

the third with clinical presentation upon gluten challenge. Though specific for CD, this procedure is time consuming and invasive.

Blood Tests:

The following tests are indicated to assist in the diagnosis of CD.

- **Anti-Endomysial Antibody (IgA)**
- **Anti-Gliadin Antibody (IgG and IgA)**
- **Anti-Tissue Transglutaminase Antibody (IgA)**
- **Anti-Reticulin Antibody (IgA)**

A combination of these autoantibody tests provides the most effective method for the serological diagnosis of CD. Due to the degree of variation of test results from laboratory to laboratory, it is recommended that these tests be performed at an experienced laboratory using well-standardized test methods.*

* Murray JA et al, Clin Diagn Lab Immunol 2000, 7:584-587

How can CD be treated?

Complete avoidance of gluten in the diet is recommended for treatment of patients with CD. Most patients adhering to a gluten free diet will experience improvement in their condition within 2 weeks. Some patients may exhibit limited response. One of the reasons of poor response is the continued ingestion of gluten in foods thought to be gluten free or due to poor compliance on the part of the patient. Antibody testing in such cases is useful for monitoring the patient's progress.

For further information on CD and serum antibody testing, contact:



IMMCO Diagnostics, Inc.
60 Pineview Drive
Buffalo, NY 14228-2120
Phone: 716-691-0091
Fax: 716-691-0466
Toll Free: 800-537-TEST
www.immcodiagnostics.com

or our local representative

Are there Support Groups?

The following groups provide patient support and information about celiac disease.

Celiac Sprue Association USA
PO Box 31700
Omaha, NE 68131-0700
Telephone: (402) 558-0600
www.csaceliacs.org

Gluten Intolerance Group of America
PO Box 23053
Seattle, WA 98102-0353
Telephone: (206) 246-6652
www.gluten.net

Celiac Disease Foundation
13251 Ventura Blvd. #1
Studio, CA 91604
Telephone: (818) 990-2354
www.celiac.org

American Celiac Society Dietary Support Coalition
59 Crystal Ave.
West Orange, NJ 07052
Telephone: (973) 325-8837
e-mail: amerceliacsoc@netscape.net

Canadian Celiac Association
Brittania Road East, Unit 11
Mississauga, ON L4Z 1W6
Telephone: (905) 507-6208
www.penney.ca/2000.htm

Web Links

The following websites provide information about celiac disease support groups and contacts worldwide:

www.celiac.com

www.fastlane.net/homepages/thodge/archive.html

www.niddk.nih.gov/health/digest/pubs/celiac/index.htm



Is Celiac Disease threatening someone close to you?



A Patient's
Guide to CD

What is Celiac Disease?

Celiac disease (CD), an inflammatory condition of the small intestine, is brought about by the ingestion of a protein called gluten which is contained in wheat, rye, and barley. Gluten is also found in oats, but the toxicity of oats in cases of CD is uncertain. Corn and rice do not contain gluten.

This disease, also called *Celiac Sprue* or *Gluten Sensitive Enteropathy* (GSE), may flare up at any time in life, but occurs most often in infancy after gluten containing cereals are introduced to the diet. The resulting inflammation damages the intestinal villi (**Figure 1**), which causes malabsorption of nutrients, fluids and electrolytes. An individual suffering from CD may experience quite severe diarrhea, weakness, and weight loss.

However, this disease may present with a broad range of symptoms and severities, making it difficult to diagnose. Common clinical symptoms experienced by Celiac patients are shown in **Table 1**.

Although the response to gluten occurs in the intestines, visible symptoms of gluten sensitivity may not be present or seem unrelated to the digestive tract. Such symptoms include *osteoporosis*, muscle spasms and *autism*. Gluten sensitivity can also affect the skin and this condition is called *dermatitis herpetiformis*. CD can be diagnosed accurately by intestinal biopsy or blood tests. Individuals diagnosed with CD are advised to avoid foods containing gluten. Symptoms will gradually subside as intestinal villi regenerate with strict adherence to this diet.



What is Dermatitis Herpetiformis?

Dermatitis herpetiformis (DH) affects a subset of individuals with *Gluten Sensitive Enteropathy*. A burning, blistering, itchy rash primarily on the buttocks and extensor surfaces of the body is symptomatic of DH. As with CD, the appropriate treatment is a gluten-free diet with or without Dapsone. Adherence to a strict gluten-free diet will cause the rash to subside.

Are CD and DH genetically mediated?

Both CD and DH are genetically mediated. Family members of patients with these disorders are much more susceptible to have this disorder as compared to the general population. Approximately 90% of CD patients have the genetic marker associated with *Gluten Sensitive Enteropathy*, while it occurs in only 30% of the general population. Individuals without this marker have little likelihood of developing CD.

Why is CD so difficult to diagnose?

Patients with CD suffer from a great variety of symptoms. The symptoms may suggest a number of underlying conditions to a doctor. Many patients are initially diagnosed incorrectly before the condition is correctly recognized as CD (**Table 2**).

Why is prompt diagnosis and treatment needed?

In addition to greatly improving quality of life, prompt diagnosis and adherence to a gluten-free diet decrease the risk of life-threatening complications in the course of the disease. The absence of treatment increases the risk of intestinal lymphoma and splenic atrophy. New studies show a possible link between CD and Diabetes.

CD Treatment and Lymphoma Incidence

Group	Patients	O	EMR	O/E
Normal diet	46	7	0.19	36.8*
Reduced gluten	56	5	0.12	41.7*
Strict GFD	108	3	0.46	6.5

Corraza GR et al, *Gastroenterology* 1993, 16:16-21

- O Observed cases of lymphoma
- EMR Excess morbidity rate
- O/E Observed/Expected. The higher the value the greater the risk of lymphoma
- * Significantly increased risk of lymphoma

Are symptoms alone sufficient for a CD diagnosis?

No! CD is often misdiagnosed when symptoms alone are considered since so many cases are atypical. In addition, in some cases, an unnecessary lifelong gluten free diet might be ordered for a benign or passing condition such as chronic non-specific diarrhea of childhood.

How can I be sure I have CD?

There are basically two types of tests that could be used in establishing the diagnosis of CD:

1. Biopsy studies of the small intestine
2. Blood studies for autoantibodies

Biopsy Studies:

Intestinal biopsies taken from individuals suspected of celiac disease show a spectrum of mucosal abnormalities (**Figure 1**).

There are however, limitations of the biopsy studies in establishing the diagnosis of celiac disease. Because of these limitations, the *European Society of Pediatric Gastroenterology and Nutrition* (ESPGAN) recommends taking a minimum of three biopsies; one at the initial presentation of clinical symptoms, the second when in remission on a gluten free diet and

Table 1

Clinical Symptoms of Celiac Disease

Classical
Diarrhea
Weight Loss
Malnutrition
Sub-Clinical
Anemia
Abdominal Pain
Fatigue
Edema
Aphthous Ulceration

Table 2

Diagnosis Before Celiac Disease Was Diagnosed

Disease	%
Anemia	6.9
Stress	6.6
Nervous condition	6.0
Irritable bowel	5.0
Stomach ulcer	3.4
Food Allergy	2.8
Colitis	1.9
Menstrual problems	1.9
Edema	1.3
Gallstones	1.3
Diverticulitis	0.9
Others	5.2