

Gluten-free and dairy-free diets: No effect on behavior of children with autism spectrum disorders

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The principal investigator on this research project, Pablo José González Domenech, specialist in psychiatry. Credit: University of Granada

A study by researchers from the Department of Psychiatry at the University of Granada (UGR) has analyzed the effects of a gluten-free diet and casein-free diet on the behavior of children diagnosed with autism spectrum disorders.

Given the limitations of attempts to treat such disorders, many families turn to alternative therapies. Among these, gluten- and casein-free diets implemented as a therapeutic approach in autism [spectrum](#) disorders have been the subject of significant interest and controversy in [scholarly research](#). Some authors have found such diets to have favorable effects on the symptoms of autism, while others—particularly more recent studies—have found no conclusive results.

Research conducted at the UGR reaffirms that gluten- and casein-free diets are not helpful as a standardised treatment for all children diagnosed with an [autism spectrum disorder](#). It may be that those cases with associated gastrointestinal disorders may benefit from such an approach.

Beta-casomorphin is a peptide with morphine-like opioid activity, which is formed in the intestine due to abnormal digestion of cow's milk protein (casein). People with autism spectrum disorders may present an abnormal porosity in the [intestinal barrier](#) that enables beta-casomorphin to penetrate the barrier, enter the blood circulation, and from there, reach the central nervous system, producing a toxic effect. Some scientists who have identified peptiduria (the abnormal presence of peptides in the urine) in children with autism spectrum disorders have detected a reduction of these peptides in subjects who have followed the gluten- and casein-free diet.

The primary aim of this research was twofold: to determine if gluten- and casein-free diets decrease behavioural disorders among children and adolescents diagnosed with autism spectrum disorders; and to examine

whether there is a link between possible behavioural changes after implementing this diet and levels of beta-casomorphin found in urine.

The UGR research comprised two studies. First, a pilot clinical assay was carried out on 28 children and adolescents diagnosed with autism spectrum disorders, who followed a gluten-free diet for three months and then switched to a casein-free diet for a further three months.

Next, a second study was initiated, funded by the Spanish Association of Child and Adolescent Psychiatry (AEPNyA), in which 37 children and adolescents diagnosed with [autism](#) spectrum [disorders](#) participated. This sample followed the same procedure, except for a longer duration (one special diet for six months, then the other special diet, again for six months). Variables relating to the efficacy, risk, and safety of following these diets were studied.

In neither of the two studies (3 + 3 months vs. 6 + 6 months) were significant changes detected either in the behavioural scales or in the beta-casomorphin levels in urine after the subjects had followed the gluten-free and the casein-free [diet](#).

The principal investigator on this project, Pablo José González Domenech of the Department of Psychiatry of the UGR, notes that further research is necessary. In addition to eliminating gluten and casein for a sufficient period of time (at least six months), future studies should include placebo and double-blind elements, as well as other biological markers to better define the subjects who may benefit from these diets.

To identify potential users, it would be interesting to include among the evaluation criteria measurements of intestinal permeability, examinations of intestinal bacterial populations, and gastrointestinal enzymatic and inflammatory activity, and to conduct brain imaging tests for the study of possible structural and functional changes.

More information: Pablo José González-Domenech et al. Influence of a Combined Gluten-Free and Casein-Free Diet on Behavior Disorders in Children and Adolescents Diagnosed with Autism Spectrum Disorder: A 12-Month Follow-Up Clinical Trial, *Journal of Autism and Developmental Disorders* (2019). [DOI: 10.1007/s10803-019-04333-1](https://doi.org/10.1007/s10803-019-04333-1)

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