

Iron and Total Iron-Binding Capacity



Do these tests have other names?

Iron (Fe), serum iron, TIBC

What are these tests?

The serum iron test measures the amount of iron in your blood. The total iron-binding capacity (TIBC) test looks at how well the iron moves through your body.

Iron is an important mineral that your body needs to stay healthy. Your body uses iron to make hemoglobin. This is the protein in your red blood cells that carries oxygen around your body. If you don't have enough iron, you may not have enough hemoglobin. This is called iron deficiency anemia.

Iron in your body is carried, or bound, mainly to a protein made by your liver called transferrin. The TIBC test is based on certain proteins, including transferrin, found in the blood. Your transferrin levels are almost always measured along with iron and TIBC.

Why do I need these tests?

You may need these tests if your healthcare provider thinks your iron level is too low or too high. Not having enough iron in your diet is the most common cause of anemia. It's the most common type of diet deficiency in the U.S. You may need this test to look at your diet, nutrition, liver, or other conditions that cause iron to be low, such as blood loss or pregnancy.

Symptoms of iron deficiency include:

- Being tired and feeling weak
- Getting frequent infections
- Feeling cold all the time
- Having swelling in the tongue
- Struggling to keep up at school or work
- In children, having delayed mental development

Symptoms of too much iron can include:

- Feeling tired and weak
- Joint pain
- Belly pain

What other tests might I have along with this test?

Iron, TIBC, and transferrin blood tests are almost always done together. Your blood may also be checked for:

- Level of your hemoglobin
- Your percentage of red blood cells, called hematocrit

- The number of all the cells in your blood, called a complete blood count

What do my test results mean?

Test results may vary depending on your age, gender, health history, and other things. Your test results may be different depending on the lab used. They may not mean you have a problem. Ask your healthcare provider what your test results mean for you.

Normal results of iron testing may be different for men, women, and children. Iron and TIBC are measured in micrograms per deciliter (mcg/dL). Normal results for iron are:

- 70 to 175 mcg/dL for men
- 50 to 170 mcg/dL for women
- 50 to 120 mcg/dL for children

Normal results for TIBC are 250 to 450 mcg/dL for men and women.

Some common causes for a low amount of iron in your blood include:

- Iron deficiency anemia
- Other types of anemia
- Blood loss over time
- Long-standing infections or diseases
- Last 3 months of pregnancy

Some common causes for too much iron in your blood include:

- Conditions that cause red blood cells to die, called hemolytic anemia
- Iron or lead poisoning
- Iron overload, such as from hemochromatosis
- Many blood transfusions
- Liver damage

Your healthcare provider will look at your iron level along with the TIBC, transferrin, and possibly other tests to see what the results mean.

How are these tests done?

The test is done with a blood sample. A needle is used to draw blood from a vein in your arm or hand.

Do these tests pose any risks?

Having a blood test with a needle has some risks. These include bleeding, infection, bruising, and feeling lightheaded. When the needle pricks your arm or hand, you may feel a slight sting or pain. Afterward, the site may be sore.

What might affect my test results?

Many medicines can affect the results of these blood tests. Some common medicines that may affect your results include:

- Birth control pills
- Antibiotics
- Aspirin
- Some chemotherapy medicines
- Estrogen
- Testosterone

Alcohol can also affect the results. Women who are having their menstrual period may have lower iron.

How do I get ready for these tests?

You may be asked to have these blood tests in the morning after fasting overnight. Iron levels are closest to normal in the morning and get lower as the day goes on. Tell your healthcare provider about all medicines, herbs, vitamins, and supplements you are taking. This includes medicines that don't need a prescription and any illegal drugs you may use.

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