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Child Have ADHD? Stop Feeding Them This

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By Dr. Mercola

There's evidence suggesting that gluten sensitivity may be at the [root of many neurological and psychiatric conditions](#), including attention deficit hyperactivity disorder (ADHD).

What is gluten?

It's a protein found in wheat grain and part of "gluey" proline and glutamine rich proteins known as prolamines. Prolamines are found in all cereal grains, even rice, corn and oats, but only wheat, and to a lesser extent rye, spelt and einkorn, are associated with the serious neurological and autoimmune reactions often linked to autism spectrum disorder.



Gluten is only found in wheat species. Spelt or einkorn gluten has dramatically lower antigenicity of common wheat (*Triticum aestivum*) that is used in bread products. Other cereal grasses have what are known as prolamines (proline-glutamine rich proteins) with rye containing secalin, barley containing horedin, etc, but they have very little cross-reactivity with antigens associated with wheat intolerance.

It has long been known that people with celiac disease are also more likely to suffer from ADHD, another condition that is heavily influenced by dietary habits.

However, while the treatment of celiac disease is a completely gluten-free diet, with ADHD the most oft-cited dietary villain is sugar, whereas grains are often overlooked (even though they act much like sugar in your body).

It turns out, though, that there may be a closer link between the symptoms of celiac disease and ADHD than was previously recognized, and that connection is gluten.

A Gluten-Free Diet May "Cure" ADHD

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Many children with ADHD do not respond well to most grains, especially wheat. This could be because they have full-blown celiac disease, which impacts an average of [one out of every 133](#) people in the United States (although some studies have found that this number may [be as high as 1 in 33](#) in at-risk populations) -- or because they have a less obvious condition known as gluten sensitivity.

People with gluten sensitivity, which may comprise [10 percent of the U.S. population](#) or more, experience many of the same symptoms as celiac disease causes, including headaches, fatigue, muscle and joint pain, gas and more, but may be unaware that the culprit triggering these symptoms is wheat and other gluten-containing grains. It's also very possible to have celiac disease and not know it ... as [researchers state](#), "in many cases, the disease may be clinically silent despite manifest small bowel mucosal lesions."

But the psychological and behavioral symptoms of ADHD are now overlapping so often with those of celiac disease and gluten sensitivity that it's recommended "celiac disease ... [be included in the ADHD symptom checklist](#)." This suggestion was prompted by a new study, which found people with ADHD who tested positive for celiac disease improved significantly after following a gluten-free diet for at least six months. [The researchers noted](#):

"After initiation of the gluten-free diet, patients or their parents reported a significant improvement in their behavior and functioning compared to the period before celiac diagnosis and treatment ..."



It may sound strange to you that eating a grain that wreaks havoc on your *gut* would manifest as symptoms related to your *brain*, rather than your digestion, but grains are inherently pro-inflammatory and will worsen any condition that has chronic inflammation at its root -- and not just inflammation in your gut, but anywhere in your body. Chronic inflammation in your body can wreak havoc in your brain, and the importance of [reducing inflammation when dealing with mental health issues](#) is well known. It is very common for people to experience a wide variety of mental health and emotional improvements upon eliminating gluten from their diet.

Why Even Whole, Sprouted Wheat is a Problem

I recommend that *everyone* following my [beginner nutrition plan](#) eliminate all gluten from their diets, whether or not they have celiac disease or ADHD, because many experience health improvements upon doing so. Among the most important foods to avoid are those gluten-containing grains that contain gliadin molecules, such as wheat.

When gliadin in the wheat protein complex (containing over 23,000 proteins) activates the protein zonulin in the gut, it opens up the gaps between the enterocytes causing an influx of improperly digested wheat proteins and stomach bacteria.

Therefore regardless of your sensitivity level to the wheat proteins, gliadin opens up a

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pandora's box of intestinal permeability, and subsequent systemic inflammation and immune dysregulation.

Wheat also contains high amounts of wheat germ agglutinin (WGA), a glycoprotein classified as a lectin, which is largely responsible for many of wheat's ill effects. Other grains high in lectins include rice, spelt, and rye. Interestingly enough, the highest amounts of WGA is found in whole wheat, including its sprouted form, which is touted as being the most healthful form of all.

Lectins are actually designed to withstand degradation through a wide range of pH and temperatures, which is why sprouting, fermenting and cooking will NOT negate its ill effects. WGA lectin is particularly tough because it's actually formed by the same disulfide bonds that give strength and resilience to vulcanized rubber and human hair.

Furthermore, because lectins are so small and hard to digest, they tend to bioaccumulate in your body, where they can interfere with biological processes. WGA is particularly troublesome in this regard. Studies indicate it has a number of health-harming characteristics and activities:

Pro-inflammatory--WGA [stimulates the synthesis of pro-inflammatory chemical messengers](#) (cytokines) in intestinal and immune cells, and has been shown to play a [causative role in chronic thin gut inflammation](#).

Immunotoxicity--WGA [induces thymus atrophy in rats](#), and anti-WGA antibodies in human blood have been shown to cross-react with other proteins, indicating that they [may contribute to autoimmunity](#). In fact, WGA appears to play a role in celiac disease (CD) that is entirely distinct from that of gluten, due to significantly higher levels of IgG and IgA [antibodies against WGA found in patients with CD](#), when compared with patients with other intestinal disorders.

Neurotoxicity-- [WGA can cross your blood-brain barrier](#) through a process called "adsorptive endocytosis," pulling other substances with it. [WGA may attach to your myelin sheath](#) and is capable of [inhibiting nerve growth factor](#), which is important for the growth, maintenance, and survival of certain target neurons.

Excitotoxicity-- Wheat, dairy, and soy contain exceptionally high levels of glutamic and aspartic acid, which makes them all potentially excitotoxic. [Excitotoxicity is a pathological process](#) where glutamic and aspartic acid cause an over-activation of your nerve cell receptors, which can lead to calcium-induced nerve and brain injury. These two amino acids may contribute to neurodegenerative conditions such as multiple sclerosis, Alzheimer's, Huntington's disease, and other nervous system disorders such as epilepsy, ADD/ADHD and migraines.



Cytotoxicity—WGA has been [demonstrated to be cytotoxic](#) to both normal and cancerous cell lines, capable of inducing either cell cycle arrest or programmed cell death (apoptosis).

Disrupts Endocrine Function—WGA may contribute to weight gain, insulin resistance, and leptin resistance by blocking the leptin receptor in your hypothalamus. It also [binds to both benign and malignant thyroid nodules](#), and interferes with the production of secretin from your pancreas, which can lead to digestive problems and pancreatic hypertrophy.

Cardiotoxicity—WGA has a potent, [disruptive effect on platelet endothelial cell adhesion molecule-1](#), which plays a key role in tissue regeneration and safely removing neutrophils from your blood vessels.

Adversely effects gastrointestinal function by causing increased shedding of the intestinal brush border membrane, reducing the surface area, and accelerating cell loss and shortening of villi. It also causes cytoskeleton degradation in intestinal cells, contributing to cell death and increased turnover, and [decreases levels of heat shock proteins in gut epithelial cells](#), leaving them more vulnerable to damage.



Why ADHD Symptoms are Closely Linked to Gut Health

A variety of behavioral problems are linked to problems in your gut, not only from gluten, WGA and other components of grains but also due to the gut-brain connection. The gut-brain connection is well recognized as a basic tenet of physiology and medicine, so this isn't all that surprising, even though it's often overlooked. There's also a wealth of evidence showing gastrointestinal involvement in a variety of neurological diseases.

With this in mind, it should also be crystal clear that nourishing your gut flora is extremely important at all life stages because in a very real sense you have two brains, one inside your skull and one in your gut, and each needs its own vital nourishment.

Your gut and your brain are actually created out of the same type of tissue. During fetal development, one part turns into your central nervous system while the other develops into your enteric nervous system. These two systems are connected via the vagus nerve, the tenth cranial nerve that runs from your brain stem down to your abdomen. This is what connects your two brains together, and explains such phenomena as getting butterflies in your stomach when you're nervous, for example.

Dr. Natasha Campbell-McBride, a medical doctor with a postgraduate degree in neurology has found that toxicity in your gut can flow throughout your body and into your brain, where it can cause symptoms of autism, ADHD, dyslexia, dyspraxia, depression, schizophrenia and other mental disorders.

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She believes the epidemic of autism and other learning disorders originate in the gut, and manifest as a condition known as [Gut and Psychology Syndrome \(GAPS\)](#).

GAPS may manifest as a conglomerate of symptoms that can fit the diagnosis of either autism, or attention deficit hyperactivity disorder (ADHD), attention deficit disorder (ADD) without hyperactivity, dyslexia, dyspraxia, or obsessive-compulsive disorder, just to name a few possibilities ... Fortunately, it is possible to identify GAPS within the first weeks of your baby's life, which can help you make better informed decisions about vaccinations, as if your child has the metabolic characteristics of GAPS, they should [NOT be immunized until that is reversed](#).

What are the Keys to Treating ADHD with Dietary Changes?

It is my sincere hope that people will begin to realize that drug therapy, if at all necessary, should be a very last resort, after all other options have been exhausted, when it comes to behavioral problems such as ADHD. The *first* route of treatment should actually be dietary changes, including:

- **Eliminate most grains and sugars, including fructose, from your child's diet.** Grains and sugars both tend to cause allergies in sensitive individuals. Even organic, whole, sprouted grain can cause problems in many children so it would be wise to give them a "grain holiday" and see if their behavior improves.
- **Replace soft drinks** (whether diet and regular), fruit juices, and pasteurized milk with pure, clean non-fluoridated water.
- **Increase omega-3 fats** by taking a high quality animal-based omega-3 oil. Research has confirmed that animal-based omega-3 fat can [improve the symptoms of ADHD more effectively than drugs](#) like Ritalin® and Concerta®. In my view, krill oil is the best option for this. It contains essential EPA and DHA in a double-chain phospholipid structure that makes it [far more absorbable than the omega-3s in fish oil](#).
- **Minimize your use of nearly all processed fats**, especially trans fats as they disrupt nerve cell intercommunication.
- **Avoid all processed foods**, especially those containing [fructose](#), artificial colors, flavors and preservatives, which may trigger or worsen symptoms. Gluten is also commonly hidden in processed foods like ready-made soups, soy sauce, candies, cold cuts, and various low- and no-fat products, as well as refined grain products like bread, pizza crust, pasta, cookies and pastries.



I also recommend you have your child follow a gluten-free diet to see if this eliminates their symptoms. Your best bet when deciding to eliminate gluten is to primarily base your diet on

lean proteins, vegetables and raw dairy products, as [described in my nutrition plan](#), and stick with the grains, seeds and flours available that are naturally gluten-free.

This includes:

Rice	Corn (only eat organic, non-GM corn)
Quinoa	Sorghum
Soy (but I don't recommend eating this for other reasons)	Flax and amaranth seed
Buckwheat and millet do not contain the gliadin molecule that can provoke the inflammatory reaction from gluten. Therefore, they are usually safe to eat as well.	



Gluten-free options are [becoming much more in demand](#) and as a result are showing up in grocery stores, restaurants and from caterers. But keep in mind, particularly if you are relying on processed gluten-free foods, that [cross-contamination can and does occur](#), most likely during processing, and many companies simply aren't testing to make sure the final product is still gluten-free.

One study found that of the 22 naturally gluten-free products tested, [seven of them would not be considered gluten-free](#) under the proposed FDA rule for gluten-free labeling, which requires products labeled as 'gluten-free' to contain less than 20 parts per million (ppm) of gluten. So again, to be sure your diet is truly gluten-free, it should be based on whole foods, not processed ones.

Finally, the benefits of a gluten-free diet do not always appear overnight. Some do experience improvements rapidly, but in others it can take 9 to 12 months before the lining of your small intestine is fully healed. Generally, allow 6 to 9 months of following a gluten-free diet before you expect symptoms to resolve.