# Celiac Disease

## A Guide to Successful Diagnosis and Treatment

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**ABSTRACT**

Celiac disease (CD), once considered rare, is now understood to be common. In the patient with CD, malabsorption of nutrients occurs as a result of the ingestion of gluten proteins and a combination of heredity, immune factors, and the environment. Diagnosis is made through clinical presentation, serology, and small bowel biopsy. Current treatment is lifetime gluten abstinence. An exemplar case of an adolescent patient is presented to guide the clinician through assessment and proper diagnosis of CD. Using health promotion-focused assessment questions, clinicians can work with patients to develop interventions that incorporate necessary lifestyle changes.

**Keywords:** adolescent development, autoimmune diseases, celiac disease, dermatitis herpetiformis, gluten free, Pender Health Promotion Model

## INTRODUCTION

Celiac disease (CD), once considered to be a rare childhood condition, is now recognized to be common and occurring throughout the lifespan.[1] The current estimate is that 1 of 133 people in the United States have CD, yet first-degree relatives of patients with the diagnosis have a 10% to 15% prevalence, and 70% of identical twins share the diagnosis.[2-4] Historically known as celiac sprue, non-tropical sprue, or gluten-sensitive enteropathy, CD is the most common genetic autoimmune condition characterized by inflammation of the small intestine in response to the ingestion of gluten.[3,5]

**Key presenting signs and symptoms of CD observed across the lifespan include diarrhea, iron deficiency anemia, peripheral neuropathy, folic acid deficiency, and reduced bone density.**

Only 11% of CD cases are diagnosed in a timely manner due to the variation in clinical presentation.[6] Surveys of patients with CD have reported an average of 5.8 to 11.7 years from presentation of symptoms to diagnosis.[7,8] Individuals may suffer from a myriad of symptoms while awaiting correct diagnosis, during which time they may develop serious health problems due to chronic malabsorption of vital nutrients in the small intestine.[6] Left untreated, the disease may trigger secondary irreversible complications for the duration of the lifetime. The only current treatment for CD is life-long adherence to a gluten-free (GF) diet.[9]

Key presenting signs and symptoms of CD observed across the lifespan include diarrhea, iron deficiency anemia, peripheral neuropathy, folic acid deficiency, and reduced bone density. Children may also present with vomiting, generalized abdominal pain, failure to thrive, muscle wasting, irritability, and sadness. Adults may exhibit unexplained lassitude, malaise, abdominal distention, gastrointestinal reflux disorder (GERD), and weight loss.[3,4] More indirect signs and symptoms of CD are ataxia, often identified as a motor skills deficit; delayed puberty; frequent bruising; recurring aphthous ulcers; dental enamel defects and osteoporosis; depression or anxiety; and the general signs of vitamin deficiencies and protein malnutrition.[10]

The clinician, without specialization in gastroenterology, may lack familiarity with the case presentation of CD, associated signs and symptoms, and the diagnostic criteria and treatment guidelines for the disease.[11] The objective of this article is to guide the clinician through assessment, diagnosis, and health maintenance using an exemplar case of CD with adolescent onset. Pender's Health Promotion Model (HPM)[12] is applied as the guiding theory to provide successful treatment and ongoing support for the patient with CD.

## CASE EXEMPLAR

Tyler, an 11-year-old white male, presented to an outpatient clinic with a 6-month history of progressive gastrointestinal (GI) symptoms that included intermittent, sleep-disturbing stomachaches; nausea with occasional vomiting; frequent mouth sores; increased flatus and abdominal bloating; explosive diarrhea and stools of undigested food; and daily fatigue with weight loss. In addition, he expressed fear of passing gas in social situations, including the classroom. Tyler's mother reported good eating habits and denied knowledge of an eating disorder, psychological distress, or food allergies, but expressed concern over his loose-fitting clothes and lack of growth within the last year.

Past medical history was negative for eating disorders or known psychological distress. Tyler was negative for previous major accidents, injuries, surgeries, serious or chronic illnesses, and immunizations were current. Physical examination (PE) 1 year prior revealed a pleasant, socially adjusted, well nourished, and well developed 10-year-old male with an unremarkable exam. Family history was positive for maternal psoriasis and asthma and negative for colon cancer or other GI disease. Current medications included over-the-counter simethicone and daily multi-vitamins. Social history was negative for sexual activity, illicit drug use, alcohol, or nicotine use. Academic grades were average and he was involved in school sports.

### Physical Exam

*General:* Tyler appeared to be healthy, appropriately dressed, pleasant, and cooperative