

Gluten Facts and Fiction

How much is too much – Does the source matter & other relevant questions

By Jerry Morrison ND,

Gluten intolerance vs. gluten sensitivity: Apx ½ - 1% of the worldwide population possess genetic variations, which result in an immune response to ingestion of gluten. This response is diagnosed as Celiac disease and is the most severe form of gluten intolerance. These individuals must refrain from consumption of gluten containing foods in order to control the disease. We will look at exactly how much is too much for these individuals in a moment.

Many more individuals mistakenly think they are “allergic” to gluten despite never having been actually confirmed with a demonstrated serum anti-tTG antibody and antigliadin antibody (AGA) measurements. Even more individuals feel they are “gluten sensitive or intolerant”. This gluten paranoia has been fueled by misinformation, much of which unfortunately has been fostered by those wishing to market a “gluten free” product, book or service. While it could certainly be argued that the typical American diet is probably excessive in gluten and reducing the amount of gluten may be beneficial, the knee-jerk gluten paranoia, which seems to be so pervasive, is mostly unwarranted.

Gluten Sensitivity or intestinal permeability (aka Leaky Gut) ??

Other than those individuals with actual IgE immune reactions to wheat gluten one must consider that perhaps the sensitivity to wheat may be a result of the proteins crossing undigested across the intestinal lumen due to intestinal permeability. Quite often, non-celiac patients who are sensitive to wheat are also sensitive to other common food items particularly dairy, citrus and soy. Once again, the real focus should be on determining and addressing the root cause of the intestinal permeability, which quite often then resolves the food sensitivities.

Non - GI related gluten related issues - This is a little of a misnomer since all gluten issues really begin in the gut, but patients may be gastrointestinal asymptomatic. There is some good research showing a strong correlation between celiac patients and AI thyroiditis (5). Some researchers also believe sensitivities which are non - allergic in nature can also play a contributing roll in thyroid issues as well as manifest themselves as dermatological issues. While removing gluten from the diet has proved helpful with a percentage of AI thyroiditis patients, it does not address the root cause issue of the sensitivity in non-celiac patients. Making the leap from the fact that gluten can play a part in these conditions to making the blanket statement that ANY amount of gluten will cause these conditions in every patient goes from science to possible marketing hype.

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The Source: The main sources of gluten in the diet are from the grains: Wheat, Rye, Barley and Oats. The question is: are all sources the same in terms of causing a negative reaction in Celiac disease patients? Oats were believed to trigger the same toxic reaction in the small intestine as wheat, rye and barley. However, several studies from Europe and the U.S. are showing that the consumption of oats is safe for the majority of children and adults with celiac

disease (2). It should be noted that a very small number of individuals with celiac disease may not even tolerate pure oats. The mechanism causing this intolerance has yet to be established which opens the question of whether the negative reaction experienced to gluten may be a combination of other factors found within wheat in addition to gluten. In many instances individuals who are “gluten sensitive” may actually be sensitive to other components in wheat as much as the wheat protein itself.

While truly eliminating all gluten for that “one in a thousand” patient may be necessary, arbitrarily throwing out the “baby with the bathwater” so to speak and denying patients the demonstrated benefits of using whole food supplements because of miniscule ppm levels of gluten may not truly be in the patients best interest.

The mere mention of the word wheat can practically induce a psychosomatic reaction in certain individuals. Take buckwheat for example. Buckwheat is not a form of wheat and botanically buckwheat is not a cereal and contains no gluten. It is a member of the family Polygonaceae that is quite distinct from the grass family in which cereals are classified.

The Amount: Even if one was to make the assumption that all sources of gluten are the same and that supposedly “gluten intolerant or sensitive” individuals should proceed with the same caution as individuals definitively diagnosed with Celiac disease, the question is how much gluten is “safe” for true celiac disease patients.

The effects of gluten intake in celiac patients have been investigated in a number of studies. Ciclitira et al (22) analyzed the toxicity and time response of a gliadin dose (the major toxic fraction of gluten) in a single patient. **They concluded that 10 mg produced no change, 100 mg a**

very slight measurable change, 500 mg a moderate change, and 1 g extensive damage to small-intestinal morphology (3). In a Finnish study intake of 20– 36 mg gluten/d has no detectable effect on mucosal histology (4) “A prospective, double-blind, placebo-controlled trial to establish a safe gluten threshold for patients with celiac disease” (1) recently evaluated exactly how much gluten consumption could be consumed before any histological changes could be detected in the intestinal cells. The conclusion of this study found that 10mg/d of gluten produced no histological changes whereas 50mg/d did produce changes and that “The ingestion of contaminating gluten should be kept lower than 50 mg/d in the treatment of Celiac Disease.”

Where the rubber meets the road: So what does this mean for the patient trying to avoid ingestion of gluten containing products whether that aversion is based on actual or assumed gluten sensitivities? To keep things in perspective lets look at how much gluten is in some commonly consumed foods.

1 slice of whole wheat bread – 4,800 mg.
1 serving of pasta – 6,400mg

Bear in mind that even the majority diagnosed Celiac patients can tolerate up to 50mg/d of gluten and product with less than 20ppm per serving can be legally labeled as “gluten free”. Only a small handful of whole food based products even exceed the 20 ppm “gluten free standard” and even the highest of those would only provide apx. 50 parts per million per day of gluten at therapeutic dosages!!! Far below the allowable amount for most diagnosed celiac patients. This should not be interpreted as an

endorsement to give true celiac patients any gluten products without careful monitoring.

As stated before, elimination of gluten containing foods under the 50mg/d threshold is critical for true celiac patients and reduction of “excessive” gluten intake could possibly benefit those individuals with “gluten sensitivity” issues. But this reduction should be focused on the truly high (gms per day) and common sources of gluten in the diet and not unfounded gluten paranoia of items, which may only contain miniscule amounts (ppm or mcg.’s) of gluten.

Several synthetic based supplement manufacturers are propagating misleading and distorting facts in order to market their products and are cautioning practitioners from using whole food based supplements because they may contain any gluten. While this is theoretically true, the amounts found in various whole food based products are in VERY small amounts, typically microgram amounts. Even at large doses it would be almost impossible to get anywhere near the threshold level even for diagnosed celiac patients. Because whole food based products are truly food based and crops can vary slightly from season to season, it is very challenging for whole food supplement manufacturers to make accurate label claims of gluten levels for a specific product. Never the less, they are working on such a list. Despite the insinuation by some companies that other whole food based manufacturers are afraid to list levels” or is “trying to hide it”, the fact is that they are being responsible in not making false claims and simply adhering to labeling laws.

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Having said that, whole food based products have been successfully used by tens of thousands of clinicians with hundreds of thousands of patients in the past 75 years including many with true celiac disease as well as those with “gluten sensitivity” issues. While truly eliminating all gluten for that “one in a thousand” patient may be necessary, arbitrarily throwing out the “baby with the bathwater” so to speak and denying patients the demonstrated benefits of using whole food supplements because of miniscule ppm levels of gluten may not truly be in the patients best interest.

(1) A prospective, double-blind, placebo-controlled trial to establish a safe gluten threshold for patients with celiac disease¹⁻³

Carlo Catassi, Elisabetta Fabiani, Giuseppe Iacono, Cinzia D’Agate, Ruggiero Francavilla, Federico Biagi, Umberto Volta, Salvatore Accomando, Antonio Picarelli, Italo De Vitis, Giovanna Pianelli, Rosaria Gesuita, Flavia Carle, Alessandra Mandolesi, Italo Bearzi, and Alessio Fasano

(2) Position Statement on Oats - Revised August 20, 2007

Professional Advisory Board of Canadian Celiac Association

(3) Ciclitira PJ, Evans DJ, Fagg NLK, Lennox ES, Dowling RH. Clinical testing of gliadin fractions in coeliac patients. Clin Sci 1984;66:357– 64.

(4) Ejderhamn J, Veress B, Strandvik B. The long term effect of continual ingestion of wheat starch-containing gluten-free products in celiac patients. In: Kumar PJ, ed. Coeliac disease: one hundred years. Leeds, United Kingdom: Leeds University Press, 1988:294 –