



Patient information: Anemia caused by low iron (Beyond the Basics)

Author

Stanley L Schrier, MD

Section Editor

William C Mentzer, MD

Deputy Editor

Stephen A Landaw, MD, PhD

IRON DEFICIENCY ANEMIA OVERVIEW

Anemia is a disorder that can be caused by a number of different conditions, including heavy menstrual periods, cancer, bleeding in the digestive tract, and sickle cell disease, just to name a few. Iron deficiency anemia is a specific type of anemia that in the Western world is almost always caused by blood loss. Very rarely, decreased absorption of iron from foods plays a role.

Iron deficiency anemia can be mild or severe, and can be temporary or chronic. The condition is common in the United States, affecting 1 to 2 percent of adults. It is even more common in developing countries, primarily due to deficiencies of iron in their diet.

This topic will review the signs and symptoms, potential causes, diagnostic tests, and treatment of iron deficiency anemia in adults.

WHAT IS ANEMIA?

Anemia is defined as a decreased number of red blood cells, as measured by one of the following blood tests:

- Hemoglobin (Hgb) is a pigment that carries oxygen in the red blood cells. Iron is a critical component of hemoglobin; without iron, hemoglobin cannot be formed and thus cannot carry or release oxygen.
- Hematocrit is the percent of a sample of whole blood occupied by intact red blood cells (RBCs).
- RBC count is the number of red blood cells in a certain amount of whole blood (usually one microliter).

Iron deficiency anemia occurs when there is an insufficient amount of iron in the body to make hemoglobin. When the quantity of hemoglobin is reduced, red blood cells carry less oxygen throughout the body. However, a person may not have signs or symptoms of anemia until their hemoglobin level is reduced by 20 percent or more.

ANEMIA SIGNS AND SYMPTOMS

Many people with iron deficiency anemia have no symptoms at all. Of those who do, the most common symptoms include:

- Weakness
- Headache
- Irritability
- Fatigue
- Difficulty exercising (due to shortness of breath, rapid heartbeat)

Less common symptoms of iron deficiency include brittle nails, sore tongue, restless legs syndrome, pica, and pagophagia. Pica is an abnormal craving to eat non-food items, such as clay or dirt, paper products, or starch (eg, cornstarch). Pagophagia is an abnormal craving to eat ice.

ANEMIA CAUSES

Two common causes of iron deficiency anemia are blood loss (most common) and very rarely decreased absorption of iron from food.

Blood loss — The source of blood loss may be obvious, such as repeated blood donations, trauma, surgery, or in women who have heavy menstrual bleeding or multiple pregnancies over a short period of time. In other cases, the source of the blood loss is not visible, as in someone who has bleeding in their digestive tract.

Decreased iron absorption — Normally, the body absorbs iron from food through the gastrointestinal tract. If the GI tract is not functioning correctly, as in people with certain conditions (eg, celiac disease, gastritis), an inadequate amount of iron may be absorbed, leading to iron deficiency anemia. This is a much less common cause of iron deficiency anemia than blood loss.

Other causes — A common cause of iron deficiency anemia in developing countries is a lack of foods that contain iron. However, this is a rare problem in adults in developed countries such as the United States because many foods have added iron (eg, breakfast cereal, bread, pasta).

Vegetarians are at increased risk for developing iron deficiency anemia because iron from plant sources is not absorbed as readily as iron from meat sources. Vegetarian sources of iron are discussed below. (See '[Iron and diet](#)' below.)

Pregnant women often develop iron deficiency anemia because of the increased iron requirements of the growing fetus and placenta, and the increased volume of blood circulating in the woman's body during pregnancy.

ANEMIA DIAGNOSIS

A person may be diagnosed with iron deficiency anemia after blood testing done to evaluate symptoms or after testing done for another, unrelated reason. The initial workup generally involves a medical history, physical examination, and blood tests.

Complete blood count — A complete blood count (CBC) is a group of tests that includes a red blood cell (RBC) count, hemoglobin, and hematocrit. It also includes the mean corpuscular volume (MCV, referring to RBC size), mean corpuscular hemoglobin (MCH, referring to the amount of hemoglobin per RBC), and others.

