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# Celiac Disease and Anemia

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## What is anemia?

Anemia results from a decrease in the size or number of red blood cells, or in the amount of hemoglobin, which is the red pigment in red blood cells. Think of red blood cells as ships that deliver oxygen to all the tissues in the body, and hemoglobin as the crates on the ship that hold the oxygen. If there is a shortage of red blood cells (ships) or hemoglobin (crates), oxygen cannot be adequately delivered. Oxygen is necessary for the conversion of food to energy, which is needed by all parts of the body for vital functions.

## How are celiac disease and anemia connected?

Celiac disease can damage the part of the small intestine where iron, folate, and vitamin B12 are absorbed. This damage leads to reduced nutrient absorption. Reduced absorption means the body may not get enough of these nutrients, with anemia being one potential result.

- **Iron**

Shortage can cause anemia because iron is an essential component of hemoglobin and is necessary for transporting oxygen throughout the body.

- **Folate**

Shortage can cause anemia because folate plays an essential role in the formation of red blood cells, and therefore in the transport of oxygen throughout the body.

- **Vitamin B12**

Shortage can cause anemia because this vitamin is also essential for the formation and growth of red blood cells.

The most common sign of celiac disease in adults is iron-deficiency anemia that is unresponsive to iron therapy. Iron and folate deficiencies are the more common causes of anemia in people with celiac disease because these nutrients are absorbed in the upper two parts of the intestine where damage can occur in earlier stages of celiac disease. When celiac disease progresses, the lower part of the small intestine can be damaged and cause vitamin B12 deficiency.

If you have had ongoing anemia and underlying medical conditions are ruled out, it is advisable to ask your physician about testing for celiac disease. Celiac disease testing is also recommended if you have been taking iron supplements for some time and experience no improvement in blood iron levels.

## Questions to ask your doctor:

*Do I need to take supplements for my anemia, and if so, are there side effects?*

*Are the supplements I need to take gluten-free?*

*How will I know when to stop taking supplements for anemia?*

*Is the anemia I have related to celiac disease, the result of my gluten-free diet, or both?*

## Possible symptoms of anemia

Fatigue, weakness, irritability, pale skin, headaches, brittle nails, decreased appetite, increased susceptibility to infections, ringing in the ears, irregular heartbeat, and a decreased attention span in kids.

## The good news

Once a person diagnosed with celiac disease has begun a gluten-free diet, the small intestine will begin to heal and allow nutrients to be absorbed. It is important to give the gluten-free diet time to have its effect - it may take between two and 18 months for nutritional deficiencies to be corrected. Discuss with your physician or dietitian the proper supplementation and diet for your anemia.

## Other things to know about treating anemia

- Foods contain two different forms of iron: heme and non-heme. Heme iron is found in animal products and is absorbed at a higher rate than non-heme iron, which is found in grains, vegetables, fruits, nuts, and seeds. Consuming more animal sources of iron increases absorption, but non-heme sources of iron count too.
- Vitamin C enhances iron absorption. Have citrus fruits, bell pepper or tomato (all sources of vitamin C) along with your sources of iron.
- Iron supplements may cause stomach upset. Taking iron with food can decrease this effect, but can also reduce absorption. Consult with your physician about the anticipated amount of time your supplement should be taken, since iron taken with food may require longer treatment.
- Folic acid and Vitamin B12 can also be taken as supplements. Consult your physician.

### Foods High in Iron

Liver, seafood, lean meat, poultry, legumes, dark green vegetables.

### Foods High in Folate

Green leafy vegetables, organ meats, lean beef, orange juice, eggs, fish, dry beans, lentils, asparagus, broccoli.

### Foods High in Vitamin B12

All animal products: meat, eggs, milk, dairy products. Vegans require supplementation.

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