

# Gluten-free, casein-free diet may help some children with autism

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(Medical Xpress) -- A gluten-free, casein-free diet may lead to improvements in behavior and physiological symptoms in some children diagnosed with an autism spectrum disorder (ASD), according to researchers at Penn State. The research is the first to use survey data from parents to document the effectiveness of a gluten-free, casein-free diet on children with ASD.

"Research has shown that children with ASD commonly have GI [gastrointestinal] symptoms," said Christine Pennesi, medical student at Penn State College of Medicine. "Notably, a greater proportion of our study population reported GI and [allergy symptoms](#) than what is seen in the general pediatric population. Some experts have suggested that gluten- and casein-derived peptides cause an immune response in children with ASD, and others have proposed that the peptides could trigger GI symptoms and behavioral problems."

The team -- which included Laura Cousino Klein, associate professor of biobehavioral health and human development and family studies -- asked 387 [parents](#) or primary caregivers of children with ASD to complete a 90-item online survey about their children's GI symptoms, [food allergy](#) diagnoses, and suspected food sensitivities, as well as their children's degree of adherence to a gluten-free, casein-free [diet](#). The team's results appeared online this month in the journal [Nutritional Neuroscience](#).

Pennesi and Klein and their team found that a gluten-free, casein-free diet was more effective in improving ASD behaviors, physiological

symptoms and social behaviors for those children with GI symptoms and with allergy symptoms compared to those without these symptoms. Specifically, parents noted improved GI symptoms in their children as well as increases in their children's social behaviors, such as language production, eye contact, engagement, [attention span](#), requesting behavior and social responsiveness, when they strictly followed a gluten-free, casein-free diet.

According to Klein, autism may be more than a neurological disease -- it may involve the GI tract and the immune system.

"There are strong connections between the immune system and the brain, which are mediated through multiple physiological symptoms," Klein said. "A majority of the pain receptors in the body are located in the gut, so by adhering to a gluten-free, casein-free diet, you're reducing inflammation and discomfort that may alter brain processing, making the body more receptive to ASD therapies."

The team found that parents who eliminated all gluten and casein from their children's diets reported that a greater number of their children's ASD behaviors, physiological symptoms and social behaviors improved after starting the diet compared to children whose parents did not eliminate all gluten and casein. The team also found that parents who implemented the diet for six months or less reported that the diet was less effective in reducing their child's ASD behaviors.

According to the researchers, some of the parents who filled out the surveys had eliminated only gluten or only casein from their children's diets, but survey results suggested that parents who completely eliminated both gluten and casein from their child's diet reported the most benefit.

"While more rigorous research is needed, our findings suggest that a

gluten-free, casein-free diet might be beneficial for some children on the autism spectrum," Pennesi said. "It is also possible that there are other proteins, such as soy, that are problematic for these children."

The reason Klein and Pennesi examined gluten and casein is because they are two of the most common "diet offenders."

"Gluten and casein seem to be the most immunoreactive," Klein said. "A child's skin and blood tests for [gluten](#) and casein allergies can be negative, but the child still can have a localized immune response in the gut that can lead to behavioral and psychological symptoms. When you add that in with autism you can get an exacerbation of effects."

Klein's advice to parents of children with ASD?

"If parents are going to try a gluten-free, casein-free diet with their children, they really need to stick to it in order to receive the possible benefits," she said. "It might give parents an opportunity to talk with their physicians about starting a gluten-free, casein-free diet with their [children](#) with ASD."

Provided by Pennsylvania State University

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