Why a Gluten Free Diet is Recommended

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Wheat is a grain that contains proteins and carbohydrates. Most of the calories contained in wheat grain are from the carbohydrate component of the wheat. However, wheat also contains additional proteins which can be problematic for some people: gluten, wheat germ agglutinin and amylase-trypsin inhibitors.

Celiac Disease

Celiac Disease is an autoimmune disorder that results in an immune response in the form of an allergic reaction when gluten is ingested. Treatment for Celiac Disease is a gluten-free diet that requires strict avoidance. Only about 1%-3% of people have an actual diagnosis of Celiac Disease. A confirmed diagnosis for Celiac indicates the presence of specific antibodies circulating in the serum that can be picked up by blood testing. Biopsy of intestinal tissue is another way to confirm the diagnosis. 30%-40% of people have a specific genetic make-up that makes them highly susceptible to Celiac Disease. These individuals may exhibit a high level of gluten sensitivity or intolerance, even in the absence of a confirmed diagnosis of Celiac Disease.

Non-Celiac Gluten Sensitivity (NCGS)

This category includes individuals who have a sensitivity to wheat, but do not have the diagnosis of Celiac Disease. The symptoms involved in NCGS are different than Celiac Disease and can present in multiple ways due to the potential overlapping issue related to the additional proteins found in wheat, such as wheat germ agglutinin and/or amylase-trypsin inhibitors.

Related Enteropathy

In addition to Celiac Disease and non-Celiac gluten sensitivity, there is a related category of symptoms/illness/autoimmunity that are associated with a gluten sensitivity reaction referred to as gluten sensitivity-related enteropathy. Enteropathy is described as inflammation of disease in the small intestine. With this type of manifestation, it is even more difficult to determine the cause of the symptoms since the potential gluten intolerance can present in an array of symptoms, oftentimes in ways that do not demonstrate any of the stomach or digestive symptoms typically involved in gluten sensitive individuals.

Gluten-Free

Even in the absence of any level of gluten intolerance or sensitivity, there are still many benefits to minimizing or eliminating one's intake of gluten. Modern day gluten has evolved and developed over time. The newer hybrid strains contain completely different forms than those found in the original wheat plant. This genetically-engineered version of gluten causes many health issues and is linked to multiple illnesses. The modified version of the protein has detrimental effects on our gut health and the integrity of our gastrointestinal tracts. It also creates immune system dysfunction, resulting in inflammation and autoimmunity. Gluten exposure further increased when scientists discovered the process of deamination. This process allows gluten to be dissolved into liquids and other products leading to the development of many additional sources of unexpected gluten exposure. For example,

shampoos, lunch meats, imitation seafood, certain vitamins/supplements, binding agents and fillers all can contain gluten.

Problems Associated with Gluten

Gluten can cause inflammation in the gut or what's known as Leaky Gut. This is the typical symptom associated with Celiac Disease and non-celiac gluten sensitivity. The inflammatory response in the body is the reaction our immune system gives as a response to injury or infection. When gluten is ingested, it travels to the stomach and then into the small intestine which triggers the release of zonulin. This chemical sends signals which cause the tight junctions that line the wall of the intestines to become loose or damaged. The intestines then open up, creating intestinal permeability referred to as "leaky gut," whereby areas in the digestive tract allow larger proteins to travel through the intestinal lining and out into the bloodstream, leaking essential gut microbes, toxins, proteins and partially digested food particles. The arrival of these elements into the bloodstream is unexpected by our immune system, so it is unable to properly recognize them, resulting in an immune response mounted by the body and associated inflammation.

Gluten, wheat germ agglutinin, gliadin and other gluten-related proteins in the bloodstream, as well as any potential ingested toxins, bacterium or viruses that passed through the leaky gut all lead to something referred to as molecular mimicry. This describes what happens when your immune system responds to something it perceives as foreign by creating antibodies against it. This critical function of our immune system can become problematic when the foreign cells that were recognized have a close resemblance to our normal cells. For example, a component of gluten is gliadin. Gliadin cells look very similar to cells that line our intestines. The antibodies produced to combat gliadin cells also attack normal gut cells which are mistaken for gliadin due to their similarities. This leads to an autoimmune response and related autoimmune conditions. Therefore, Celiac Disease is an autoimmune disease wherein the immune system attacks the body's own gut lining, but other types of autoimmune illnesses can result from any related issues.

Wheat germ agglutinin also causes molecular mimicry and can cause a reaction even when gluten is tolerated by the individual. Another example of gluten-related molecular mimicry is the protein casein, which is found in dairy and has a similar molecular structure as gluten. As a result, the body may react to ingested dairy the same way it would to eating a bowl of pasta containing gluten. The same concept applies to thyroid cells which is why gluten sensitivity is highly correlated with autoimmune thyroid conditions.

Gluten and Autoimmunity

The molecular mimicry mechanism that leads to autoimmune thyroid issues also contributes to most other types of autoimmune diseases. As ingestion of gluten continues, the immune system proceeds to mount inflammatory responses to the foreign protein invaders. As the intake persists, the inflammation becomes chronic, Leaky Gut develops, microbes and toxins continually flood the bloodstream, thereby fueling the inflammatory fire. We have discussed the similarities of some of our cells, particularly the thyroid and intestinal cells that lead to related autoimmune thyroid issues such as Hashimoto's and Grave's. Autoimmune gut issues include Crohn's, Colitis and Inflammatory Bowel Disease (IBD).

However, gluten has also been linked in multiple studies to a variety of autoimmune-related conditions, including:

- Type I Diabetes
- Fibromyalgia
- Chronic Fatigue Syndrome (CFS)
- Rheumatoid Arthritis
- Multiple Sclerosis
- Autoimmune liver disease
- Multiple autoimmune skin disorders/rashes

This correlation is a result of the chronic stress on the immune system due to chronic inflammation. As the immune system becomes overwhelmed by the constant assault, it becomes less efficient and can lose its ability to identify and respond to pathogens with precision. The immune system becomes desperate as it begins to send out attack after attack, eventually mistakenly targeting the body's own tissues, leading to the development of an autoimmune-related illness or condition.

Gluten and Related Proteins Sensitivity Symptoms

Individuals who have been diagnosed with Celiac Disease tend to experience a majority of their symptom presentation as gut related such as:

- Diarrhea and/or constipation
- Heartburn/acid reflux
- Abdominal pain and cramping
- Bloating
- Gas
- Foul smelling stools
- Occasional vomiting

Those who suffer from non-celiac gluten sensitivity experience similar gut related symptoms as well as a variety of other symptom presentations which include:

- Brain/cognitive symptoms
    - Brain fog
    - Mental fatigue/lack of focus/difficulty concentrating
    - Depression and/or anxiety
- Skin symptoms
    - Dermatitis Herpetiformis (itchy, red, raised rash)
    - Itching
    - Eczema
    - Psoriasis

The best way to determine if intolerance is causing symptoms is to strictly eliminate gluten for a 2-week period and determine the level of improvement.

Excitotoxins

Gluten is one, among a list of many types of foods, that can have potential detrimental effects on the body, resulting in inflammatory illnesses and autoimmunity. Another potential health risk we are exposed to in our diets, includes excitotoxins. Excitotoxins refer to certain amino acids that have a stimulating effect on the nerve cells in the body. When the level of excitotoxins becomes too high, the nerves cells will "excite themselves to death." The resulting neurodegeneration is associated with many chronic illnesses and neurological conditions, including: Parkinson's Disease, multiple sclerosis, autism, Alzheimer's and many others. Many foods can be limited or avoided in order to improve symptoms. A few examples of common excitotoxins include glutamate, aspartate and cysteine. Find an extended list below.

Excitotoxins or excitatory neurotoxins are encountered in our food supply. The most frequently encountered food excitotoxin is glutamate which is commercially added to many foods despite evidence that it can freely penetrate certain brain regions and rapidly destroy neurons. For more information on excitotoxins, check out this article: "Excitotoxins: The FDA-approved Way to Damage Your Brain."

Below is a full list of excitotoxins:

- Ajinomoto
- Aspartame/NutraSweet
- Autolyzed yeast
- Autolyzed yeast extract
- Autolyzed anything
- Bouillon
- Broth
- Calcium caseinate
- Caseinate
- Carrageenan
- Chicken/pork/beef "base"
- Chicken/pork/beef "flavoring"
- Disodium caseinate
- Disodium inosinate
- Dough conditioners
- Gelatin
- Glutamate
- Guar gum
- Hydrolyzed oat flour
- Hydrolyzed plant protein
- Hydrolyzed protein
- Hydrolyzed vegetable protein
- Hydrolyzed anything
- Komb extract
- Malt extract
- Malted barley/barley malt
- Malted barley flour
- Malt flavoring(s)
- Malted anything
- Maltodextrin
- Monosodium glutamate
- Natural flavor(s)/flavoring(s)
- Plant protein extract l-cysteine
- Seasoned salt
- Seasoning(s)/spice(s)
- Smoke flavoring(s)
- Sodium caseinate
- Soup base
- Stock
- Soy extract
- Soy protein
- Soy protein concentrate
- Soy protein isolate
- Soy sauce
- Texture protein
- Vegetable gum
- Whey protein
- Whey protein concentrate
- Whey protein isolate
- Yeast extract