

## Gluten- and casein-free diets for autistic spectrum disorder March 2004

### **Introduction**

Gluten and casein-free diets have been considered as an alternative treatment approach for children with autistic spectrum disorder. The pathophysiology and psychology of autism can be explained by excessive opioid (natural body endorphins) activity linked with peptides (proteins) from gluten and casein. The inability to process these substances can result in a variety of mental disorders, including autism. When the body cannot adequately metabolize these peptides, they are absorbed across dietary membranes into the body's systems. The peptides will cross into the brain causing interference of signal transmission leading to disruption of normal activity. Gluten- and casein-free diets have been proposed in order to reduce excessive peptides in the body, decreasing the disruptive behavior seen in many individuals with autism.

### **Research Summary**

A recent systematic review of the literature, *Gluten- and casein-free diets for autistic spectrum disorder*, was published in the Cochrane Database of Systematic Reviews. This review was conducted by a group of physicians with Nottingham Healthcare Trust in the United Kingdom, one of the country's leading mental health and learning disability service providers. The purpose of the review was to determine the efficacy of gluten- and/or casein-free diets as an intervention to improve behavior and cognitive and social functioning in individuals with autism. The researchers searched current research to find relevant randomized control trials (see [ingredients of good research](#) . . . [http://www.schwablearning.org/print\\_resources.asp?type=articles&r=314](http://www.schwablearning.org/print_resources.asp?type=articles&r=314)) including the elimination of gluten, casein, and both gluten and casein. One study met the inclusion criteria; the results of this study are described below.

The included study investigated a gluten and casein-free diet versus a 'normal' diet. Children participating in the study were an average age of 88.5 months, diagnosed with autism, and had an abnormal peptide concentration in their urine samples. The children were randomly assigned to either a treatment (gluten and casein-free diet) or control ('normal' diet) group and followed their assigned diets for one year. The study considered four outcome measures: number of autistic traits, communication and language abilities, cognitive functioning, and motor abilities.

### **Results**

This study did not find a significant difference between the gluten and casein-free diet and the 'normal' diet when considering communication and language abilities, cognitive functioning, and motor abilities. However, most importantly the study did find a statistical difference between the two groups when considering number of autistic traits. After following the diets for one year, the children were tested with the DIPAB (a standardized assessment for measuring autistic traits). "Autistic traits" included verbal communication, nonverbal communication, reaction when spoken to, behavior in learning situations, sharing of emotions, reaction to physical contact, eye contact and interaction with other children. The children on the gluten and casein-free diet had a mean autistic trait score

#### Reference:

Millward, C., Ferriter, M., Calver, S. & Connell-Jones, G. (2004). Gluten- and casein-free diets for autistic spectrum disorder [Review]. Cochrane Development, Psychosocial and Learning Problems Group. *Cochrane Database of Systematic Reviews*. 2, 2004

of 5.60, while the 'normal' diet group had a mean score of 11.20 (higher scores indicating greater severity).

### ***Conclusion***

This small study shows a significant beneficial treatment effect for the combined gluten and casein-free diet. However, currently there is a lack of large randomized trials investigating the diet. This review concluded that there is not yet sufficient evidence for clinicians to advise the use of such diets in cases of autistic spectrum disorder. More research is urgently needed in this area, and the authors will continue to update the results of this review.

### ***Additional Resources***

- Gluten Intolerance Group of North American  
<http://www.gluten.net/diet.asp>
- Gluten Free Casein Free Diet  
<http://www.gfcfdiet.com>
- Autism Network for Dietary Intervention  
<http://www.autismndi.com>

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