

# GLUTEN SENSITIVITY

## INFORMATION FOR PATIENTS



### Gluten

Gluten is the part of flour that helps bind baked goods together. The more gluten a flour contains, the more elastic its dough will be. For example, pizza dough is more elastic than cake dough because it contains more gluten.

### Toxic proteins

Gluten is made up of proteins, and different grains have different proteins. For celiacs, or those with gluten sensitivity, it is these proteins that cause reactions. Gliadin is the toxic protein in wheat, secalin in rye, and hordein in barley. Pure oats (not cross-contaminated with other grains) are believed to be safe for celiacs.

### Other grains

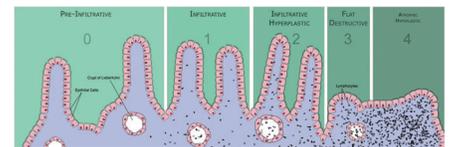
Modern wheat has been modified over the centuries to increase its yield and gluten content, which has made it more difficult to digest. Both spelt and kamut are older species of wheat that may be better tolerated by people normally intolerant to wheat. However, because they belong to the wheat family, kamut and spelt are not suitable for someone with celiac disease.

## Gluten Sensitivity and Celiac Disease

Both gluten sensitivity and celiac disease are reactions to proteins found in gluten flour (see inset at left). However, the reactions they produce are different: in the case of gluten sensitivity, the body produces antibodies to the protein in wheat, which can cause inflammation to the gut lining, but does not appear to cause permanent damage. In celiac disease, eating gluten triggers the immune system to attack and damage the villi (small finger-like projections) of the small intestine, which seriously impairs your ability to absorb nutrients from food. Although no link has been proven, some health care providers believe that gluten sensitivity may be an early warning sign of celiac disease.

### Why are the villi important?

Healthy villi increase the surface area available for nutrient absorption. In celiac disease, gluten reactions destroy the villi and flatten them, making it more difficult to absorb nutrients from your food.



### Symptoms of Celiac Disease

The symptoms of celiac disease can vary greatly. In infants and children, diarrhea, stretched out abdomens, and symptoms of malnutrition like short stature, anemia, dental defects, failure to thrive, and delayed development are common. In adults, gastrointestinal complaints are most common and include abdominal pain, flatulence, and diarrhea. Weight loss is frequent, but weight gain and constipation also occur. Other symptoms can include mouth ulcers, extreme fatigue, bone pain and a serious skin condition called dermatitis herpetiformis that results in an itchy rash with bumps and blisters. Current research suggests gluten reactions can also affect the nervous system and cause learning disorders, depression, migraine, and headache.

### Symptoms of Gluten Sensitivity

Symptoms can be similar to those of celiac disease and may include bloating, alternating diarrhea and constipation, acid reflux, stomach pain, and even mood symptoms such as depression and anxiety.

## Why Test for Gluten Sensitivity?

Testing for gluten sensitivity and/or celiac disease is important because:

- Standard tests for celiac disease often do not look for antibodies to gluten. In addition to the standard celiac test, we check for antibodies to gliadin, the protein found in wheat gluten.
- Gluten sensitivity, even without a diagnosis of celiac disease, may produce the same symptoms as celiac disease and, if left undiagnosed, lead to similar long-term complications.
- Symptoms of celiac disease are often vague, making it difficult to diagnose without testing. Current data suggest that 1 in 133 North Americans has celiac disease, which increases to 1 in 22 if a family member has already been diagnosed.
- Many people with celiac disease also suffer from autoimmune disorders like: autoimmune thyroid disease, autoimmune liver disease, Addison's disease (adrenal glands are damaged) or Sjogren's syndrome (glands that produce tears and saliva are destroyed). According to Health Canada, celiac disease is also associated with type 1 diabetes, Down syndrome, rheumatoid arthritis, depression, and nerve pain.
- According to Health Canada, untreated celiac disease can lead to long-term complications including lymphoma, infertility and osteoporosis.

## Why Test?

Good health has a lot to do with maintaining balance; the right balance of work and play, the right balance of nutrients in the diet, and the right kinds of foods.

Undiagnosed food allergies may contribute to symptoms and biochemical changes that eventually lead to illness.

Rocky Mountain Analytical is committed to offering tests that identify food allergies and other imbalances - so they can be corrected before disease develops!

## About Rocky Mountain Analytical

Rocky Mountain Analytical is an accredited medical laboratory located in Calgary, Alberta. We started in 2002 with saliva hormone testing, and have been growing steadily ever since.

In 2009, we added hair element analysis, a lipoprotein particle profile (LPP) and a micronutrient assessment (MNA) to our testing menu.

Ask your health care provider for more information about these or any other Rocky Mountain Analytical tests.

**We're on the web!**  
[www.rmalab.com](http://www.rmalab.com)

253147 Bearspaw Rd NW,  
Calgary, AB T3L 2P5  
Phone: 403-241-4513  
Email: [info@rmalab.com](mailto:info@rmalab.com)

## What We Test

### Gliadin IgA and IgG

Gliadin is the protein found in wheat gluten. Someone with a gluten sensitivity produces antibodies to gliadin after they eat wheat. There are two types of gliadin antibodies: immunoglobulin A (IgA) and immunoglobulin G (IgG). We test your blood to see if you have any of these antibodies present. If you have higher than normal levels of these antibodies, it means you are sensitive to gluten. If you have already been diagnosed as celiac, elevated levels of gliadin antibodies tell us you have recently eaten something with wheat gluten in it.

### Anti-tissue transglutaminase IgA

In celiac disease, the body develops antibodies to an enzyme called tissue transglutaminase (TTG). Antibodies to TTG are what causes damage to the villi of the small intestine. A simple blood spot test can determine if you have these antibodies. It is important to know however, that some celiacs have low levels of IgA, which means the results could be falsely low. Thus, your health care provider may order a Total IgA test first to confirm normal IgA levels.

## Celiac Profile Test Results

The celiac profile test displays three results as shown in the sample at right: IgA antibodies to tissue transglutaminase, plus IgA and IgG antibodies to gliadin.

IgA antibodies to tissue transglutaminase are an indicator of celiac disease. If your result shows in the orange or red range, your health care provider may order diagnostic tests to confirm you have celiac disease.

IgA and IgG antibodies to gliadin could indicate gluten sensitivity or, if you have already been diagnosed with celiac disease, show that you recently ate wheat products.



## Avoiding Gluten

The best way to improve symptoms and start feeling better is to remove all gluten grains from your diet. This is critical for anyone diagnosed with celiac disease as the damage to the small intestine can be serious. With gluten sensitivity, inflammation occurs over time.

That said, avoidance of gluten-containing products can be challenging. For example: the description 'spices' on foods labels can include gluten, and gluten has been used in stamp and envelope glue, filler in medicinal tablets - including natural health products, bottled sauces and flavourings. To be absolutely sure, you should avoid any product that states "may contain gluten" although it is not an absolute guarantee when a product does not list this warning.

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