

# Celiac Disease

*Robin Bauer*

**What is Celiac Disease?** Celiac Disease is an intolerance to gluten. It is also known as Celiac-Sprue, Gluten Sensitivity Enteropathy, Gluten Intolerance, and Non-Tropical Sprue. Celiac means bowel. “A digestive disorder that is triggered by the protein gluten, which is found in wheat, barley, and other grains”<sup>1</sup>

**Who is at risk?** 1 out of every 150 people have been diagnosed with Celiac Disease, but many people go undiagnosed. It’s a genetic disease, and just recently, scientists have discovered nine gene regions that potentially cause the condition. In these nine regions, four of them are also predisposing factors for Type 1 Diabetes. Six of them are critical in the control of immune responses, which lends support to their role in the development in Celiac Disease.<sup>2</sup>

According to a lecture by Nancy Linneman (November 2007), the leader of a Celiac Support group in the Lafayette area, “surgery may also cause Celiac Disease to develop. Researchers do not know why certain people develop it, and all the reasons why they do. Some are born with the disease, and others develop it. It is becoming prevalent in the United States and Europe” (N. Linneman, oral communication, November 2007).

**What is gluten?** Gluten is a general name for prolamins (a storage protein) found in wheat, barley, and rye. More specifically, it is the gliadin in wheat, the hordein in barley, and the secalin in rye that are toxic to those with Celiac Disease. Gluten is what maintains the structure of many foods, holding them together and allowing certain flours to rise.<sup>3</sup>

**Dermatitis herpetiformis (DH)?** DH is Celiac Disease of the skin. It’s a skin condition that can occur anywhere on the body, causing intense itchiness and blistering rashes. DH is chronic and permanent unless treated with a gluten-free diet. Dh and the gastrointestinal problems do not always occur together: a patient may have DH and not the gastrointestinal problems, or vice versa.<sup>4</sup>

## **What happens when an individual with Celiac Disease consumes gluten?**

The villi on the surface of the small intestine are used for absorbing food, breaking it down, and allowing the nutrients to pass through to the small intestine. In Celiac patients, gluten will cause these villi to become flat.<sup>5</sup> Minerals and vitamins, and other essential nutrients are not able to pass through and nourish the body. The body is left underfed although the patient may in fact be eating a healthy and balanced diet. Gluten causes intestinal swelling and disorder, and may lead to a progressive loss of the natural folding of the lining and shape of the intestine.<sup>6</sup>

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<sup>1</sup> “Largest study ever finds that one out of every 133 Americans may have Celiac Disease”

<sup>2</sup> “Seven gene regions linked to Celiac Disease”

<sup>3</sup> “Gluten-Free Diet – A Comprehensive Resource Guide”

<sup>4</sup> “Celiac Disease: a hidden epidemic”

<sup>5</sup> “The Gluten-Free Gourmet: Living Well Without Wheat.”

<sup>6</sup> “Celiac Disease: a hidden epidemic”

**Symptoms**

Symptoms vary among individuals with Celiac Disease. Symptoms may be very severe, mild, or sometimes, individuals have no symptoms at all, which is common.<sup>7</sup>

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<sup>7</sup> "Eating Gluten Free"

- Abdominal pain
- Bloating
- Distended abdomen
- Diarrhea
- Constipation
- Gas
- Chronic pain
- Depression
- Anxiety
- Loss of concentration or “brain fog”
- Prolonged change in mood and disposition
- Irritability
- Dermatitis herpetiformis (a skin condition, explained below)
- Irregular heartbeat
- Migraines
- Atrophy of muscles
- Anemia (low iron)
- Stunted growth
- Osteoporosis
- Weight loss

### **How it’s Diagnosed:<sup>8</sup>**

*Step 1:* Blood test – the screening tool.

- Tissue Transglutaminase IgA and IgG
- Anti-Endomysial Antibodies IgA
- Anti-Gliadin Antibodies IgA and IgG
- Total Serum IgA

If these antibodies are present, then the patient MAY have a gluten intolerance and further testing must be done. However, if these antibodies are not present, then the patient definitely does not have Celiac Disease.

*Step 2:* According to a conversation with S. Cohen, PhD (April 2004), “a biopsy of the small intestine is then the next procedure after blood work. It is the only definite affirmation on whether the patient had Celiac Disease. Performed by endoscopy, in which a tube goes down the throat and takes samples from the intestine and are evaluated for villi damage. If the villi are damaged, the patient has gluten intolerance (S. Cohen, PhD, oral communication, April 2004).

### **The Cure/treatment?**

There is no cure for Celiac Disease. There are no medications that treat it either. There must be a complete change in the patient’s diet, including absolutely no gluten. This is a MUST-FOLLOW diet. Gluten is toxic to Celiac patients.

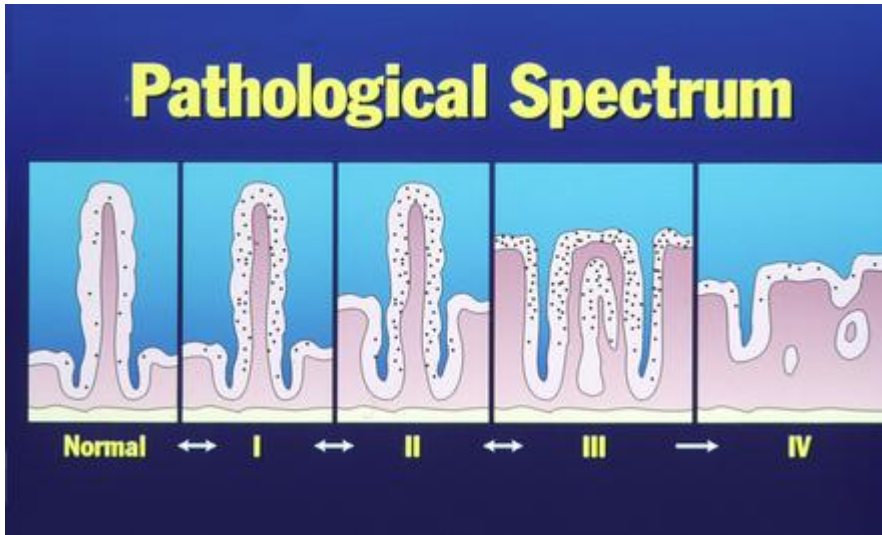
### **Why is it so important to maintain a gluten-free diet?**

If untreated, Celiac Disease will cause many problems, both in the present and in the future. The symptoms that the patient is experiencing will not go away, but will probably just get worse. Think of gluten as poison to someone who has Celiac Disease.

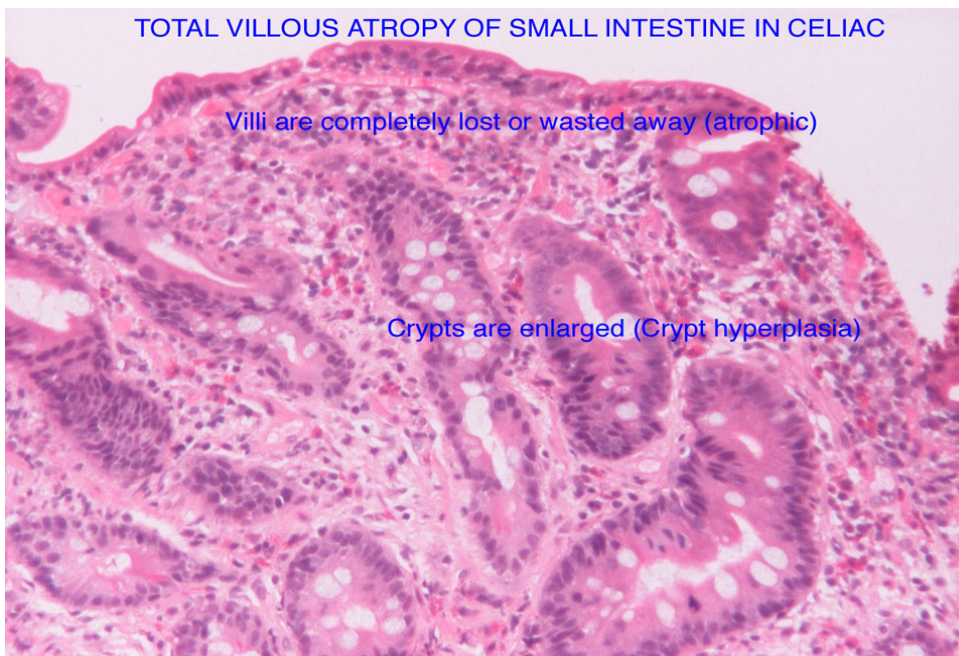
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<sup>8</sup> “Diagnosing Celiac Disease: A comparison of human tissue transglutaminase antibodies with antigliadin and antiendomysium antibodies”

It can cause many health problems that may lead to debilitation or even death. Celiac patients are likely to develop cancers, osteoporosis, and other disorders.<sup>9</sup>



The picture on the far left illustrates what normal villi look like, in a person who does not have Celiac Disease. The 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> photos show the progression of what happens to the villi when a person who has Celiac Disease consumes gluten. The far right picture illustrates a person with Celiac Disease, not on any gluten-free diet.<sup>10</sup>



<sup>9</sup> "Gluten-Free Diet – A Comprehensive Resource Guide"

<sup>10</sup> <http://www.celiacdiseasecenter.columbia.edu>

The above photograph is a picture of “total villous atrophy of small intestine in Celiac” This is what happens to the villi when a patient who has Celiac Disease is not following a gluten-free diet.<sup>11</sup>

### **What foods must be avoided?**

Wheat, Barley, Oats, Rye are the four staple foods that Celiac patients must avoid. The following foods must not be consumed unless the company made it gluten-free, in which case it would be labeled as such.<sup>12</sup>

- Bread
- Pasta
- Baked goods (example: cookies, brownies)
- Oats, manufactured in the United States (they are processed in the same facility that wheat products are processed in). Some patients can handle oats, however, without having any adverse effects. Whether oats contain gluten is a highly contested topic.<sup>13</sup>
- Cereals
- Malts
- Beer
- “Hidden” ingredients: medications, lotions, spices, envelopes, cross-contamination

### **What is still okay to eat?**

The following foods are naturally occurring gluten-free foods. To make sure they are gluten-free, it’s important to check that there are no added or hidden ingredients. Spices and flavors may contain gluten.

- Fruit
- Vegetables
- Meat
- Rice
- Potatoes

### **Where can I find out more information?**

[www.celiac.com](http://www.celiac.com)

[www.glutenfree.com](http://www.glutenfree.com)

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<sup>11</sup> <http://www.ezinearticles.com>.

<sup>12</sup> “Celiac Disease: a hidden epidemic”

<sup>13</sup> “A comparison of diets with and without oats in adults with Celiac Disease”

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