

Total and Free Carnitine



Does this test have other names?

Quantitative plasma carnitine, plasma carnitine, plasma acylcarnitine analysis

What is this test?

This test measures the amount of a substance called carnitine in your blood. It looks at how much usable or "free" carnitine you have. It compares that with the total amount in your blood.

Carnitine is a compound that's present in nearly every part of your body. Your cells normally use the fats (fatty acids) in your body for energy. Without carnitine, your body has trouble using fatty acids for energy. It uses the sugar in your blood for energy instead.

Some people have a carnitine deficiency. If your body can't use carnitine and you have low blood sugar, you can become weak, tired, and anemic. You may have heart and kidney problems. Some people even get symptoms of progressive weakness.

Newborns are usually screened for a condition called primary carnitine deficiency. Some people also get a carnitine deficiency because of type 2 diabetes, cancer, heart problems, or kidney problems.

Getting tested helps your healthcare provider find out if you have low levels of carnitine in your blood.

Why do I need this test?

You may need this test if you are being treated for type 2 diabetes, cancer, an enlarged heart, or kidney disease. In some cases, these conditions can affect how you use carnitine.

This test is often given to babies shortly after birth. It is also given to toddlers, especially if they show signs of carnitine deficiency. These signs include eating problems, vomiting, confusion, seizures, low blood sugar, and muscle weakness.

What other tests might I have along with this test?

If your healthcare provider thinks you have another disease or inherited disorder, you may need other tests. These include:

- Complete blood count. This test looks for blood disorders, such as anemia.
- Serum electrolytes. This looks for an imbalance of sodium, potassium, or other electrolytes in your blood.
- Blood sugar (glucose). This measures your blood sugar and helps diagnose diabetes.
- Liver tests. These look for liver injury and disease.
- Blood gas. This looks for an acid-base imbalance in your blood.
- Urine tests. These check your urine for signs of a kidney infection, urinary tract damage, infection, or diabetes.

Your healthcare provider may also talk to you about genetic testing if they think there is a genetic reason you have low levels of carnitine.

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.

Test results are a percentage of the amount of free carnitine compared with the total amount of carnitine in your blood. A ratio greater than 0.4 suggests you have a carnitine deficiency.

Results also depend on your physical condition and age.

How is this test done?

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

Does this test pose any risks?

Having a blood test with a needle carries 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?

What you eat may affect the results of this test.

How do I get ready for this test?

Ask your healthcare provider whether you should not eat or drink anything but water before this test. Be sure your provider knows 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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