



## Iron Stores and Blood Donation

Red blood cells carry oxygen through the body on hemoglobin, an iron-containing protein that gives them their red color. Before every blood donation, a hemoglobin screening test is performed using a drop of blood from your finger. This determines whether hemoglobin levels are appropriate for you to donate. Three-quarters or more of total body iron is normally in your red blood cells, but hemoglobin levels cannot predict how much iron is stored elsewhere. You may have enough hemoglobin to donate even if other body iron stores are low. When these stores are very low, hemoglobin can fall below normal levels. This condition is called anemia, which is common and easily treated.

Blood donations result in a loss of red blood cells and the iron they contain. Iron leaves body stores to replace lost red blood cells. You can gradually replenish those stores with the iron in a healthy diet or with supplements. Body iron stores are used for growth, to support pregnancy, and to replace lost red blood cells.

### How much iron do I need?

Gender, age, genetics, and other sources of blood loss determine individual needs. The adult Recommended Daily Intake of iron is 8 milligrams (mg) for men and for women over 50. Women age 50 or younger should include a daily average of 18 mg in their diet. Depending on how often you donate, supplements can restore lost iron more quickly than a healthy diet alone. There are an average of 250 mg of iron in a unit of blood, almost twice that amount in a double red cell donation (two units, about 450 mg), and about 60 mg in the tubes and kit after an apheresis donation.

### How can I replace lost iron with a healthy diet?

A healthy diet generally contains enough iron to replace losses for donors who give one to two times a year. A healthy diet is important since some foods contain little iron, and not all dietary iron is absorbed equally well. The body absorbs about 30% of the iron contained in iron-rich foods like seafood, poultry, and red meats, but only 2 to 10% of the iron contained in cereals, grains, beans, nuts, and fruits. Also, foods high in vitamin C and other acids (like citrus fruits, tomatoes, and peppers) can boost iron uptake, while coffee, tea, red wine, cocoa, dairy products, and calcium-containing antacids and vitamins impede iron absorption.

### How can frequent donors replace iron lost during blood donation?

Men who give the equivalent of three or more donations a year and women who give two or more donations are considered frequent donors. We recommend that frequent blood donors take a multivitamin with iron or an iron supplement to replace the iron lost during blood donation. If you choose to take iron supplements, you should discuss options with your doctor or pharmacist. A dose of *elemental* iron of 18 to 28 mg taken daily for 60 days is sufficient to replace the iron lost during donation. The lower dose available in multivitamins minimizes side effects like upset stomach, constipation or loose stools. Some people with iron overload syndromes like hereditary hemochromatosis should not take iron, and iron-containing products should be kept out of the reach of children to prevent accidental poisoning.

### Can I take a higher dose of iron for a shorter time?

Because the body can only absorb a few milligrams of iron a day, taking larger doses for a shorter time will not increase absorption and will result in more side effects. The goal is to gradually replace the 250 mg of iron lost during donation over 60 days.

### How can I tell if my iron is low?

Many people with iron deficiency feel fine and have no symptoms. Some people may experience tiredness and reduced exercise capacity, difficulty concentrating, or a desire to chew ice, clay or other substances. Women of childbearing age are at greater risk of having low iron stores. If you are planning on becoming pregnant, it's important to build and maintain healthy iron stores to support the iron requirements of pregnancy. If you have any concerns about your iron level or want to know more about whether iron supplements may be appropriate for you, your doctor can check your iron level and recommend supplements.

Additional information about blood donation and iron stores can be found at: <https://ods.od.nih.gov/factsheets/Iron-Consumer> and <http://www.nhlbi.nih.gov/health-topics/topics/ida>.