Evidence-Based Practice on Dietary Intervention - Autism Spectrum Disorder Children

**Abstract**  **Author:** T. Mary Minolin

The combination of the best research evidence with the finest scientific research currently accessible, clinical experience, and patient values is known as evidence-based practise (EBP). The newest scientific evidence is reviewed, analysed, and translated using an EBP method. The objective is to swiftly integrate the greatest research that is currently available, combined with clinical expertise and patient preference, into clinical practise so nurses may quickly make knowledgeable patient-care decisions (Dang et al., 2022). The use of dietary intervention to maintain and enhance physical health and wellbeing in situations of psychiatric and behavioural symptomatology, diet may also have an impact on mental health and wellness. Clinical practise entails combining clinical knowledge with scientific research to make well-informed judgements about patient treatment. Nursing choices may be made with the help of evidence-based practise (EBP), which entails examining, assessing, and interpreting the most recent scientific information. This method is essential for finding neurodevelopmental diseases appropriate therapies and advancing both physical and mental health, especially in situations of psychiatric and behavioural symptomatology. The Autism Network reports that nearly one in five children with autism are on a special diet, which includes gluten-free/casein-free food items. This diet can ameliorate core and peripheral symptoms and improve developmental outcomes, particularly in areas of communication, attention, and hyperactivity, despite methodological shortcomings.

Key Words: Evidence based Practice, ASD children, gluten- and casein-free diet (GFCF)

 **Introduction**

A neurodevelopmental illness called autism spectrum disorder (ASD) is distinguished by limitations in social communication, as well as by repetitive behaviours and narrow interests. The World Health Organisation (WHO) estimates that there are 0.76% ASD cases worldwide, while only 16% of children worldwide fall into this category. According to the Centres for Disease Control and Prevention (CDC), 1 in 59 US children aged 8 have an ASD diagnosis. This is approximately 1.68% of all US children. Despite the paucity of neuropathologic research, those that have been conducted have identified minor malformations as well as changes in cerebellar architecture and connectivity, limbic system abnormalities, and frontal and temporal lobe cortical modifications. Autism spectrum disorder (ASD) was first defined by Leo Kanner in 1943 as an innate inability to create normal emotional contact with others. Over the past decade, the conceptualization of autism has evolved, with the DSM IV-TR combining specific diagnoses into a single broad disorder, focusing on social communication and interaction.

Autism spectrum disorder (ASD) affects 1 in 54 children, with the number of children diagnosed increasing rapidly. In the 1970s and 1980s, one in every 2,000 children had autism. Today, 1 in 59 children have ASD. In India, the ratio of children diagnosed with ASD is 1:100, and around 10% of school-going children have mild to severe learning challenges.

Children with ASD face lifelong challenges due to their unique needs, often combined with comorbidities like anxiety, epilepsy, sleep disorders, gastrointestinal disorders, and obsessive-compulsive disorder. Eating disorders, influenced by energy-dense food and malnutrition, can lead to oxidative radical accumulation, causing mental and physical deterioration. Parents often struggle to control eating due to behavioral issues.

**The top 5 foods to avoid as they can make ASD and co-occurring condition symptoms worse.**

Diet and nutrition are crucial for a healthy body and mind, as they help remove toxins, build an immune system, curb hunger, and prevent obesity. Obesity is a growing concern, and it's essential to control physical, psychological, financial, and social burdens. Food is either medicine or poison, helping or hurting our brain, body, and mind. Dietary changes should be made cautiously and with the help of medical specialists because the knowledge of ASD encompasses complicated genetic, neurological, and developmental aspects. Nevertheless, some parents and carers of people with ASD have noted anecdotal improvements in some symptoms after dietary adjustments. Recognising that everyone's reactions to food might differ greatly is vital since what may work for one person may not work for another. Some treatments suggest that you adopt dietary tactics, such as avoiding specific foods or chemicals. These typical dietary recommendations are for people with ASD. The top 5 foods to avoid as they can make ASD and co-occurring condition symptoms worse.

**Artificial colours, flavours, and preservatives:** These chemicals and preservatives included in processed foods may be sensitive to some people. It is suggested to limit or avoid foods that include additives such tartrazine, artificial flavours, sodium benzoate, and other colours, flavours, and preservatives. According to a 2019 research, preservatives included in processed meals may be to blame for the rise in autism cases. Other studies suggest a potential connection between the symptoms of autism and artificial food additives in our food supply. All additives, preservatives, artificial flavours, and sweeteners should be avoided.

**Gluten:** According to research, glute is a blend of proteins derived from grains. When consumed, rye can exacerbate systemic inflammation. In fact, the body can produce antibodies against gluten that might stimulate or irritate the brain. Additionally, gluten reduces healthy bacteria in the digestive tract, which is linked to a higher risk of experiencing stress, anxiety, or depression. The cerebellum appears to be particularly badly impacted by gluten. Some patients with ASD may be placed on a gluten-free diet as part of a bigger approach known as a gluten-free, casein-free (GFCF) diet.

**Casein:** Dairy products may include the protein casein.According to data, including a 2018 study in the pharmaceutical industry, inflammation is frequently connected to immune system failure and is highly associated with autism. According to this study, anomalies in the neuroimmune system and neuro-inflammation have a significant role in the emergence and persistence of ASD. Some persons may be put on a GFCF diet, which excludes both gluten and casein, in an effort to lessen the symptoms of ASD. Insufficient study has been done to support its efficacy.

**Sugar and processed food:** It may not be healthy for your overall health to consume a lot of processed foods and sugary foods. Some individuals may experience behavioural changes or hyperactivity after consuming high-sugar meals. In addition to being pro-inflammatory and highly addicting, sugar also causes irregular brain cell firing. Additionally, studies published in Frontiers in Endocrinology discovered that ASD sufferers have characteristics with type 2 diabetics, including reduced glucose tolerance and hyperinsulinemia (excess insulin levels). Consuming sugar may therefore make faulty insulin more pronounced.

**Corn:** The unhealthiest fatty acid profile of any grain is seen in corn, which is heavy in omega-6 fatty acids, which increase inflammation, as opposed to omega-3 fatty acids, which reduce inflammation. A vegetable is not maize. The discovery of 46 fungal isolates generated from maize grains and several possibly negative effects of maize consumption show that maize is a fungus breeding habitat.

**Evidenced Based Practice**

According to the Autism Network, one in five autistic kids follow a particular diet that excludes gluten and casein-containing products. While casein is a protein found in cow's milk, gluten is a protein found in plants including wheat, barley, rye, and oats. These proteins have the potential to seriously damage the nervous system or the gastrointestinal tract. Incompletely digested peptides permeate the intestinal mucosa, leading to irregular pores and having a detrimental impact on learning, social interaction, brain development, and concentration. Loss of eye contact, difficulty learning, hyperactivity, stereotypical motions, and self-mutilation are just a few of the symptoms that can arise from high amounts of these peptides. ASD may benefit from a diet devoid of casein and gluten.

**Conclusion**

According to studies, children with Autism Spectrum Disorder (ASD) may exhibit improved behaviour if gluten and casein are permanently removed from their diet. Gut health and brain development are supported by a balanced diet that includes fibrous foods, lean proteins, and healthy fats. Autism-related symptoms are said to improve when gluten is avoided, according to parents of autistic children.

**References:**

1. Andy Haines and Anna Donald. BMJ. (1998) [Making better use of research findings.](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1113463/) 4; 317(7150): 72–75.
2. Anna Lisa Brigida, Dario Siniscalco, Stephen Schultz,,(2018) Inflammation and Neuro-Immune Dysregulations in Autism Spectrum Disorders11(2): 56.
3. CDC (Center for Disease Control and Prevention). (2014). Prevalence of autism spectrum disorder among children aged 8 years - autism and developmental disabilities monitoring network. Developmental Disabilities Monitoring Network Surveillance, 63: 1-21.
4. Chauhan, A., Sahu, J.K., Jaiswal, N., Kumar, K., Agarwal, A., Kaur, J., Singh, S., & Singh, M. (2019). Prevalence of autism spectrum disorder in Indian children: A systematic review and meta-analysis. Neurol India, 2019; 67(1): 100-104.
5. Hyman, S. L., Levy, S. E., et al. (2020). Summary of the Clinical Practice Guideline Identification, Evaluation, and Management of Children with Autism Spectrum Disorder. American Speech language Association Pediatrics, 145(1), 1-71.
6. Dario Siniscalco,Stephen Schultz, (2013) Gluten- and casein-free dietary intervention for autism spectrum conditions Pharmaceuticals (Basel)1(4) .
7. Karst, J.S., & Hecke, A.V.V. (2012). Parent and family impact of autism spectrum disorders: a review and proposed model for intervention evaluation. Clin Child Fam Psychol Rev, 15(3): 247-277.
8. Paul Whiteley, Paul Shattock Brain Health and Clinical Neuroscience (2012) Pharmaceuticals (Basel) Neuroscience,4(6)
9. Nila Sathe, MA; Jeffrey C. Andrews, Nutritional and Dietary Interventions for Autism Spectrum Disorder: A Systematic Review, Pediatrics (2017) ,1(6).139 .
10. Shriya Doreswamy, Anam Bashir Effects of Diet, Nutrition, and Exercise in Children with Autism and Autism Spectrum Disorder: A Literature Review 2020, Cureus.12(12)
11. Hodges H, Fealko C, Soares N. Autism spectrum disorder: definition, epidemiology, causes, and clinical evaluation. Transl Pediatr. 2020 Feb;9(Suppl 1):S55–65.
12. Baxter AJ, Brugha TS, Erskine HE, et al. The epidemiology and global burden of autism spectrum disorders. Psychol Med 2015;45:601-13. 10.1017/S003329171400172X
13. Palinkas LA, Mendon SJ, Hamilton AB. Annual review of public health innovations in mixed methods evaluations. Annu Rev Public Heal 2019;40:423-42. 10.1146/annurev-publhealth-040218-044215
14. Johnson CP, Myers SM. Identification and evaluation of children with autism spectrum disorders. Pediatrics 2007;120:1183-215. 10.1542/peds.2007-2361
15. Kim H, Keifer C, Rodriguez-Seijas C, et al. Quantifying the optimal structure of the autism phenotype: a comprehensive comparison of dimensional, categorical, and hybrid models. J Am Acad Child Adolesc Psychiatry 2019;58:876-86.e2. 10.1016/j.jaac.2018.09.431