TEST

Ceruloplasmin blood test

A ceruloplasmin blood test measures a copper-carrying protein made by your liver.

WHAT IT MEASURES
Ceruloplasmin, a copper-carrying protein made by the liver

SAMPLE
Blood from a vein

FASTING NEEDED?
No, unless combined tests require it

HOW LONG IT TAKES
About five to ten minutes

RESULTS IN
Usually one to three days; laboratory timing differs

USED FOR
Supporting diagnosis of copper and liver disorders

MAIN LIMITATION
Low results are not specific for Wilson disease

Overview

Ceruloplasmin is a protein made mainly by your liver. It carries most of the copper in your blood and helps your body use iron normally.

A ceruloplasmin blood test measures this protein in a blood sample. It is often used when investigating Wilson disease, an inherited condition in which copper builds up in the liver, brain, eyes, and other tissues. It may also help assess copper deficiency or certain liver and protein-loss disorders.

The test cannot diagnose a condition by itself. Results are interpreted with your symptoms, medical and family history, liver tests, and other copper tests.

Why the test is ordered

The test may be ordered when copper may not be processed normally. Reasons include:

Ceruloplasmin is not generally used as a stand-alone screening test for people without symptoms, relevant test abnormalities, or a family history.

- Unexplained liver test abnormalities or liver disease
- Tremor, unusual movements, stiffness, or coordination problems
- Unexplained changes in behaviour, mood, or thinking
- A close relative with Wilson disease
- A low or unusual blood copper result
- Possible copper deficiency from malnutrition, malabsorption, or excessive zinc exposure

Who should have the test

You may be offered the test if your symptoms, examination, family history, or other laboratory results suggest Wilson disease or another copper-related problem.

Relatives of someone with Wilson disease may need testing even if they feel well. Family assessment often includes more than ceruloplasmin because a normal result does not reliably rule out the condition.

The test may also be useful if you have a condition that can cause copper deficiency or protein loss through the kidneys or digestive system.

How to prepare

You usually do not need to fast. Eat and drink as usual unless other blood tests at the same appointment require fasting.

Tell the clinician who ordered the test about your medicines and supplements, especially:

Do not stop prescribed medicines or supplements unless specifically told to do so. Also mention pregnancy, a recent infection, ongoing inflammation, and liver, kidney, or digestive disease because these can affect interpretation.

- Estrogen-containing contraception or hormone therapy
- Copper or zinc supplements
- High-dose vitamins or mineral products

What happens during the test

A healthcare professional places a small needle into a vein, usually in your arm. Blood is

collected into a tube and sent to a laboratory.

The blood draw usually takes less than ten minutes. You can generally return to normal activities straight away.

Understanding your results

Your report will show your ceruloplasmin level and the laboratory's reference range. Use the range on your report because interpretation varies by laboratory method, age, sex, pregnancy status, medicines, and clinical context.

A low result can occur in Wilson disease, copper deficiency, severe liver dysfunction, poor nutrition, or conditions that cause protein loss. Some people who carry one altered Wilson disease gene may have a mildly low level without having the disease.

A normal result does not completely exclude Wilson disease. Some affected people have results within range, particularly when inflammation, pregnancy, or estrogen use raises ceruloplasmin.

A high result is often linked to inflammation because ceruloplasmin is an acute-phase protein that can rise during illness or injury. Pregnancy and estrogen medicines can also raise it. A high result does not necessarily mean your body contains too much copper.

Blood copper can sometimes be low in Wilson disease because most copper in blood is attached to ceruloplasmin, even though harmful copper may be building up in tissues.

What affects the results

Recent infection, inflammation, injury, or surgery can raise ceruloplasmin. Testing during an acute illness may therefore hide an otherwise low level.

Pregnancy and estrogen-containing medicines can increase it. Levels are naturally lower in young infants, so adult reference ranges should not be applied to babies.

Severe liver dysfunction can lower the result because the liver makes ceruloplasmin. Poor nutrition, intestinal malabsorption, and protein loss through the kidneys or digestive tract can also reduce it.

Copper deficiency may develop with severe malabsorption or excessive zinc intake because zinc can reduce copper absorption. Copper supplements may affect related measurements.

Laboratory methods also matter. Many laboratories use antibodies to measure ceruloplasmin protein, including protein that may not carry copper. The reported amount may not fully

represent its copper-carrying activity.

Accuracy and limitations

Ceruloplasmin is useful evidence, but it is not a yes-or-no test for Wilson disease. Accuracy varies with the testing method, stage of illness, inflammation, and population being tested.

The test can miss Wilson disease when ceruloplasmin is normal despite abnormal copper handling, including when pregnancy, estrogen use, or another condition has raised the level.

It can also suggest Wilson disease when it is not present . Low levels can result from copper deficiency, advanced liver dysfunction, malnutrition, protein loss, or carrying one altered gene.

If Wilson disease remains a concern, further assessments may include copper measured in urine collected over 24 hours, a slit-lamp eye examination, ATP7B genetic testing, or measurement of copper in a liver biopsy. Each has limitations, and not everyone needs every test.

Calculating "non-ceruloplasmin-bound copper" from routine blood results can be unreliable, especially when ceruloplasmin is very low or laboratory methods differ.

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or minor bleeding where the needle entered. Some people feel faint, but serious complications are uncommon.

What happens next

A result within range may need no further testing if there are no other concerning findings. If clinical suspicion remains, a normal result may be followed by other copper tests.

A mildly abnormal result is reviewed alongside your health history, medicines, liver tests, blood copper, and signs of inflammation. The test may be repeated after a temporary illness resolves.

A clearly low result may lead to urine copper testing, genetic testing, an eye examination, or referral to a liver, neurology, metabolic, or genetics service. This routine follow-up does not mean a diagnosis has been made.

The result itself is rarely an emergency. Seek urgent medical assessment for new jaundice, rapidly worsening weakness, or repeated vomiting. Call emergency services for severe

confusion, loss of consciousness, vomiting blood, black stools, or serious difficulty breathing.

Common questions

Can I drink coffee before the test?

Usually, yes. If you are having fasting blood tests at the same time, follow their instructions; coffee with milk or sugar may break a fast.

Does the time of day matter?

Ceruloplasmin is not usually scheduled for a particular time. Follow any timing instructions for other tests collected with it.

Can I exercise beforehand?

Normal activity is unlikely to make a meaningful difference. Other blood tests may have different preparation instructions.

Should I stop vitamins, zinc, or copper supplements?

Do not stop them on your own. Tell the person ordering the test what you take and how often because mineral supplements can affect copper balance and interpretation.

Does a low result mean I have Wilson disease?

No. A low result supports further investigation but has several possible causes. Wilson disease is assessed using a combination of findings.

Can a normal result rule out Wilson disease?

No. Further testing may be appropriate when symptoms, family history, or other results remain concerning.

Sources

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