



## What is Anemia?

Anemia is a condition that results from either a decrease in the size or number of red blood cells or the amount of hemoglobin, which is the red pigment in these cells.

## What effects does anemia have on our bodies?

Think of red blood cells as ships that deliver oxygen to all our organs, and hemoglobin as the crates on the ship that hold the oxygen. If there is a shortage in red blood cells (ships) or hemoglobin (crates), oxygen cannot get adequately delivered to our organs. Every part of our body needs oxygen to convert the food we eat to energy and heat. This function is vital to life and is why you feel tired and weak with anemia.

## Common Causes of Anemia

The most common causes of anemia are from a lack of iron, folate, or vitamin B12 in the body. Each of these nutrients is involved in the creation and healthy development of red blood cells.

### Iron Deficiency

Anemia shortage in iron can cause anemia because it is an essential part of creating hemoglobin and transporting oxygen to our entire body. Symptoms you may feel: Fatigue, weakness, irritability, pale skin, headaches, brittle nails, decreased appetite, increased susceptibility to infections, and a decreased attention span in kids.

### Folate Deficiency Anemia

Shortage in folate can cause anemia because it is also an essential part of creating hemoglobin and transporting oxygen to our entire body. Symptoms you may feel: Ringing in the ears, cracked lips, sore tongue, irregular heartbeat and similar symptoms to iron-deficiency anemia.

### Vitamin B12 Deficiency

A lack of vitamin B12 can cause anemia because this vitamin is essential for the formation and growth of red blood cells. In people with celiac disease, vitamin B12 deficiency is usually from destruction to the lower part of the small intestine, which is one of the places vitamin B12 is absorbed. Vitamin B12 deficiency can also occur when there is a lack of intrinsic factor, a protein that helps absorb vitamin B12 in our stomachs. This can lead to a condition called pernicious anemia. Vitamin B12 deficiency is common in people with CD, pernicious anemia is uncommon.

## How are Celiac Disease and Anemia Connected?

- Celiac disease can cause damage to the small intestine where iron, folate, and vitamin B12 are absorbed. Research has shown an incidence of an average of 4% anemia in newly diagnosed persons with CD in America.
- Iron and folate anemia's are seen more often in people with CD because these nutrients are absorbed in the upper two parts of the intestine where damage can occur in earlier stages of CD. When CD 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

## Questions to ask your doctor:

What supplements do I need to take for my anemia, and are there side effects to these?

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 CD, the result of my GF diet, or both?

Are there any other concerns I should have?

How often should I follow up with a doctor?



recommended to ask a physician about testing for CD. It is also recommended to test for CD if you have been taking iron supplements and experience no improvement in blood iron levels.

## **The Good News!**

Once a person diagnosed with CD has begun a gluten-free diet, their small intestine will begin to heal and allow nutrients to be absorbed. It is important to give the gluten-free diet time to do its magic because it may take between 2-18 months until nutritional deficiencies are corrected. Think positive! Discuss with your physician or dietician about the proper supplementation and diet for your anemia.

## **Foods High in Iron to Eat:**

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

## **Foods High in Folate to Eat:**

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

## **Foods High in Vitamin B12 to Eat:**

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

## **Other Things to Know about Treating Anemia:**

- Foods contain two different forms of iron – heme and nonheme iron. Heme iron is found in animal products and is absorbed at a higher rate than non-heme iron, the iron found in grains, vegetables, and fruit. Eat more meats for better iron absorption!
- Vitamin C also increases iron absorption! Try eating citrus fruits or greens when you take your iron.
- What do I do if iron supplements upset my stomach?  
Consume iron supplements with vitamin C-rich foods. Also take supplements with meals; consult your physician about the amount of time you need to take your supplement. Iron taken with meals often requires longer treatment.
- Folic acid and Vitamin B12 can be taken as supplements. Consult your physician

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Other helpful information is available at [www.GLUTEN.net](http://www.GLUTEN.net).

Advances in celiac disease are fast-paced. If this document is more than 2 years old, please visit our Web site for updated documents.

This information should not be used to diagnose or treat anemia or celiac disease. For questions about anemia and celiac disease consult your healthcare team when considering this information.

Please consider your local GIG branch as another resource.

Gluten Intolerance Group (GIG)  
31214 – 124th Ave. S.E.  
Auburn, WA 98092-3667

Phone: 253-833-6655  
Fax: 253-833-6675

[www.GLUTEN.net](http://www.GLUTEN.net)  
[info@GLUTEN.net](mailto:info@GLUTEN.net)

GIG is a nonprofit 501c3 national organization providing support for persons with gluten intolerances, in order to live healthy, productive lives. GIG Branches provide support at a local level.

To make a donation or become a volunteer to GIG, visit our Web site or call the office at 253-833-6655.