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

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**Abstract**

Evidence-based practice (EBP) is the integration of best research evidence with best scientific research currently available, clinical expertise, and patient values." Reviewing, analysing, and translating the most recent scientific data is done through the EBP process. In order for nurses to make knowledgeable patient-care decisions, it is important to integrate the best available research, clinical experience, and patient preferences into clinical practice as soon as possible (Dang et al., 2022). Neurodevelopmental problems should be treated using medical and behavioural approaches supported by strong scientific data. Dietary intervention as a means of preserving and enhancing physical well-being Diet can also have an impact on mental health and wellness, especially in people who exhibit behavioural and psychiatric symptoms.



According to the Autism Network, roughly one in every five autistic youngsters follows a specific diet. Gluten and casein-free foods are part of the autistic diet. Evidence suggests that a gluten-free (GF), casein-free (CF), or gluten-and-casein-free (GFCF) diet can alleviate core and peripheral symptoms and enhance developmental outcomes in some cases of autism spectrum disorders. The majority of published trials show statistically significant improvements in symptom presentation following dietary modification. Despite a number of methodological flaws, changes in communication, attention, and hyperactivity are detailed.

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

Autism spectrum disorder (ASD) Autism was first defined by Leo Kanner in 1943 as an underlying incapacity to form normal, biologically driven emotional contact with others. The importance of the social deficit is widely acknowledged, and a lack of social reciprocity is a distinct feature of the diagnosis. Aside from that, there have been significant shifts in the thinking of autism and related illnesses during the last decade. Revisions to the previous edition of the manual (DSM IV-TR) include the consolidation of individual DSM-IV-TR diagnoses into a single broad autism spectrum disorder. Identification of two categories of impairment (social communication and interaction and restricted repetitive behavior) is currently utilized instead of three (social interaction, communication, and confined repetitive and stereotyped patterns of behavior, interests, and activities).

Autism spectrum disorder (ASD) is one of the most prevalent developmental impairments in children, impacting one in every 54. The number of children diagnosed with autism or similar diseases is rapidly increasing. Autism affected around one out of every 2,000 children in the 1970s and 1980s. The CDC now predicts that one in every 59 youngsters (1 in 37 boys and 1 in 151 girls) has autism spectrum disorder (ASD). According to statistics, the number of children diagnosed with autism in India is increasing, with a ratio of roughly 1:100. Around 10% of school-age children have been identified with mild to severe learning disabilities.

Because of their particular demands, children with ASD confront lifelong challenges, which are frequently compounded by comorbidities such as anxiety, epilepsy, seizures, sleep disorders, gastrointestinal disorders, and obsessive-compulsive disorder. Children with autism and autism spectrum disorders (ASDs) are frequently affected by eating issues. Their penchant for energy-dense foods combined with starvation might change their metabolism, creating an accumulation of reactive radicals and causing them to degenerate intellectually and physically. Despite their best efforts, parents of such children are frequently unable to help regulate their children's eating since temper outbursts and behavioral issues are common.

Diet and nutrition are vital aspects of everyone's lives. It contributes to the development of a healthy body and a strong mind. We know that nutrient-dense diets can help the body eliminate pollutants, build a strong immune system, reduce appetite, and avoid obesity. Obesity is one of the most worrying, worrisome, and rapidly spreading pandemics. As a result, it is critical that it generates rapid attention in order to control the physical, psychological, financial, and social strain. It is critical to understand that the food we eat is either medicine or poison. It either benefits or harms our brain, body, and mind.

The top 5 foods to avoid since they can aggravate ASD and co-occurring disease symptoms

**Dairy:** Dairy is problematic because it is one of the most pro-inflammatory foods. According to studies, including a 2018 study in pharmaceuticals, inflammation is substantially connected with autism and is frequently linked to immune system malfunction. This study demonstrates that neuro-inflammation and neuro-immune disorders are important factors in the development and maintenance of ASD.

**Gluten:** Gluten, a protein combination found in grains such as wheat, barley, and rye, has been shown in studies to enhance systemic inflammation when consumed. In reality, the body can produce antibodies against gluten, which can stimulate or inflame the brain. Gluten also reduces beneficial bacteria in the gastrointestinal system, which is linked to feelings of anxiety, stress, and depression. Gluten appears to have a particularly deleterious impact on cerebellar function. The cerebellum, which is located near the bottom of the brain, is involved in movement and cognitive coordination and is necessary for processing complicated information. According to research, people with ASD commonly have impaired cerebellar function; ingesting gluten can exacerbate this.

**Corn:** Corn has the unhealthiest fatty acid composition of any grain (heavy in omega-6 fatty acids that cause inflammation against omega-3 fatty acids that are anti-inflammatory). Corn is not considered a vegetable. Corn has been discovered to be a breeding environment for fungi, with 46 fungal isolates generated from maize grains identified, as well as several other hazardous things that can result from eating corn.

**Sugar:** Sugar promotes inflammation, but it also causes irregular brain cell firing and is very addicting. Furthermore, research published in Frontiers in Endocrinology discovered that patients with ASD, like those with type 2 diabetes, have reduced glucose tolerance and high insulin levels (a condition known as hyperinsulinemia). As a result, sugar consumption may amplify insulin resistance.

Many studies have found that children with autism who also have gastrointestinal problems have poor sugar metabolism. Scientists discovered deficits in the amounts of enzymes and transporters involved in sugar digestion in these children. Avoiding sugar and refined carbohydrates while boosting lean protein consumption can improve concentration and judgment while decreasing impulsiveness.

**Artificial Ingredients:** According to a 2019 study, the increase in autism may be linked to preservatives contained in processed meals. Other research suggests a link between autistic symptoms and artificial elements in our meals. All additives, preservatives, artificial flavorings, and artificial sweeteners should be avoided.

**Evidenced Based Practice**

Finding successful medical and behavioral treatments for neurodevelopmental disorders requires a strong scientific foundation. According to the Autism Network, roughly one in every five autistic children is on a special diet. Gluten and casein-free foods are included in the autistic diet.

Gluten is a protein found in plants, including wheat, barley, oats, rye, and their derivatives, that is discovered in children with ASD. Casein is a protein that can be found in cow's milk. In severe circumstances, the failure to effectively metabolize these proteins might result in serious gastrointestinal or neurological issues. It has been reported that partially digested peptides frequently pass the intestinal mucosa of permeable intestines due to the creation of aberrant pores caused by immunological stimuli or diseases. These peptides enter the bloodstream and breach the blood-brain barrier (BBB), where they have deleterious effects on attention, brain maturation, social communication, and learning. When the peptide level rises, brain functioning suffers. Their elevated levels contribute to symptoms such as lack of eye contact, learning impairment, hyperactivity, stereotypic movements, and self-mutilation. It has been argued that ASD symptoms are linked to this process, and so a gluten- and casein-free diet has been promoted as a treatment for ASD.

**Conclusion**

A few studies have shown that removing gluten and casein from the diet for an extended period of time may result in behavioral improvements in children with ASD. A well-balanced diet rich in lean proteins, healthy fats, and fiber foods (fruits, vegetables, and whole grains) can improve gut health and brain development in people on the autistic spectrum. Although the data on gluten-free diets is conflicting, many parents of autistic children indicate that removing gluten from their child's meals improves their child's symptoms.

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