

# Celiac disease

Celiac disease is a condition in which the immune system responds abnormally to a protein called gluten, which can cause damage to the lining of the small intestine. Gluten is found in wheat, rye, barley, and a multitude of prepared foods.

The small intestine is responsible for absorbing food and nutrients. Thus, damage to the lining of the small intestines can lead to difficulty absorbing necessary nutrients; this problem is referred to as malabsorption. Although celiac disease cannot be cured, avoiding gluten usually stops the damage to the intestinal lining and the malabsorption that results. Celiac disease can occur in people of any age and it affects both genders.

## SIGNS AND SYMPTOMS

The signs and symptoms of malabsorption vary from one person to another. In its mildest form, there may be no symptoms whatsoever. Even in people who have no symptoms, there may be evidence of malabsorption on laboratory testing. As an example, a low blood count may develop as a result of decreased iron absorption.

Others have more symptoms, including diarrhea, weight loss, abdominal discomfort, excessive gas, osteoporosis, and other signs and symptoms due to deficiencies of specific vitamins and nutrients.

Some conditions are more common in people with celiac disease, including:

- Dermatitis herpetiformis
- Diabetes mellitus
- Thyroid problems (usually hypothyroidism, an underactive thyroid)
- Depression, fatigue, and other neurologic diseases
- Arthritis
- Liver disease

## CAUSES

Genetic factors are clearly important since celiac disease occurs primarily in certain groups of people, specifically whites of northern European ancestry. People who inherit specific genes that regulate the immune response (HLA DQ2 and HLA DQ8) have a higher risk of celiac disease than people without these genes.

## DIAGNOSIS

Celiac disease can be difficult to diagnose because the signs and symptoms are similar to other conditions. Fortunately, testing is available that can distinguish celiac disease from other disorders.

### Blood tests

A blood test is available that determines the blood level of antibodies that become elevated in people with celiac disease:

- IgA endomysial antibody (IgA EMA)
- IgA tissue transglutaminase antibody (IgA tTG)

Before having these tests, it is important to continue eating a normal diet, including foods that contain gluten. Avoiding or eliminating gluten could cause the antibody levels to normalize.

## Small intestine biopsy

If the blood tests are positive, the diagnosis must be confirmed by examining a small intestinal biopsy. The sample is usually collected during an upper endoscopy.

In people with celiac disease, the lining of the small intestine has a unique appearance when viewed with a microscope. Normally, the intestine has finger-like structures, which are called villi. Villi allow the small intestine to absorb nutrients. The villi become flattened in people with celiac disease. Once gluten is removed from the diet, the villi can resume a normal growth pattern.

Some clinicians recommend repeating the biopsy after gluten has been eliminated from the diet for a few months to see that the villi have regrown. If the diagnosis is still in doubt after a period of treatment with a gluten free diet, it may be necessary to resume gluten to see if the villi become flattened again.

## Testing for malabsorption

Patients with celiac disease should be tested for nutritional deficiencies. Common tests include a blood count to detect low levels of iron, folic acid, or vitamin B12, calcium, vitamin D, or vitamin K.

Many clinicians recommend specific testing for bone loss. One method involves using a DEXA (dual energy x-ray absorptiometry) scan to measure the density of bone. The test is not painful and is similar to having an x-ray. People who have developed significant bone loss may require treatment to stop bone loss or encourage new bone growth.

# TREATMENT

## Gluten free diet

The cornerstone of treatment for celiac disease is complete elimination of gluten from the diet. Patients who are malnourished because of the disease may also need nutritional supplements.

Maintaining a gluten-free diet can be a difficult task that requires major lifestyle adjustments. Gluten is contained in the most commonly consumed grains (wheat, rye, and barley) and is included as an additive in a large number of prepared foods.

Consultation with an experienced celiac nutritionist is recommended for detailed guidance and written information.

In general:

- Foods containing wheat, rye, and barley should be avoided.
- Soybean or tapioca flours, rice, corn, buckwheat, and potatoes are safe.
- Read labels on prepared foods and condiments carefully, paying particular attention to additives such as stabilizers or emulsifiers that may contain gluten.

- Dairy products may not be well tolerated initially since many patients with celiac disease can have secondary lactose intolerance. As a result, lactose-containing products should initially be avoided in patients whose symptoms appear to be worsened by them.
- Oats do not appear to be harmful. However, oats should be avoided unless the package specifically indicates that the product is gluten free and was processed in a gluten free facility

### **Is gluten avoidance really necessary?**

People who have no symptoms of celiac disease often find it difficult to follow a strict gluten-free diet. However, certain factors support a gluten-free diet, even in those without symptoms:

- Strictly following a gluten-free diet sometimes helps a person to feel more energetic and have an improved sense of health and well being.
- Despite feeling well, some patients with celiac disease have vitamin or nutrient deficiencies. These deficiencies often cause symptoms if gluten is not eliminated (such as anemia due to iron deficiency or bone loss due to vitamin D deficiency).
- Untreated celiac disease can increase the risk of certain types of gastrointestinal cancer. This risk can be reduced by adhering to a gluten-free diet.
- Pregnant women with untreated celiac disease are at increased risk for having a newborn who is smaller than normal.

## **Skin conditions**

Celiac disease is associated with a number of skin disorders, of which dermatitis herpetiformis is the most common ( [show table 2](#)). Dermatitis herpetiformis is characterized by intensely itchy, raised, fluid filled areas on the skin, usually located on the elbows, knees, buttocks, lower back, face, neck, trunk and occasionally within the mouth .

The most bothersome symptoms are itching and burning. This feeling is quickly relieved when the blister ruptures. Scratching causes the area to rupture, dry up, and leave an area of darkened skin and scarring. The condition will improve after eliminating gluten from the diet, although it may several weeks to see significant improvement. In the mean time, an oral medication called dapsone may be recommended.

## **IMPLICATIONS FOR THE FAMILY**

Eliminating gluten requires a major lifestyle change for the person who is affected by celiac disease as well as their family. However, with time and practice, it becomes easier to know which foods and ingredients contain gluten and what alternatives are available. Eating out can be challenging initially, although some restaurants offer a gluten free menu.

Families also need to be aware of their increased risk of celiac disease. Thus, first-degree relatives (parents, brothers, sisters, children) of a person with celiac disease should consider being tested, especially if there are any signs or symptoms of the condition. Testing is typically done with a blood antibody test, as described above .