

# Celiac Disease - Hidden & Dangerous

## **What is Celiac Disease?**

Celiac disease is a genetically-based autoimmune disorder in which specific peptides from wheat, rye and barley (collectively called gluten) trigger progressive destruction of the villi of the small intestine. Gluten consumption can result in deficiencies of iron, folate, calcium and the fat-soluble vitamins (A, D, E & K) and an increased risk of osteoporosis, infertility and specific cancers of the gut.

Dermatitis herpetiformis (DH) is an expression of celiac disease characterized by a blistering, intensely itchy skin rash. The rash is usually symmetrical and is found most frequently on the elbows, knees, buttocks and upper back. Patients with DH often present with mild or no gastrointestinal symptoms, but villous atrophy occurs in the majority of cases.

## **Pathogenesis**

The pathogenesis of celiac disease involves three factors: genetic, environmental and immunologic. Greater than 97% of individuals with celiac disease have the HLA DQ2 and/or HLA DQ8 genetic markers. Gluten is the trigger for the immunologic response of celiac disease, and pregnancy, surgery, infection, including gastroenteritis, or severe emotional stress sometimes initiate acute symptoms in genetically predisposed individuals. Celiac disease is an inherited condition and therefore first-degree and to a lesser extent second-degree relatives are at higher risk of having unrecognized celiac disease.

## **Prevalence**

Recent research reveals that celiac disease affects between 0.5 - 1% of the population of the USA, which is similar to the prevalence reported in Europe. World prevalence is estimated at 1 in 266 and celiac disease is now recognized as one of the most common inherited diseases.

## **Symptoms**

The symptoms of celiac disease can occur at any age. The number and severity of symptoms associated with untreated celiac disease vary greatly from person to person. In many cases the disease is silent and is discovered only by blood screening. The presence of obesity or constipation does not exclude the diagnosis of celiac disease.

### **The following symptoms may occur singly or in combination:**

- anemia-iron, folate, vitamin B<sub>12</sub> deficiency
- deficiency of vitamins A, D, E, K
- abdominal pain, bloating/cramping/gas
- indigestion and nausea
- recurring/persistent diarrhea
- constipation
- extreme weakness and fatigue
- weight loss
- lactose intolerance
- dermatitis herpetiformis
- elevated transaminases (liver enzymes)
- recurrent aphthous ulcers (canker sores)
- easy bruising
- bone/joint pain
- edema of feet and hands
- menstrual irregularities
- infertility in both men and women
- recurrent miscarriages
- migraine
- depression
- peripheral neuropathy, ataxia, epilepsy with occipital calcifications

### **Additional symptoms in children:**

- vomiting
- irritability and behavioural changes
- delayed growth/short stature
- delayed puberty
- dental enamel abnormalities

## Associated Conditions

Celiac disease frequently occurs in combination with other conditions. If a person has a family history of celiac disease or has symptoms of celiac disease along with any of the following diseases, screening for celiac disease should be considered:

- type 1 diabetes mellitus
- other autoimmune diseases (e.g., autoimmune hepatitis, autoimmune thyroid disease)
- osteoporosis
- Down syndrome
- Turner syndrome
- lymphoma

## Diagnosis

Recent Canadian and US studies report significant delays in diagnosis. The similarity of the symptoms with those of other diseases often leads to misdiagnoses such as irritable bowel syndrome, lactose intolerance, chronic fatigue syndrome and diverticulosis, which results in even further delays. Excellent new serological blood tests including the **IgA endomysial (EMA)** and **IgA tissue transglutaminase (TTG) antibody tests** are now available to screen for celiac disease in individuals with mild or atypical symptoms and those in high risk groups. False negative results can occur with these tests. IgA EMA and TTG will be falsely negative in individuals with IgA deficiency which occurs in 3-5% of patients with celiac disease. False positive results can occur but are rare. **An intestinal biopsy, while an individual is on a gluten-containing diet, is required to establish the diagnosis.**

**A GLUTEN-FREE DIET SHOULD NOT BE STARTED BEFORE A BLOOD TEST AND BIOPSY HAVE BEEN COMPLETED, since it can interfere with making an accurate diagnosis.**

## Treatment

The **ONLY TREATMENT** for celiac disease, including those patients with DH, is a **STRICT GLUTEN-FREE DIET FOR LIFE**. Patients with DH may also require treatment with dapsone to alleviate the itching. A gluten-free diet enables the gut to recover and can reduce the risk of developing many of the complications of untreated celiac disease. Because of the complexity of the gluten-free diet, patients should be referred to a qualified dietitian with expertise in celiac disease, for nutrition assessment, education and follow-up. Regular follow-up with a physician is also recommended. All persons with celiac disease should be encouraged to join the Canadian Celiac Association (CCA) and their local CCA chapter for valuable practical information and ongoing support: <http://www.celiac.ca>.

The safety of oats in celiac disease has been extensively investigated. Clinical studies have shown that small amounts of **pure, uncontaminated oats** are safe for most adults and children. Most commercially available oats are contaminated with wheat, rye or barley, however pure, uncontaminated oats are now being produced in Canada. Individuals with celiac disease must ensure that the oats they are eating are free from gluten contamination. The CCA position statement on oats can be found on the CCA website at <http://www.celiac.ca>.

## References and recommended reading:

Guideline for the Diagnosis and Treatment of Celiac Disease in Children: Recommendations of NASPGHAN  
[http://www.naspgan.org/PDF/PositionPapers/celiac\\_guideline\\_2004\\_jpgn.pdf](http://www.naspgan.org/PDF/PositionPapers/celiac_guideline_2004_jpgn.pdf)

NIH Consensus Development Conference Statement on Celiac Disease June 28-30, 2004.  
<http://consensus.nih.gov/2004/2004CeliacDisease118PDF.pdf>

Rashid, M., Cranney, A., Zarkadas, et al. Celiac disease: evaluation of the diagnosis and dietary compliance in Canadian children. *Pediatrics* 2005;116:e754-e759.  
<http://pediatrics.aappublications.org/cgi/content/full/116/6/e754?>

Zarkadas M, Cranney A, Case S, et al. The impact of a gluten-free diet on adults with coeliac disease: results of a national survey. *J Hum Nutr Dietet* 2006;19:41-49.  
<http://www.celiac.ca>

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