



## Arterial Blood Gases

### What is the arterial blood gas test?

An arterial blood gas (ABG) test is a blood test to measure the levels of oxygen and carbon dioxide in your blood. It also measures the balance of acids and bases in your blood. It may be done to:

- Check how well your lungs are working.
- Check how well oxygen therapy or other breathing treatments are working.
- Provide information about whether your blood has the correct balance of acids and bases.

The usual results include measurements of the oxygen level, carbon dioxide level, bicarbonate level, and acid-base balance.

- **Oxygen level:** The amount of oxygen in the blood. Oxygen is breathed into the lungs and carried to the body's tissues through the blood.
- **Carbon dioxide level:** The amount of carbon dioxide in the blood. Carbon dioxide is a waste that the body creates. It is carried away from the body's tissues by the blood to the lungs and breathed out.
- **Bicarbonate level:** Keeps the acid-base balance stable when there is too much carbon dioxide in the blood.
- **Acid-base balance:** The body needs a careful balance to be able to function well.

### How is the test done?

There is usually no special preparation for this test. If you are using oxygen therapy, the technician will need to know how much oxygen you are on, for example, 2 liters per minute, and how many minutes or hours you have been on oxygen before the test.

The blood is taken from an artery, because arteries carry oxygen-rich blood from the heart and lungs to the rest of the body. The artery most commonly used for an arterial blood gas test is the artery in the wrist where your pulse is usually checked, called the radial artery. A small amount of blood is taken from this artery with a needle. This test may cause more discomfort than blood tests that use blood from a vein. The blood is tested in a lab right away to get the most accurate results.

Because blood pressure is stronger in arteries than in veins, the puncture hole from the needle may take longer to close. Firm pressure is applied to the site for at least 5 minutes after the test to stop bleeding. If firm pressure is not used, blood can leak from the artery into the tissue and a large bruise can form where the needle went in.

In some cases, you may have a small tube placed in your artery that will stay there for several days for blood pressure monitoring or frequent arterial blood gas tests. The blood needed for an arterial blood gas test can be taken from this tube without the need to stick your artery with a needle each time.

### **What does the test result mean?**

This test is only one part of a larger picture that includes your medical history and current health. Sometimes a test needs to be repeated to check the first result. Talk to your healthcare provider about your result and ask questions.

Many health problems can cause abnormal ABG results. Examples of possible causes of an abnormal result are:

- Your body is not getting enough oxygen from your lungs because of lung disease or severe anemia.
- Your body is not getting rid of enough carbon dioxide because of lung disease.
- Your kidneys are not working properly.
- You have had severe vomiting or diarrhea.
- You have chronic heart failure.
- You have diabetes and your sugar is very high.

### **If your test results are not normal, ask your healthcare provider:**

- If you need additional tests.
- What can be done to work toward a normal value.
- If or when you need to be tested again.