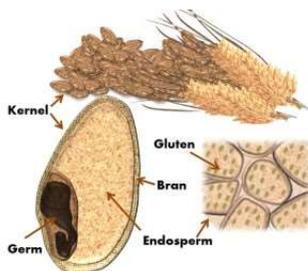


Gluten Allergies, Myth or Reality

By Tracy K. Anderson June 1st, 2016

I often see commercials touting gluten free foods, and hear many people saying they are trying to eat gluten free. So my curious mind started wondering, exactly what gluten is, where it's found and why all of a sudden everyone is seemingly allergic to gluten. It all seems too easy, with too much hype. Has gluten allergies increased over the past few years or has it become the latest of a string of fad nutritional ideals.

I have no feelings about this topic, per se. The topic of gluten allergies has no personal impact. I must admit I am coming into this research with a bias. I find it hard to believe that many people have a gluten allergy, other than through the power of suggestion, or a misguided belief. I will, through this research, begin to develop a science based opinion on whether gluten really affects as many people as advertisers would have us believe. I will allow the facts of the situation guide me through this paper.



The Gluten protein is mainly found in the endosperm of grain Kernel (seed)

Figure 1 Gluten is found in the endosperm. Your Path Personal Training Website.

According to Encyclopedia Britannica gluten is a water insoluble protein found in wheat and cereal grains, including barley, rye and all their species and hybrids (Gluten). Insoluble proteins are insoluble in water but can be soluble in the presence of lipids (fat). The main proteins in gluten are gliadin and glutenin. The purpose of gluten is to give elasticity to dough, helping it rise and keep its shape. Different sources of gluten will determine the baking qualities of flour. Worldwide gluten is a good source of protein whether is it added to foods or made with gluten already in the food. Wheat gluten can also be used for making imitation meats.

To help understand why gluten can cause an allergic reaction we will need to understand what happens to gluten once it enters the body. Protein digestion begins in the stomach with protein digesting enzymes that help the body break down protein into smaller pieces called amino acids (Porth). While there are hundreds of different types of proteins in gluten, the two main proteins are glutenin and gliadin. Glutenin is easily digested by these digesting enzymes; however gliadin is very difficult for these enzymes to breakdown. Gliadin is a larger protein than glutenin and has more amino acids. Since it is not broken down very well, these proteins form long chains called oligopeptides (Porth). It is these oligopeptides that causes the inflammation reaction in the small intestine. The body mounts an attack on these oligopeptides trying to break them down. This inflammatory response does not stay localized, but spreads throughout the large intestine too. Therefore, gluten digestions results in discomfort in the lower abdomen because of the systemic inflammation. This inflammation is the allergic response of which people complain. An allergic response is an overreaction of the immune system to a stimulus (Gershon, 1999).

According to Moises Velasquez-Manoff, of the New York Times, as many as one third of Americans try to avoid gluten. I haven't found any credible studies that say what percent of people can actually define gluten or its purpose. But anecdotal evidence is that most people, as high as eighty percent, do not know much about gluten, or have misguided perceptions.

True gluten sensitivity comes in the form of Celiac Disease. When people with celiac disease eat gluten their body mounts an immune response that attacks the small intestine (Gerson, 1999). These attacks cause inflammation and can lead to damage to the small intestine.

When the small intestine becomes damaged, nutrient absorption is hindered. According to the American Academy of Allergy, Asthma and Immunology, less than one percent (1 in 141)

of people has Celiac Disease. A study by published in the Journal of Gastroenterology found no

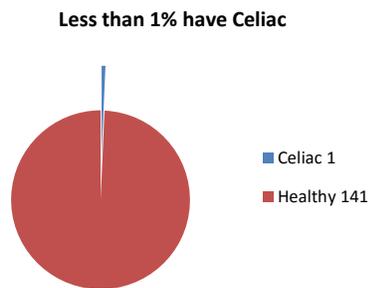


Figure 2 Occurrence of Celiac Disease

effects of Gluten in patients that self-reported Non-Celiac Gluten Sensitivity (Jessica R. Biesiekierski). According to the book, *The Gluten Lie*, this brings into question the entire idea of Non Celiac Gluten sensitivity. It appears individuals are succumbing to the idea of gluten intolerance through the influence of advertisers or because they tend to follow others,

known as the herd effect.

There is another form of gluten allergy. It comes in the form of Non-Celiac Gluten Sensitivity. According to the book, *The Gluten Lie* (Levinovitz, 2015), 18 million Americans have Non-Celiac Gluten Sensitivity, which is loosely defined and would equate to 0.6%. However, according to the website Beyond Celiac, Celiac Disease has been on the rise, along with non-celiac gluten sensitivity (Beyond Celiac). One of their theories is that wheat has been bred to contain higher amounts of gluten. They list other factors as well, such as overall wheat consumption or an additive known as “vital wheat gluten,” that could be potential areas of increased exposure and sensitivity.

Symptoms of Celiac disease include diarrhea and weight loss, while most with celiac disease experience few or no digestive signs or symptoms. Only about one-third of people diagnosed with celiac disease experience diarrhea, and about half have weight loss. (Mayo Clinic Staff). Twenty percent of people with celiac disease have constipation, and 10 percent are obese. Other symptoms include, but not limited to, anemia, osteoporosis, dermatitis, headaches, joint pain and acid reflux. As you read the percent affected by these symptoms, keep in mind that these would be out of 1% of the population.

According to the Celiac Foundation symptoms of Gluten Intolerance can include gas and abdominal swelling, abnormal bowel movements, headaches, joint pain and even fatigue (Celiac Foundation). These can be common with celiac disease, but those with gluten intolerance have not tested positive for celiac. Those who have been diagnosed with gluten sensitivity do not experience the small intestine damage or antibodies found in celiac disease. Since there is currently no blood test for gluten sensitivity, the only way to be diagnosed is to undergo the screening and diagnostic tests required to confirm celiac disease. There is no cure for gluten sensitivity, and the only treatment is to follow a gluten-free diet.

According to an article written by the CBS news staff after an on air report for their website, a decade ago almost no one (statistically) had celiac disease. Now more than two million are diagnosed with the disease (News, CBS) and this is still statistically low. Studies show that the increase is due to an actual increase in diagnosis, but also for an increase in people self reporting an allergic response. While the Celiac Foundation says to never self diagnose gluten intolerance, but allow medical professionals to assess your symptoms. While media news reports tend to be a little hyperbolic of reports to increase the urgency and viewership of there reporting.

An influence of advertising is one area that is driving the idea that it is healthier to eat gluten free. Products that have never had gluten in them, are claiming on their labels to be gluten free. General Mills Cheerios is made from oats which do not have gluten. However, after claiming their cereal to be gluten free their sales increased by three percent and General Mills gluten-free cereal sales increased 18% between 2013 and 2014 (Eric Schroeder). Included in this must be considered cross contamination which is when a product is made in the same location as a non-gluten free product. This can cause some symptoms to be felt by those very sensitive and

can also put their claim to be gluten free in danger. Food producers feeding the growing appetite for gluten-free have put the gluten-free label on foods that never included gluten, like vegetables and yogurt (Largent).

While gluten intolerance and celiac disease only affect, at most 18% of the population, many are moving to remove gluten from their diet in the misbelief that it is healthier. This trend coincides with media attention and diet books that tout the alleged benefits of gluten free eating. Why does the American public continue to fall for nutritional trends would be another whole paper, or even book? History shows the low fat diets of the 1980's, and then the low carb diets of the 1990's, and even the organic and whole food movements of the early part of this century. All of these supposedly nutritional advancements and the American public continues to increase in obesity, diabetes and many other nutritionally related illnesses. The evidence shows that these fad diets do not work and do not have lasting power.

It appears that gluten sensitivity, or intolerance, is very low and much over judged. As many self diagnose themselves, and try to cut gluten out of their diet, most do not completely remove gluten. Since gluten is not completely removed, if there was an issue, the issue would still be there.

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