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# Anemia

**Q: What is anemia?**

**A:** “Anemia” (uh-NEE-mee-uh) occurs when you have less than the normal number of red blood cells in your blood or when the red blood cells in your blood don’t have enough hemoglobin (HEE-muh-gloh-bin). Hemoglobin is a protein. It gives the red color to your blood. Its main job is to carry oxygen from your lungs to all parts of your body. If you have anemia, your blood does not carry enough oxygen to all the parts of your body. Without oxygen, your organs and tissues cannot work as well as they should. More than 3 million people in the United States have anemia. Women and people with chronic diseases are at the greatest risk for anemia.

**Q: What are the types and causes of anemia?**

- A:** Anemia happens when:
1. the body loses too much blood (such as with heavy periods, certain diseases, and trauma); or
  2. the body has problems making red blood cells; or
  3. red blood cells break down or die faster than the body can replace them with new ones; or
  4. more than one of these problems happen at the same time.

There are many types of anemia, all with different causes:

- **Iron deficiency anemia (IDA).** IDA is the most common type of anemia. IDA happens when you

don't have enough iron in your body. You need iron to make hemoglobin. People with this type of anemia are sometimes said to have “iron-poor blood” or “tired blood.”

A person can have a low iron level because of blood loss. In women, iron and red blood cells are lost when bleeding occurs from very heavy and long periods, as well as from childbirth. Women also can lose iron and red blood cells from uterine fibroids, which can bleed slowly. Other ways iron and red blood cells can be lost include:

- ulcers, colon polyps, or colon cancer
- regular use of aspirin and other drugs for pain
- infections
- severe injury
- surgery

Eating foods low in iron also can cause IDA. Meat, poultry, fish, eggs, dairy products, or iron-fortified foods are the best sources of iron found in food. Pregnancy can cause IDA if a woman doesn’t consume enough iron for both her and her unborn baby.

Foods that are fortified have important vitamins and minerals added, such as cereal with added folic acid.

Some people have enough iron in their blood, but have problems absorbing it because of diseases, such as Crohn’s disease and Celiac disease, or drugs they are taking.

- **Vitamin deficiency anemia (or**



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**megaloblastic [MEG-uh-loh-BLASS-tik] anemia).** Low levels of vitamin B12 or folate are the most common causes of this type of anemia.

*Vitamin B12 deficiency anemia* (or pernicious [pur-NISH-us] anemia). This type of anemia happens due to a lack of vitamin B12 in the body. Your body needs vitamin B12 to make red blood cells and to keep your nervous system working normally. This type of anemia occurs most often in people whose bodies are not able to absorb vitamin B12 from food because of an autoimmune disorder. It also can happen because of intestinal problems.

You also can get this type of anemia if the foods you eat don't have enough vitamin B12. Vitamin B12 is found in foods that come from animals. Fortified breakfast cereals also have vitamin B12. Folic acid supplements (pills) can treat this type of anemia. But, folic acid cannot treat nerve damage caused by a lack of vitamin B12.

With this type of anemia, your doctor may not realize that you're not getting enough vitamin B12. Not getting enough vitamin B12 can cause numbness in your legs and feet, problems walking, memory loss, and problems seeing. The treatment depends on the cause. But you may need to get vitamin B12 shots or take special vitamin B12 pills.

*Folate deficiency anemia.* Folate, also called folic acid, is also needed to make red blood cells. This type of anemia can occur if you don't consume enough folate or if you have

problems absorbing vitamins. It also may occur during the third trimester of pregnancy, when your body needs extra folate. Folate is a B vitamin found in foods such as leafy green vegetables, fruits, and dried beans and peas. Folic acid is found in fortified breads, pastas, and cereals.

- **Anemias caused by underlying diseases.** Some diseases can hurt the body's ability to make red blood cells. For example, anemia is common in people with kidney disease. Their kidneys can't make enough of the hormones that signal the body to make red blood cells. Plus, iron is lost in dialysis (what some people with kidney disease must have to take out waste from the blood).
- **Anemias caused by inherited blood disease.** If you have a blood disease in your family, you are at greater risk to also have this disease. Here are some types:

*Sickle cell anemia.* The red blood cells of people with sickle cell disease are hard and have a curved edge. These cells can get stuck in the small blood vessels, blocking the flow of blood to the organs and limbs. The body destroys sickle red cells quickly. But, it can't make new red blood cells fast enough. These factors cause anemia.

*Thalassemia (thal-uh-SEE-mee-uh).* People with thalassemia make less hemoglobin and fewer red blood cells than normal. This leads to mild or severe anemia. One severe form of this condition is Cooley's anemia.

- **Aplastic (ay-PLAS-tik) anemia.** This is a rare blood disorder in which the body stops making enough new blood cells. All blood cells—red cells, white cells, and



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platelets—are affected. Low levels of red blood cells leads to anemia. With low levels of white blood cells, the body is less able to fight infections. With too few platelets, the blood can't clot normally. This can be caused by many things:

- cancer treatments (radiation or chemotherapy)
- exposure to toxic chemicals (like those used in some insecticides, paint, and household cleaners)
- some drugs (like those that treat rheumatoid arthritis)
- autoimmune diseases (like lupus)
- viral infections
- family diseases passed on by genes, such as Fanconi anemia

**Q: What are the signs of anemia?**

**A:** Anemia takes some time to develop. In the beginning, you may not have any signs or they may be mild. But as it gets worse, you may have these symptoms:

- fatigue (very common)
- weakness (very common)
- dizziness
- headache
- numbness or coldness in your hands and feet
- low body temperature
- pale skin
- rapid or irregular heartbeat
- shortness of breath
- chest pain
- irritability
- not doing well at work or in school

All of these signs and symptoms can occur because your heart has to work harder to pump more oxygen-rich blood through the body.

**Q: How do I find out if I have anemia?**

**A:** Your doctor can tell if you have anemia by a blood test called a CBC. Your doctor also will do a physical exam and talk to you about the food you eat, the medicines you are taking, and your family health history. If you have anemia, your doctor may want to do other tests to find out what's causing it.

**Q: What's the treatment for anemia?**

**A:** With any type of anemia, there are two treatment goals:

- 1) to get red blood cell counts or hemoglobin levels back to normal so that your organs and tissues can get enough oxygen
- 2) to treat the underlying cause of the anemia

The treatment your doctor prescribes for you will depend on the cause of the anemia. For example, treatment for sickle cell anemia is different than treatment for anemia caused by low iron or folic acid intake. Treatment may include changes in foods you eat, taking dietary supplements (like vitamins or iron pills), changing the medicines you are taking, or in more severe forms of anemia, medical procedures such as blood transfusion or surgery.

**Q: What will happen if my anemia goes untreated?**

**A:** Some types of anemia may be life



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threatening if not diagnosed and treated. Too little oxygen in the body can damage organs. With anemia, the heart must work harder to make up for the lack of red blood cells or hemoglobin. This extra work can harm the heart and even lead to heart failure.

### Q: How do I prevent anemia?

**A:** There are steps you can take to help prevent some types of anemia.

- Eat foods high in iron:
  - cereal/breads with iron in it (100% iron-fortified is best. Check food label.)
  - liver
  - lentils and beans
  - oysters
  - tofu
  - green, leafy vegetables such as spinach
  - red meat (lean only)
  - fish
  - dried fruits such as apricots, prunes, and raisins

For more sources of iron, visit [www.cc.nih.gov/cc/supplements/iron.html](http://www.cc.nih.gov/cc/supplements/iron.html).

- Eat and drink foods that help your body absorb iron, like orange juice, strawberries, broccoli, or other fruits and vegetables with vitamin C.
- Don't drink coffee or tea with meals. These drinks make it harder for your body to absorb iron.
- Calcium can hurt your absorption of iron. If you have a hard time getting enough iron, talk to your doc-

tor about the best way to also get enough calcium.

- Make sure you consume enough folic acid and vitamin B12.
- Make balanced food choices. Most people who make healthy, balanced food choices get the iron and vitamins their bodies need from the foods they eat. Food fads and dieting can lead to anemia.
- Talk to your doctor about taking iron pills (supplements). Do NOT take these pills without talking to your doctor first. These pills come in two forms: ferrous and ferric. The ferrous form is better absorbed by your body. But taking iron pills can cause side effects, like nausea, vomiting, constipation, and diarrhea. Reduce these side effects by taking these steps:
  - Start with half of the recommended dose. Gradually increase to the full dose.
  - Take the pill in divided doses. For example, if you are prescribed two pills daily, take one in morning with breakfast and the other after dinner.
  - Take the pill with food.
  - If one type of iron pill is causing problems, ask your doctor for another brand.

*It is important to keep iron pills tightly capped and away from children's reach. In children, death has occurred from ingesting 200 mg of iron.*

- If you are a non-pregnant woman of childbearing age, get tested for anemia every five to 10 years. This



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can be done during a regular health exam. Testing should start in adolescence.

- If you are a non-pregnant woman of childbearing age with these risk factors for iron deficiency, get tested every year:
  - heavy periods
  - low iron intake
  - have been diagnosed with anemia in the past
- Follow your doctor's orders for treating the underlying cause of your anemia. This will prevent the anemia from coming back or becoming serious.

**Q: How much iron do I need every day?**

**A:** Most people get enough iron by making healthy, balanced food choices and eating iron-rich foods. But some groups of people are at greater risk for low iron levels:

- teenage girls/women of childbearing age (who have heavy bleeding during their period, who have had more than one child, or use an intrauterine device [IUD])
- older infants and toddlers (mainly

those who drink a lot of milk or are having a growth spurt)

- pregnant women (about half of pregnant women have iron-deficiency anemia)
- Female athletes who engage in regular, intense exercise

These groups of people should be screened at times for iron deficiency. If the tests show that the body isn't getting enough iron, iron pills (supplements) may be prescribed. In extreme cases of iron deficiency, your doctor might prescribe iron shots. Many doctors prescribe iron pills during pregnancy because many pregnant women don't get enough iron. Iron pills can help when diet alone can't restore the iron level back to normal. Talk with your doctor to find out if you are getting enough iron through the foods you eat or if you or your child needs to be taking iron pills. Please see the chart below to see how many milligrams (mg) of iron you should consume every day.

**Q: How much iron do I need if I am pregnant?**

**A:** Pregnant women need to consume twice as much iron as women who are not pregnant. But about half of all pregnant women do not get enough

Age	Infants & Children	Women	Pregnant	Breastfeeding
7 to 12 months	11 mg			
1 to 3 years	7 mg			
4 to 8 years	10 mg			
9 to 13 years	8 mg			
14 to 18 years		15 mg	27 mg	10 mg
19 to 50 years		18 mg	27 mg	9 mg
51+ years		8 mg		



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iron. During pregnancy, your body needs more iron because of the growing fetus, the higher volume of blood, and blood loss during delivery. If a pregnant woman does not get enough iron for herself or her growing baby, she has an increased chance of having preterm birth and a low-birth-weight baby. If you're pregnant, follow these tips:

- Make sure you get 27mg of iron every day. Take an iron supplement (pill). It may be part of your prenatal vitamin. Start taking it at your first prenatal visit.
- Get tested for anemia at your first prenatal visit.
- Ask if you need to be tested for anemia 4 to 6 weeks after delivery.

**Q: I am taking menopausal hormone therapy (MHT). Does that affect how much iron I should take?**

**A:** It might. If you are still getting your period while taking MHT, you may need more iron than women who are postmenopausal and not taking MHT. Talk to your doctor.

**Q: Does birth control affect my risk for anemia?**

**A:** It could. Some women who take birth control pills have less bleeding during their periods. This would lower their risk for anemia. But women who use an intrauterine device (IUD) may have more bleeding and increase their chances of getting anemia. Talk to your doctor.

**Q: I am a vegetarian. What steps should I take to make sure I get enough iron?**

**A:** It depends on the food choices you make. Since meat, poultry, and seafood are the best sources of iron found in food, some vegetarians may need to take a higher amount of iron each day than what is recommended for other people. Follow the tips above to prevent anemia, and try to take vitamin C with the iron-rich foods you eat.

**Q: What happens if my body gets more iron than it needs?**

**A:** Iron overload happens when too much iron builds up in the body over time. This condition is called hemochromatosis (HEE-moh-kroh-muh-TOH-suhss). The extra iron can damage the organs, mainly the liver, heart, and pancreas. Many problems can cause iron overload. Most people with hemochromatosis inherit it from their parents. It is one of the most common genetic (runs in families) diseases in the United States. Some other diseases also can lead to iron overload. It also can happen from years of taking too much iron or from repeated blood transfusions or dialysis for kidney disease.

Signs of early hemochromatosis may include:

- fatigue
- weakness
- weight loss
- abdominal pain
- joint pain
- fluttering in chest



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As iron builds up in the body, common symptoms include:

- arthritis
- missed periods
- early menopause
- loss of sex drive
- impotence (repeated inability to get or keep an erection firm enough for sexual intercourse)
- heart problems like shortness of breath, chest pain, and changes in rate or rhythm

Signs of advanced hemochromatosis include:

- arthritis
- liver disease, including an enlarged liver, cirrhosis, cancer, and liver failure
- damage to the pancreas, possibly causing diabetes
- chronic (ongoing) abdominal pain
- severe fatigue
- weakening of the heart muscle
- heart failure
- changes in skin color, making it look gray, yellow or bronze (not caused by sun)

Treatment depends on how severe the iron overload is. The first step is to get rid of the extra iron in the body. Most people undergo a process called phlebotomy (fluh-BOT-uh-mee), which means removing blood. It is simple and safe. A pint of blood will be taken once or twice a week for several months to a year, and sometimes longer. Once iron levels go back to normal, you will give a pint of blood every 2 to 4 months for life. People who cannot give blood can take medicine to remove extra iron. This is called iron chelation (kuh-LAY-shuhn) therapy. Although treatment cannot cure the problems caused by hemochromatosis, it will help most of them. Arthritis is the only problem that does not improve after excess iron is removed. ■



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### *For more information...*

For more information on anemia, contact [womenshealth.gov](http://womenshealth.gov) at 800-994-9662 or the following organizations:

**Division of Nutrition, Physical Activity and Obesity, NCCDPHP, CDC, HHS**

Phone: (800) 232-4636, (888) 232-6348

Internet Address: <http://www.cdc.gov/nccdp/dnpa>

**National Heart, Lung, and Blood Institute Health Information Center, NHLBI, NIH, HHS**

Phone: (301) 592-8573

Internet Address: <http://www.nhlbi.nih.gov/health/infoctr>

**American Dietetic Association**

Phone: (800) 877-1600

Internet Address: <http://www.eatright.org>

**Aplastic Anemia & MDS International Foundation, Inc.**

Phone: (800) 747-2820

Internet Address: <http://www.aamds.org>

**Cooley's Anemia Foundation**

Phone: (800) 522-7222

Internet Address: <http://www.thalassemia.org>

**Fanconi Anemia Research Fund, Inc.**

Phone: (888) 326-2664

Internet Address: <http://www.fanconi.org>

**Iron Disorders Institute**

Phone: (888) 565-4766

Internet Address: <http://www.irondisorders.org>

**Sickle Cell Disease Association of America, Inc.**

Phone: (800) 421-8453

Internet Address: <http://www.sicklecelldisease.org>

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