



Rocky Mountain Analytical  
Changing lives, one test at a time

# Gluten Sensitivity

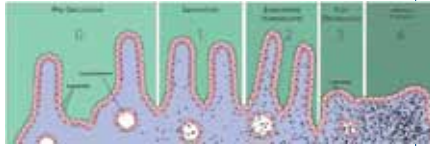
## Information for Patients

### Gluten Sensitivity and Celiac Disease

Both gluten sensitivity and celiac disease are reactions to proteins found in gluten flour (see inset at right), but the reactions they produce are different. In the case of gluten sensitivity, the body produces antibodies to the protein in wheat, which inflames 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, seriously impairing the ability to absorb nutrients from food. Although no link has been proven, some scientists believe 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

Gluten sensitivity may produce symptoms similar to those of celiac disease including: 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 may not look for antibodies to gluten proteins. 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.

#### 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.*

#### Gliadin

*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. Both spelt and kamut are older species of wheat that may be easier to digest than modern wheat. However, because they still belong to the wheat family, kamut and spelt are not suitable for anyone with celiac disease.*

## 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 damages 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 could lead to a falsely low result. Therefore, your healthcare professional may request 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, it could show that you recently ate wheat products.



*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 reactions 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!*

Why Test?

*Rocky Mountain Analytical was founded in 2002 with a mission to offer tests that focus on early identification and prevention of disease.*

*Rocky Mountain Analytical is an accredited medical laboratory located in Calgary, Alberta. Accreditation means tests performed by Rocky Mountain Analytical are regularly reviewed for quality, accuracy and reproducibility by the College of Physicians & Surgeons of Alberta.*

*Ask your healthcare professional whether a test is right for you.*

About Us

## 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 damage to the small intestine can be serious. With gluten sensitivity, continued exposure to gluten leads to inflammation and related symptoms.

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, as 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 absence of gluten on the list of ingredients is no guarantee that the product is gluten free.

Information is for educational purposes only. It is not meant as medical advice and any treatment decisions should be made with the knowledge or consent of your healthcare professional.

## Gluten Free Grains

Some examples of gluten-free grains are:

- Quinoa
- Corn
- Millet
- Buckwheat
- Sorghum
- Amaranth
- Teff
- Wild Rice



**Rocky Mountain Analytical**  
*Changing lives, one test at a time*