

Gluten & Neurological Disorders – Understanding the Connection

Gluten is the common protein molecule found in wheat, barley, rye, kamut, and spelt. Gluten is a sticky, storage protein that binds to the small intestinal wall where it often causes digestive and immune system disorders. The most common condition associated with a gluten sensitivity is celiac disease where the small intestinal villi are flattened. However, the immune reaction that takes place with gluten sensitivity can affect many different tissues, and when it does, it is termed non-celiac, gluten sensitivity (NCGS).

NCGS is an epidemic that is a major factor in inflammatory disorders of the brain and nervous system. Studies have found associations between gluten sensitivity and disorders in every part of the neurological system including the brain, spinal cord, and peripheral nerves. ¹

Gluten and Major Neuropathic Disorders

Gluten is a significant trigger in psychiatric disorders, movement disorders, sensory ganglionopathy, ataxia, neuromyelitis, multiple sclerosis, cerebellar disease, cognitive impairment, dementia, restless leg syndrome, migraines, apraxia, neuropathy, myoclonus, hearing loss, and virtually every other neurological disorder. ^{2,3,4,5,6}

For many individuals, their immune system gets so overworked from gluten sensitivity and other environmental challenges such as toxins, parasites, vitamin D3 deficiencies, and trauma they can have severe immune reactions that last months after

one provoked exposure. This means that consuming gluten on one day can cause an inflammatory assault that could last for 2-3 months.⁵ This is why it is so critical to be as strict as possible when avoiding gluten and other inflammatory irritants.

The Complexity of Gluten Sensitivity

Gluten is made up of a sticky portion called glutenin and a protein portion called gliadin. Gliadin can be broken down into alpha, omega, and gamma gliadins. Most lab tests only look at alpha gliadin antibodies but this is only a very small component of the total molecule. Often times this lab comes back negative, but the individual is reacting to some of the other components of the gluten molecule.

Glutenin gives wheat dough strength and elasticity and is very commonly used in the baking process due to these desirable characteristics. Many people have severe reactions to this molecule, but it never shows up on the basic gliadin antibody testing.⁶

The food processing industry very often deamidates the gliadin molecule to make it water soluble. Deamidated gliadin has been shown to trigger severe immune responses in many individuals. This never tests out for gliadin antibodies.⁷

Gluten Based Opioids

When the body metabolizes gluten, it creates opioids in the form of gluteomorphin. One can have a blood test to see if the body produces antibodies to gluteomorphin and the building block prodynorphin.⁸

When someone has an opioid sensitivity, going gluten free can

cause severe withdrawal symptoms that are similar to coming off of opioid drugs such as heroin. These symptoms include depression, crazy mood swings, nausea, and vomiting, as well as abnormal bowel activity. This can last anywhere from several days to weeks.

Cross-Reactivity Immunology & Nervous System Dysfunction

Immune cross-reactivity happens when the immune system mistakes one protein for another. The gluten protein is similar to protein structures in the nervous system and the thyroid tissue. When the body creates antibodies for gluten, it may also produce antibodies to the body's own nervous tissue or thyroid.⁹ This cross-reactive effect leads to damage to the brain, thyroid, and other neurological tissue when the individual consumes anything with even the slightest bit of gluten.

The most common area of cross-reactivity is through a family of proteins located on neurons called synapsin. These proteins help to regulate neurotransmitter release. This is most common in the cerebellum, which can cause problems with vertigo, motor control, balance, and anxiety.¹⁰

Further Reading:

- *Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases*
- *No More Gluten – How I Found Health After MS*
- *Understand Hypothyroidism – Prevention and Natural Remedies*
- *Is Wheat Poison? What's Behind the Rise of Celiac Disease and Gluten Intolerance*

Sources :

1. *Functional and metabolic disorders in celiac disease: new implications for nutritional treatment.* – Pub Med
2. *Gluten sensitivity presenting as a neuropsychiatric disorder.* – Pub Med
3. *Non-Celiac Gluten sensitivity: the new frontier of gluten related disorders.* – Pub Med
4. *Gluten-related neurologic dysfunction.* – Pub Med
5. *[Gluten-related disorders and demyelinating diseases].* – Pub Med
6. *[Neurological disorders associated with gluten sensitivity].* – Pub Med
7. *Dispersion in the presence of acetic acid or ammonia confers gliadin-like characteristics to the glutenin in wheat gluten.* – Pub Med
8. *Non-celiac gluten sensitivity: literature review.* – Pub Med
9. *Salivary antigliadin and antiendomysium antibodies in coeliac disease.* – Pub Med
10. *Sporadic cerebellar ataxia associated with gluten sensitivity.* – Pub Med