

### What Is the Current Status of Research Concerning Use of a Gluten-Free, Casein-Free Diet for Children Diagnosed with Autism?

Autism is often referred to as Autism Spectrum Disorder (ASD). It is a lifelong complex disorder that impedes an individual's ability to communicate and function socially. Formerly a rare condition, the prevalence of autism has increased more than 10-fold in the past 20 years, from an estimated prevalence of approximately 5 or 6 per 10,000 children to 65 per 10,000 diagnosed with ASD (1). Although there is controversy regarding whether this is an actual rise in the number of cases or a result of increased publicity and better diagnostic measures, it remains clear that autism is a disorder that produces major challenges for families and society at large (2). To date, there is no clear etiology or known cure. Treatment usually consists of a comprehensive, intense program of educational intervention, developmental therapies, and behavioral treatment. There is evidence of widespread use by parents of complementary and alternative therapies (CAM) for children with autism (3). Several different nutritional strategies have been suggested, including restriction of food allergens, probiotics, yeast-free diet, gluten- and casein-free diet (GFCF), and dietary supplements such as vitamins A, C, B-6, and B-12, and magnesium, folic acid, and n-3 fatty acids. Unfortunately, many of these interventions have little evidence-based research to support them.

One of the most popular interventions for Autism Spectrum Disorder is the GFCF diet. It is hypothesized that some symptoms may be the result of opioid peptides formed from the incomplete breakdown of foods containing gluten and casein. Increased intestinal permeability, also referred to as the "leaky gut syndrome," allows these peptides to cross the intestinal membrane, enter the bloodstream, and cross the blood-brain barrier, affecting the endogenous opiate system and neurotransmission within the nervous system (2). The resulting excess of opioids is thought to lead to behaviors noted in ASD, and the removal of these substances from the diet parallels a change in autistic behaviors.

The Cochrane Review (3) noted the importance of reviewing scientific research for the efficacy and effectiveness of the diet. A number of drawbacks to the diet are

noted: difficulty for parents to follow the diet modification, the extra cost of the food, and extra time in preparing the meals. In addition, some data suggest that children following the GFCF diet may have increased prevalence of essential amino acid deficiencies and bone loss (4). For children with autism who consume a wide variety of foods, the GFCF diet may not have medical consequences. However, some autistic children consume self-restricted diets due to sensory limitations and may limit the number of foods to five or fewer (4).

At this time, more research is needed to determine efficacy of dietary therapy approaches. Currently two studies are underway—a single-blind trial in Norway (5) and a double-blind trial in the United States (6). As the medical community awaits additional evidence from clinical studies, food and nutrition professionals have an important role to play in ensuring the health and safety of autistic children whose families have chosen to pursue dietary approaches to treatment. In addition, it's important to urge families to regularly evaluate the pros and cons of all dietary approaches to treatment (7).

#### References

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#### Additional Resources

MedlinePlus-Autism. <http://www.nlm.nih.gov/medlineplus/autism.html>  
 National Institute of Neurological Disorders and Stroke-Autism Fact Sheet [http://www.ninds.nih.gov/disorders/autism/detail\\_autism.htm](http://www.ninds.nih.gov/disorders/autism/detail_autism.htm)  
 The National Institute of Mental Health-Autism Spectrum Disorders <http://www.nimh.nih.gov/health/publications/autism/complete-publication.shtml#pub4>  
 CDC-Autism Information Center <http://www.cdc.gov/ncbddd/autism/>  
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