain unclear. Both conditions are multifactorial involving genetic, environmental and biological factors. Poor diet being a significant contributing factor for the increasing prevalence of neurodevelopmental disorders. Objective: Investigate the relationship between diet and neurodevelopmental disorders like ADHD and autism, and explore
Neuro- developmental disorders, <i>Viruddha Āhāra</i> .	Ayurvedic principles in understanding this relationship. Data source extensive research on neurodevelopmental disorders, Ayurvedic texts, and modern scientific studies on diet's impact on brain development and function. Review methods comprehensive review of existing research on neurodevelopmental disorders, Ayurvedic principles, and diet's impact on brain health, considering modern food consumption patterns. Result: Poor diet is a significant contributing factor to neurodevelopmental disorders. Consuming preserved foods, high sugar, and unhealthy fats leads to inflammation, oxidative stress, and disruption of the gut-brain axis. Conclusion: Ayurvedic principles provide valuable insights into the
	relationship between diet and neurodevelopmental disorders. Identifying new food incompatibilities relevant to modern food consumption patterns may help develop dietary interventions to prevent or manage these disorders.

INTRODUCTION

Neurodevelopmental disorders (NDs) affect brain function and neurological development, leading to challenges in social, cognitive, and emotional functioning. The term neurodevelopmental has been applied to a very broad group of disabilities involving some form of disruption to brain development. This definition groups together a very wide range of neurological and psychiatric problems that are clinically and causally disparate; for example, rare genetic syndromes, cerebral palsy, congenital neural anomalies, schizophrenia, autism, attention deficit hyperactivity disorder (ADHD), and epilepsy. ^[1]

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Among the most common NDs are autism spectrum disorder (ASD) and attention-deficit/ hyperactivity disorder (ADHD)^[2]. The rising prevalence of neurodevelopmental disorders (NDDs) may be linked to the increasing consumption of processed foods, which lack essential nutrients and contain artificial additives, excessive sugars, and harmful chemicals. Poor nutrition during critical periods of brain development can contribute to cognitive and behavioural issues, as deficiencies in omega-3 fatty acids, B vitamins, zinc, and iron are associated with conditions like ADHD and autism. Additionally, artificial food dyes, preservatives, and high sugar intake can cause inflammation, oxidative stress, and gut microbiome imbalances, all of which are neurodevelopmental dysfunction. implicated in Furthermore, endocrine-disrupting chemicals from food packaging and pesticides may increase risk. While multiple factors influence NDD prevalence, reducing processed food consumption and adopting a wholefood, nutrient-rich diet may support healthy brain development and cognitive function.

Ahara (diet) is regarded as one of the *Trayopasthambha* (three pillars of life), alongside Nidra (sleep) and Brahmacharya (regulated lifestyle and conduct) [2]. It plays a fundamental role in maintaining health. promoting longevity. and preventing diseases. Acharya Kashyapa, emphasized the significance of food by referring to it as "Maha *Bhaishajya*" (the supreme medicine) ^[3]. He highlighted that a well-balanced and wholesome diet not only nourishes the body but also acts as a powerful therapeutic agent, capable of preventing and even curing various ailments. According to Avurveda, food is not just sustenance but a crucial determinant of an individual's physical, mental, and spiritual well-being. Viruddha Ahara refers to food combinations that are incompatible due to their opposing qualities. methods, effects processing or on digestion. Consuming such incompatible foods can lead to the formation of Ama (toxins), causing various health issues like digestive disorders, allergies, skin diseases, metabolic imbalances, and neurological disorder. Acharva Caraka has mentioned that those who consume Viruddha Ahara are prone to insanity. fainting, intoxication.

It is well documented that the gut microbiota plays an important role in various diseases, and recent studies have shown that the gut micro biota influences the function of remote organs, mucosa, and the immune system. Dysbiosis, characterized by an imbalance in the gut microbiota, has been linked to various conditions such as cancer, cardio-metabolic and neurodegenerative disorder. ^[4] The link between neurological functions and gut microbiome is termed as gut-brain axis. The communication between the gut microbiota and the brain occurs via three primary pathways: the neural pathway (involving the vagus nerve and enteric nervous system), the immune pathway (through cytokines), and the endocrine pathway (involving the hypothalamic-pituitaryadrenal axis and gut hormones). Dysfunction in these pathways can result in the development of mental disorders. Certain prevalent gut microbial species from the Firmicutes and Actinobacteria phyla, along with the genera Bacteroides and Bifidobacterium, could potentially influence mental health conditions. ^[5]

Virudha ahara-Unmada samprapti

Viruddha Ahara (incompatible food) disrupts *Agni* (digestive fire), forming *Ama* (toxins) and vitiating *Doshas*, impairing *Manovaha Srotas* (mental channels). *Vata* aggravation leads to ADHD-like symptoms (restlessness, anxiety), *Pitta* vitiation causes aggression and hallucinations, and *Kapha* dominance results in autism-like traits (lethargy, mental dullness). ^[6](Figure 1)

Dietary classification in Ayurveda

Prakriti determination is significant for both individuals in a state of health and illness. By knowing and understanding individual's nature and constitution, the physician can advise appropriate food, drink, exercise which will aid in maintaining health and curing the diseased condition. While the Shareerika Prakriti involves bodily features, Manasika Prakriti is a very essential tool in psychometric analysis. It helps in comprehending the individuals mind set. The thought, actions and psyche of a person are based on three Gunas and the analysis of these three *Gunas* in an individual helps in better psychological assessment. These Gunas determine the Manasika Prakriti of person. Knowledge of one's Manasika Prakriti can aid in personal and professional development. treatment, diet and other regimens are also planned accordingly.

Virudha ahara in classical Samhita (Table 1)

According to *Acharya Charaka*, any food that dislodges the morbid doshas but does not expel out from the body is referred to be *Viruddhahara*. *Acarya Caraka* has mentioned 18 types of *Viruddha ahara*.

S.No	Type of Viruddha	Cause of Viruddha	Examples
1.	Desha viruddha	The food items having similar properties to that of <i>Desha</i> .	Eg: Having ice cream, milkshakes in <i>Anupa bhumi</i> (like near ponds).
2.	Kaala viruddha	Consuming food items having similar properties to that of <i>Kaala</i> (season).	Spicy chicken curry in summer and ice cream and juices in winter.
3.	Agni viruddha	Food taken without knowing the individual <i>Agni</i> .	Eating chips/popcorn in excessive hunger.
4.	Maatra viruddha	Food items which act as a <i>Virudhaahara</i> when mixed in equal proportion.	Cow's ghee and honey in equal proportion.
5.	Satmya viruddha	Consuming food items for which the individual is not used to.	Chinese and Italian food by Indians.

 Table 1: Virudha ahara in classical Samhitha^[7]

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6.	Dosha viruddha	Food items having similar properties to that of <i>Doshas</i> .	Sweet food in cough or curd in skin disease.
7.	Samskara viruddha	Food prepared by wrong methods (processed food).	Heated honey making jalebi /french fries in the reheated oil.
8.	Veerya viruddha	Consuming food with opposite Veerya.	Fish with milk, unripe mango with milk.
9.	Krama viruddha	Food consumed in wrong sequence.	Having gulab jamun after meal
10.	Koshta Viruddha	Food item taken without the proper knowledge of individual <i>Koshta</i> .	Having banana daily to a <i>Krura koshta.</i>
11.	Avastha viruddha	Consuming food without exact knowledge of own health and bodily conditions.	Oats meal to lean person.
12.	Parihara Viruddha	Consuming cold items after hot food.	Having ice cream after a hot carrot halwa.
13.	Paak viruddha	Food which are not properly cooked.	Partially cooked chicken/egg.
14.	Upachara viruddha	Consuming food items which are not supposed to consume after specific treatment.	Drinking cold water after giving <i>Virechana</i> drug.
15.	Samyoga Virudha	Consuming food items which are not supposed to combine with each other.	Mango milkshake
16.	Hrut Viruddha	Consuming food items which are not pleasant to consumer.	Some bitter medications to children.
17.	Sampat viruddha	Food items prepared using unhealthy ingredients.	Partially ripened /over ripened fruits.
18.	Vidhi viruddha	Consuming food without considering Ashtahara vidhivisesha aayatana.	Eating food kept for a long in fridge.

Table 2: Virudha ahara's used in the present era

S.no	Food items consumed by the children	Toxic metabolites produced and their action to brain
1.	Soft drinks	High amount of sugar has been shown to alter levels of beta endorphins, which is a opioid role in the pathophysiology of depression. sugar also impact oxidative stress and foster inflammatory process. Higher sugar cause insulin resistance which is also associated with elevated depressive symptoms. Most soft drinks contain caffeine, potential mediator on behaviour problems including aggressive behavior. ^[8]
2.	Cheese and milk products	Peptides with opioid functions derived from casein are presumed to affect the central nervous system via a leaky gut, whereby opioids leak through an inflamed and thinned gut lining in children with ASD. These opioid activities are then thought to play an important role in aggravating autistic symptoms in the CNS. ^[9]
3.	High sugar content gulab jamun, jalebi, pastries and doughnuts	Sugar content snacks cause massive secretion of insulin from pancreas resulting in hypoglycemia, which stimulate an increase in epinephrine, leading to activation of nervous reactions and hyperactivity disorder behaviors. ^[10]
4.	High salty snacks namkeen, chips	High salt diet leads to increased oxidative stress is associated with HS- induced endothelial dysfunction, oxidative stress, anxiety and metabolic disturbances. ^[11]

5.	White Bread /Biscuits	Bread makes the gut more permeable and can thus encourage the migration of food particles to sites where they are not expected prompting the immune system to attack both these particles and brain relevant substances that resemble them and releases opioid like compounds capable of causing mental derangement if they make it to the brain. ^[12]
6.	Instant Noodles	Heavy metals (Pb, Cr, Cu, Ni) and PAHs are present in some noodles these could effect the central nervous system. Also preservatives such as BHA, BHT, TBHQ and sodium benzoate. ^[13]
7.	French fries/Fried items	Acrylamide a proved rodent carcinogen and neurotoxic agent is present significant quantities in commonly consumed foods such as fried potato chips and French fries. ^[14]
8.	Packed foods/ready to eat meals	To reduce the mold in packaged food and to increase the shell life propionic acid (PPA) are added as preservative. It effects the development of differentiation of neuron in fetal brain in children. It also causes overproduction of glial cells the protective outer cells making up sheath covering neuron, with reduction in the number of neuron. ^[15]

Gut microbiome-Neurodevelopmental disorders

The gut microbiome is crucial for overall health, influenced primarily by diet and digestion. It varies among individuals and within different intestinal regions, with some microbes playing key immunological roles. Dysbiosis, or microbial imbalance, can result from factors like antibiotic overuse and incompatible food, contributing to conditions such as asthma, obesity, atopy, and autism spectrum disorders. The gut microbiome plays a crucial role in brain function and mental health through the gut-brain axis, a complex network involving the brain, immune system, endocrine system, enteric nervous system (ENS) and gut bacteria. This connection allows for a bidirectional flow of information between the gut and brain. The vagus nerve, a vital and extensive nerve in the body, provides the most direct communication pathway, regulating numerous internal processes. Additionally, the gut and brain communicate indirectly through various chemical messengers, including neurotransmitters, hormones, and peptides. The gut itself produces many of these bioactive compounds, which are also present in the brain, and their secretion is influenced by the composition of the gut microbiome. ^[16] (Figure 2)

Ayurveda explains that most diseases are caused by an accumulation of *Ama* or undigested food. *Ama* is initially formed in the digestive tract, but at a later stage of disease it can leak into the bodily tissues and turn into *Amavisha*, a reactive form of *Ama*, that leads to tissue disruption and chronic inflammation and disease similar to the gut leak syndrome.

Prenatal food and neurodevelopmental disorder

Maternal nutrition influences epigenetic modifications affecting fetal neurodevelopment. Micronutrients impact DNA methylation, while lipids and sugars affect mitochondrial function. Nutrient deficiencies can cause lasting brain changes, increasing the risk of neurodevelopmental disorders. Studies link high maternal caffeine intake to sleep, behavior, and learning issues, with excessive coffee consumption during pregnancy associated with higher ADHD risk in children. ^[17].

S.No	General dietary recommendation	Food Items
1.	Gluten free diet	Chapati (unless made with gram flour)
		Naan (almost always made with wheat flour)
		Kofta (sometimes filled with breadcrumbs)
		• Sevian (an Indian dessert made with vermicelli noodles)
		• Whole wheat flour and its products such as rawa, broken wheat, and maida
		Rye, barley, oats
		Noodles and pastas
		• Bread, bread rolls, pizzas, breadcrumbs, bread sticks, ladi pav Should be avoided

Table 3: Dietary chart for autistic Child (Pathya and Apathya)

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	2.	Casein free diet	Kheer, kulfi, gulab jamun, barfi, peda, khoa, rasagula, paneer
	3.	Omega 3 fatty acid rich diet	Flax seeds, egg, Sadine fish, chia seed, cauliflower, salmon should be taken
	4.	Probiotics	Fermented yoghurt
	5.	Healthy fat	Olive oil, coconut oil, nuts and seed
	6.	Lean proteins	Lentils, chana, pea, egg, chicken should be taken
ſ	7.	Fresh fruits and vegetables	
	8.	Whole grains	
-			

FIGURES

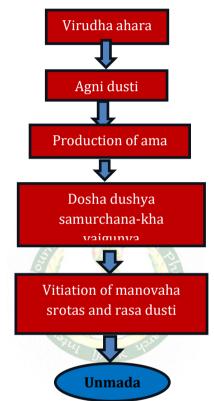


Figure 1: Samprapti vighatana of Unmada with Virudha ahara as Nidana

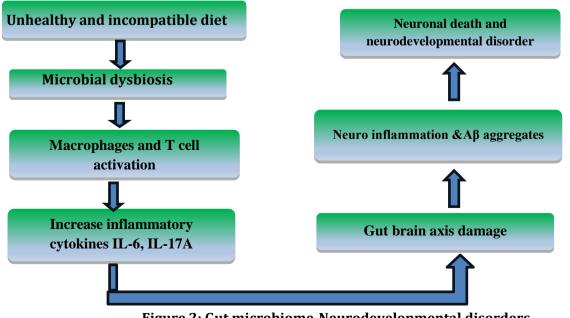


Figure 2: Gut microbiome-Neurodevelopmental disorders

Early Morning:	• Warm water + Almonds and walnuts.
Breakfast:	 Gluten-free poha with nuts, seeds, and fresh fruits Scrambled eggs with whole-grain bread and avocado Oatmeal with banana, honey, and almonds Idlis made with rice and lentils, served with sambar and coconut chutney
Mid Meal:	 Fresh fruit salad Handful of roasted makhana (fox nuts) Smoothie made with yogurt, banana, and honey
Lunch:	 Gluten-free brown rice with mixed vegetable biryani and raita Whole-grain roti with chana masala and mixed greens salad Pea pulao+rajma+mixed vegetable soup Lentil soup with whole-grain bread and a side sala
Evening:	 Herbal tea with a splash of lemon and a pinch of ginger Green tea with roasted chana (chickpeas) and a sprinkle of cinnamon Fresh vegetable sticks with a yogurt-based dip Roasted makhanas (fox nuts) seasoned with herbs and spices
Dinner:	•Whole-grain roti with mixed vegetable curry and brown rice •Grilled chicken or fish with roasted vegetables and quinoa •Lentil soup with whole-grain bread and a side salad •Vegetable biryani with a side of raita and mixed greens salad •Ragi chapathi+Vegetable kofta+Fresh vegetable soup

Fig 3: Sample dietary Plan of a child with autism

Sample dietary Plan of a child with autism (Figure 3) DISCUSSION

In the modern era, the consumption of processed and incompatible foods is steadily increasing. The intake of junk food during pregnancy and early childhood may be a major contributing factor to the rising prevalence of neurodevelopmental disorders such as ADHD and autism. Ayurveda places great importance on *Ahara* (diet) and believes that proper nutrition nourishes not only the body but also the mind and soul. The *Charaka Samhita* emphasizes this through the verse *"Aharam Sambhavam Vastu Rogashcha Ahara Sambhava*," highlighting that both health and disease stem from diet. ^[18] *Acharya Charaka* emphasized that *Viruddha Ahara* not only causes physical diseases but also leads to mental ailments, affecting overall well-being. Acharyas explained various incompatible food combinations that should be avoided and also outlined *Ahara Vidhi Visesha Ayatanani* (the rules to be followed while consuming food). In the last century, a new branch of science called trophology has emerged, emphasizing specific food combinations as essential for good health and weight management. This modern concept appears to be influenced by Ayurveda's principle of *Viruddha Ahara*, which has long recognized the impact of incompatible foods on overall well-being.

Viruddha Ahara (incompatible food) disrupts *Agni* (digestive fire), leading to improper digestion and

the formation of *Ama* (toxic metabolic waste). This occurs when undigested *Rasa* (nutrient fluid) undergoes fermentation or putrefaction due to prolonged retention in the *Amashaya* (stomach). The accumulated *Ama* is absorbed into the system and carried by vitiated *Vayu*, circulating through the *Dhamanis* (channels). As it interacts with *Vata*, *Pitta*, and *Kapha Doshas*, it further aggravates them, leading to systemic distress. The unctuous and toxic nature of this unprocessed *Amarasa* (immature nutrient fluid) contributes to various diseases, disrupting both physical and mental health.

Worldwide, approximately 15% of children and adolescents suffer from mental health and/or neurodevelopmental disorders, including anxiety, depression, bipolar disorder, obsessive-compulsive disorder (OCD), autism spectrum disorder (ASD), and attention deficit hyperactivity disorder (ADHD) [19]. The exact cause of neurodevelopmental disorders remains unknown and is considered multifactorial, involving genetic, environmental, and biological factors. However, poor diet is a major contributing factor. The consumption of junk food, especially in children, has been shown to significantly affect brain myelination, which is essential for healthy neurodevelopment.

In recent years, the role of gut microbiota in neurodevelopment has gained significant attention. It is now recognized that the gut microbiota influences neurodevelopment through three primary pathways: the immune pathway, the neuronal pathway, and the endocrine/systemic pathway. These pathways interact and overlap, creating a complex network of communication between the gut and the brain, highlighting the importance of gut health in overall neurological function. ^[20] A growing body of evidence suggests that diet quality is a modifiable risk factor for mental disorders. The gut microbiome is considered a key mechanism linking diet to mental health, as its composition is largely influenced by dietary intake. An imbalance in the gut microbiome, including the loss of beneficial microbes, the overgrowth of pathobionts (bacteria that cause disease under certain conditions), and gut dysbiosis, may contribute to the progression and severity of mental health disorders. [21] In a metaanalysis of 18 studies conducted by Iglesias-Vasquez et al., gut microbiota were compared in children with and without ASD. The microbiota mostly consisted of genera such as Bacteroides, Parabacteroides, and Clostridium, and these were significantly higher in children with ASD. However, children with ASD had smaller colonies of Bifidobacterium. This dysbiosis may play a role in the manifestation of ASD. ^[22] **CONCLUSION**

This is a conceptual study for which Ayurveda texts, modern text and published articles were

referred. This research shows the relationship of body and mind through the gut brain axis and the improper food habits as the one of the causes of *Manasa roga*. This article highlights the need for further investigation into the effects of incompatible dietary factors on various health conditions, opening up new avenues for research in Ayurvedic dietetics.

REFERENCES

- Thapar, A., Cooper, M., & Rutter, M. (2017). Neurodevelopmental disorders. The lancet. Psychiatry, 4(4) 339–346. https://doi.org/ 10.1016/S2215-0366(16)30376-5
- May, Tamara; Adesina, Ife; McGillivray, Jane; Rinehart, Nicole J. (2019). Sex differences in neurodevelopmental disorders. Current Opinion in Neurology, 32(4), 622–626. doi:10.1097/wco. 000000000000714
- 3. Charak Samhita, Agnivesha treatise refined by Charak & redacted by Drudhabala, Sutrasthana -11, Choukhambha Orientalia, Varanasi, U.P.
- Jangra, B., Kulshreshtha, S., Goyal, A., & Jachak, S. M. (2025). The role of gut microbiota in disease management: Ayurvedic perspectives on metabolic diseases and health. Phytomedicine Plus, 5(1), 100731.
- Maldonado-Contreras, A., Noel, S.E., Ward, D.V., Velez, M., Mangano, K.M., 2020. Associations between diet, the gut microbiome, and short-chain fatty acid production among older caribbean latino adults. J. Acad. Nutr. Dietetics 120 (12). https://doi.org/10.1016/j.jand.2020.04.018, 2047-2060.e2046)
- 6. Agnivesha, Charaka Samhita, elaborated by Charaka and Dridhabala, with Ayurveda Dipika commentary by Chakrapanidatta, Edited by Vaidya Yadavji Trikamji Acharya, Nidana Sthana, Chapter 7, Unmada Nidana. Chaukhambha Surabharati Prakashan, 2009, 222-223.
- Charaka. Charaka Samhita (Charak Chandrika Hindi commentary). Brahmanand Tripathi, Ganga Sahay Pandey, editors. 1st ed. Varanasi: Chaukhamba Surbharti Prakashan; 2007. Sutra Sthana, 26/88. p.497.
- 8. Kadel, P., Schneider, S., & Mata, J. (2020). Soft Drink Consumption and Mental Health Problems: Longitudinal Relations in Children and Adolescents. Social Science & Medicine, 113123. doi:10.1016/j.socscimed.
- Quan, L., Xu, X., Cui, Y., Han, H., Hendren, R. L., Zhao, L., & You, X. (2022). A systematic review and meta-analysis of the benefits of a gluten-free diet and/or casein-free diet for children with autism spectrum disorder. Nutrition reviews, 80(5), 1237–1246. https://doi.org/10.1093/nutrit/ nuab073

- Kim, Y., & Chang, H. (2011). Correlation between attention deficit hyperactivity disorder and sugar consumption, quality of diet, and dietary behavior in school children. Nutrition research and practice, 5(3), 236–245. https://doi.org/10.4162/nrp. 2011.5.3.236
- 11. Ge, Q., Wang, Z., Wu, Y., Huo, Q., Qian, Z., Tian, Z., Ren, W., Zhang, X., & Han, J. (2017). High salt diet impairs memory-related synaptic plasticity via increased oxidative stress and suppressed synaptic protein expression. Molecular nutrition & food research, 61(10), 1700134. https://doi.org/ 10.1002/mnfr.201700134
- Bressan, P., & Kramer, P. (2016). Bread and Other Edible Agents of Mental Disease. Frontiers in human neuroscience, 10, 130 https://doi.org/ 10.3389/fnhum.2016.00130
- Sik, M., Er, Malik, A.R., Sik, M., Khan, E.G., ain, Q.U., & khan, R.G. (2017). Instant Noodles: Are they Really Good for Health? A Review. Electronic Journal of Biology, 13
- 14. El-Sayyad, H. I., El-Gammal, H. L., Habak, L. A., Abdel-Galil, H. M., Fernando, A., Gaur, R. L., & Ouhtit, A. (2011). Structural and ultrastructural evidence of neurotoxic effects of fried potato chips on rat postnatal development. Nutrition, 27(10), 1066–1075. doi:10.1016/j.nut.2011.06.008 10.1016 / j.nut.2011.06.008
- Buchanan, E., Mahony, C., Bam, S. et al. Propionic acid induces alterations in mitochondrial morphology and dynamics in SH-SY5Y cells. Sci Rep 13, 13248 (2023). https://doi.org/10.1038 /s41598-023-40130-8
- 16. Wallace R. K. (2020). The Microbiome in Health and Disease from the Perspective of Modern

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- Sudo N., Chida Y., Aiba Y., Sonoda J., Oyama N., Yu X.N., Kubo C., Koga Y. Postnatal Microbial Colonization Programs the Hypothalamic-Pituitary-Adrenal System for Stress Response in Mice. J. Physiol. 2004; 558: 263–275. doi: 10.1113/jphysiol.2004.063388
- R.K. Sharma and Bhagavan Dash translated Agnivesa's Caraka Samhita Sutra sthanam, chapter 28, sloka no 45, reprint 2010, pub: Chowkhamba Sanskrit series, Varanasi. Page no.88.
- Bruha, L., Spyridou, V., Forth, G., & Ougrin, D. (2018). Global child and adolescent mental health: challenges and advances. London Journal of Primary Care, 10(4), 108–109. https://doi.org/ 10.1080/17571472.2018.1484332
- 20. Wang, Q., Yang, Q., & Liu, X. (2023). The microbiota-gut-brain axis and neurodevelopmental disorders. Protein & cell, 14(10), 762–775. https://doi.org/10.1093/procel/ pwad026
- 21. Petersen, C., & Round, J. L. (2014). Defining dysbiosis and its influence on host immunity and disease. Cellular microbiology, 16(7), 1024–1033. https://doi.org/10.1111/cmi.12308
- 22. Romano, K., Shah, A. N., Schumacher, A., Zasowski, C., Zhang, T., Bradley-Ridout, G., Merriman, K., Parkinson, J., Szatmari, P., Campisi, S. C., & Korczak, D. J. (2023). The gut microbiome in children with mood, anxiety, and neurodevelopmental disorders: An umbrella review. Gut microbiome (Cambridge, England), 4, e18. https://doi.org/10.1017/gmb.2023.16

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