Evidence Based Practice on Dietary Intervention - Autism Spectrum Disorder Children

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Evidence based practice (EBP) is 'the integration of best research evidence with best available scientific research, clinical expertise and patient values. 'EBP is a process used to review, analyze, and translate the latest scientific evidence. The goal is to quickly incorporate the best available research, along with clinical experience and patient preference, into clinical practice, so nurses can make informed patient-care decisions (Dang et al., 2022). Identifying effective medical and behavioral treatments for neurodevelopmental disorders should be based on a solid foundation of scientific evidence. Dietary intervention as a tool for maintaining and improving physical health and wellbeing. Diet may similarly affect mental health and wellbeing particularly in cases of psychiatric and behavioral symptomatology.



 According to the Autism Network, nearly one in five children with autism are on a special diet. The autism diet includes gluten free/casein free food items. Evidence suggestive that a gluten-free (GF), casein-free (CF), or gluten- and casein-free diet (GFCF) can ameliorate core and peripheral symptoms and improve developmental outcome in some cases of autism spectrum conditions. majority of published studies indicate statistically significant positive changes to symptom presentation following dietary intervention. In particular, changes to areas of communication, attention, and hyperactivity are detailed, despite the presence of various methodological shortcomings.

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

 **Introduction**

Autism spectrum disorder: (ASD) Autism was originally defined by Leo Kanner in 1943 as an innate inability to create normal, biologically determined, emotional contact with others. The primacy of the social deficit is broadly recognized, and lack of social reciprocity is a unique part of the diagnosis. Beyond that, there have been great changes in the past decade in the conceptualization of autism and related disorders. Revisions of the precedent edition of the manual (DSM IV-TR) include the combination of specific DSM-IV-TR diagnoses into a single broad autism spectrum disorder identification of two domains of impairment (social communication and interaction, and restricted repetitive behavior) is now used instead of three (social interaction, communication, and restricted repetitive and stereotyped patterns of behavior, interests and activities).

Autism spectrum disorder (ASD) is one of the most common developmental disabilities in children, affecting approximately 1 in 54 children. The number of children diagnosed with autism or related disorders have grown at an alarming rate. In the 1970s and 1980s, about one out of every 2,000 children had autism. Today, the CDC estimates 1 in 59 children (1 in 37 boys and 1 in 151 girls) as having autism spectrum disorder (ASD. Statistics show that the number of children in India diagnosed with autism has been on the rise with the ratio being about 1:100. Around 10 per cent of school-going children have been diagnosed with mild to severe learning challenges.

Children living with ASD face lifelong challenges because of their unique needs, and these challenges are often combined with comorbidities such as anxiety, epilepsy/seizures, sleep disorders, gastrointestinal disorders, and obsessive-compulsive disorder. Children with autism and autism spectrum disorders (ASDs) are commonly affected by eating disorders. Their preference for energy-dense food with mal nutrition can alter their metabolism, leading to the accumulation of oxidative radicals, causing them to deteriorate mentally and physically. Despite efforts, parents of such children usually cannot help control the eating because temper tantrums and behavioral problems are common.

Diet and nutrition play an important and essential role in everyone's life. It helps build a healthy body and a strong mind. We know that food rich in nutrients can remove toxins from the body, make an excellent immune system, curb hunger, and prevent obesity. Obesity is one of the most concerning, alarming, and fastest-growing pandemics. So it is very important it creates towards prompt attention to control the physical, psychological, financial, and social burden. It is important to realize that the food we eat is either medicine or it is poison. It is either helping our brain, body, and mind or hurting them.

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

**Dairy:** is problematic because it is considered one of the most pro-inflammatory foods. As per evidence including a  [2018 study](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6027314/) in Pharmaceuticals, inflammation is strongly associated with autism and is also commonly linked to immune system dysfunction. This study shows that neuro-inflammation and neuro-immune abnormalities are key factors in the development and maintenance of ASD.

**Gluten:** Research shows that gluten—a mixture of proteins found in grains such as wheat, barley, and rye—can increase systemic inflammation when ingested. In fact, body can create antibodies to gluten which can fire up, or inflame, your brain. Gluten also decreases good bacteria in the gastrointestinal system, which is associated with an increased likelihood of feeling anxious, stressed, or depressed. Gluten seems to particularly negatively affect the functioning of the cerebellum. Located at the back bottom of the brain, the cerebellum is involved with motor and thought coordination and is essential for processing complex information. Studies showed that those with ASD already often have decreased functioning of their cerebellum—consuming gluten can just make it much worse.

**corn**: has the unhealthiest fatty-acid profile (high in omega-6 fatty acids that promote inflammation, compared to omega-3 fatty acids that are anti-inflammatory) of any grain. Corn is not a vegetable. Corn has been found to be a breeding ground for fungi, identifying 46 fungal isolates derived from maize grains and many potentially harmful things that can come from eating corn.

**Sugar:** pro-inflammatory, but it also increases erratic brain cell firing and it is very addictive. In addition, research appearing in Frontiers in Endocrinology found that people with ASD, like those with type 2 diabetes, have impaired glucose tolerance and excessive levels of insulin (a condition known as hyperinsulinemia). Because of this, consuming sugar may magnify improper insulin.

Research in Plos One shows that children with autism who also suffer from gastrointestinal distress have poor metabolism of sugars. In these children, scientists found deficiencies in the levels of enzymes and transporters involved in the digestion of sugars. Avoiding sugar and refined carbohydrates and increasing lean protein consumption can dramatically improve concentration and judgment, and decrease impulsiveness.

**Artificial Ingredients:** A 2019 study suggests that the spike in autism may be connected to the preservatives found in processed foods. Other research points to a possible link between autism symptoms and artificial ingredients in our food supply. Avoid all additives, preservatives, artificial flavourings, and artificial sweeteners.

**Evidenced Based Practice**

Identifying effective medical and behavioral treatments for neurodevelopmental disorders should be based on a solid foundation of scientific evidence. According to the Autism Network, nearly one in five children with autism are on a special diet. The autism diet includes gluten free/casein free food items.

In children with ASD, Gluten is a protein found in plants including wheat, barley, oats, rye and their derivatives. Casein is a protein found in cow’s milk. In some severe cases, an inability to properly metabolize these proteins can lead to serious gastrointestinal or neurological problems. it is reported that incompletely digested peptides cross the intestinal mucosa of the permeable intestines frequently observed due to the formation of abnormal pores resulting from immunological factors or lesions These peptides cross the blood–brain barrier( BBB) by entering the bloodstream, and they then reach the central nervous system and have negative effects on attention, brain maturation, social communication, and learning .When the peptide level increases, brain functions are affected . Their high levels play a part in the occurrence of symptoms such as loss of eye contact, learning impairment, hyperactivity, stereotypic movements, and self-mutilation. It has been proposed that ASD symptomology may be associated with this process, and thus a gluten- and casein-free diet has been suggested as a treatment for ASD.

**Conclusion**

 A few studies have suggested that long-term elimination of gluten and casein from a diet may result in behavioral improvements in children with ASD. A balanced diet with emphasis on lean proteins, healthy fats, and fibrous foods (fruits, vegetables, and whole grains) can be incredibly beneficial for those on the autism spectrum to support gut health and brain development. Although the research on gluten-free diets is mixed, many parents of children with autism report seeing improvements in symptoms when they eliminate gluten from their child’s meals.

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