TEST

# Serotonin blood test

A serotonin blood test measures serotonin in blood to help assess serotonin-producing neuroendocrine tumors.

**WHAT IT MEASURES**
Serotonin circulating in blood, mostly stored inside platelets

**SAMPLE**
Blood

**FASTING NEEDED?**
Sometimes, usually eight hours under laboratory instructions

**HOW LONG IT TAKES**
About five minutes for the blood draw

**RESULTS IN**
One to several days, depending on laboratory

**USED FOR**
Supporting diagnosis and monitoring of serotonin-producing neuroendocrine tumors

**MAIN LIMITATION**
Platelet handling and short-term serotonin release can distort results

## Overview

A serotonin blood test measures serotonin in a sample of your blood. Serotonin is a chemical messenger involved in digestion, blood vessel function, blood clotting, mood, and sleep.

Most serotonin in the body is made in the digestive system. In blood, much of it is stored inside platelets, the cell fragments that help blood clot. Blood serotonin does not show how much serotonin is in your brain because serotonin does not readily cross the barrier between the bloodstream and brain.

The test is mainly used when a healthcare professional suspects a serotonin-producing neuroendocrine tumor. These uncommon tumors arise from hormone-producing nerve and gland cells. When a tumor releases large amounts of serotonin or related chemicals, it may cause a group of symptoms called carcinoid syndrome.

The test is not used to screen the general population. It also cannot diagnose depression, anxiety, or serotonin syndrome.

## Why the test is ordered

A serotonin blood test may support an investigation for a neuroendocrine tumor that releases serotonin. It may be considered if you have a combination of otherwise unexplained symptoms such as:

Blood serotonin may also be measured after a serotonin-producing tumor has been diagnosed. Following the result over time can sometimes help assess treatment or watch for renewed hormone production. Monitoring is most useful when the level was raised before treatment and the same type of test and laboratory are used.

Another test, called 5-HIAA, is often preferred. 5-HIAA is the main substance produced when the body breaks down serotonin. It can be measured in a 24-hour urine collection or, in some settings, in plasma.

- Repeated flushing of the face or upper body
- Frequent watery diarrhea
- Wheezing or breathing symptoms not explained by another condition
- Unexplained changes affecting the right side of the heart
- Symptoms suggesting carcinoid syndrome in someone with a known tumor

## Who should have the test

This test is usually reserved for people whose symptoms, examination, imaging, or other laboratory results raise concern about a serotonin-producing neuroendocrine tumor.

It may also be appropriate if you already have such a tumor and your specialist wants to monitor hormone production. A single symptom, such as flushing or diarrhea, usually has many more common explanations and does not automatically mean serotonin testing is needed.

Routine serotonin blood testing is not recommended for assessing mood, sleep problems, migraines, or suspected "low serotonin." The amount in your bloodstream does not reliably represent serotonin activity in your brain.

## How to prepare

Follow the instructions from the laboratory arranging your test. Preparation differs because laboratories use different sample types and measurement methods.

You may be asked to fast, often overnight. If fasting is required, this normally means having only water. Coffee, tea, juice, gum, and smoking may not be permitted during the fasting period.

Some laboratories ask you to avoid serotonin-rich foods before testing. Examples can include bananas, plantains, pineapple, avocado, walnuts, tomatoes, plums, and eggplant. The exact food list and avoidance period are laboratory-specific.

Tell the healthcare professional arranging the test about all prescription medicines, over-the-counter products, and supplements you take. Medicines that affect serotonin or platelets can change the result. These include some antidepressants, particularly selective serotonin reuptake inhibitors like sertraline or fluoxetine , known as SSRIs.

Do not stop an antidepressant or any other medicine unless the professional responsible for your care tells you to. Suddenly stopping certain medicines can cause withdrawal symptoms or allow the condition being treated to return.

## What happens during the test

A healthcare professional places a small needle into a vein, usually inside your elbow or on the back of your hand. Blood is collected into a tube selected for the laboratory's particular serotonin test.

The needle is then removed and pressure is applied to the site. The blood draw itself usually takes less than five minutes, although the full appointment may take longer.

Serotonin can be measured in serum, plasma, or whole blood. These samples are prepared differently and their results are not directly interchangeable.

## Understanding your results

Your report will show the serotonin result, its units, and the reference range used by that laboratory. Do not compare a serum result with a whole-blood or plasma range.

Ranges and interpretation vary by laboratory, testing method, age, sex, pregnancy status, medicines, and clinical context. Your platelet count and the way the sample was collected also matter.

A raised result can support the possibility of a serotonin-producing neuroendocrine tumor, particularly when you have compatible symptoms or imaging findings. It does not confirm a tumor by itself. Diet, medicines, platelet-related factors, and sample preparation can also raise

the measurement.

A result within the laboratory's range does not completely exclude a neuroendocrine tumor. Some tumors release serotonin intermittently, produce only a small amount, or release different hormones instead.

A low result is usually not used to diagnose a serotonin deficiency. It also does not explain depression or another mental health condition.

## What affects the results

Serotonin blood testing is especially sensitive to factors involving platelets. A result can be misleading even when the laboratory performs the measurement correctly.

Because collection details matter, repeating the test under standardized conditions may be more useful than comparing results from different laboratories.

- Sample type and processing: Serum, plasma, and whole blood contain different amounts of platelet serotonin. Delayed processing or incomplete removal of platelets from plasma can change the result.
- Platelet count: A low platelet count may lower whole-blood serotonin. A high count or platelet activation may increase the measured amount.
- Medicines: SSRIs and other medicines that affect serotonin uptake can reduce serotonin stored in platelets. Other medicines may alter serotonin production, breakdown, or the test method.
- Food: Serotonin-rich foods can increase results with some methods, especially if eaten shortly before the sample is collected.
- Timing: Some tumors release serotonin in bursts. A sample taken between episodes may be normal.
- Recent transfusion: A recent platelet transfusion can affect a platelet-based serotonin result. Tell the person interpreting the test when the transfusion occurred.
- Health conditions: Changes in liver or kidney function may affect serotonin metabolism or the interpretation of related tests such as 5-HIAA.
- Pregnancy and age: These may affect how the result is interpreted, even when the laboratory does not provide a separate range.

## Accuracy and limitations

There is no single reliable figure for how often a serotonin blood test detects a serotonin-producing tumor. Performance changes with the sample type, laboratory method, tumor location, amount released, and whether secretion is continuous or intermittent.

The test can miss a tumor when little serotonin is produced or the sample is taken between periods of release. It can also give a raised result when no tumor is present because of food, medicines, platelet activation, or sample processing.

Blood serotonin does not show where excess serotonin comes from. Imaging is needed to locate a suspected tumor, but imaging alone may not show whether it is producing serotonin.

A 24-hour urine 5-HIAA test is often a better-established measure of overall serotonin breakdown. Plasma 5-HIAA may be an alternative where available. These tests have their own limitations, including dietary, medicine, kidney-function, and collection effects.

## Risks and complications

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

## What happens next

If your result is raised, the next step is usually not an immediate diagnosis. The healthcare professional reviewing it may check whether preparation, medicines, platelet count, or sample handling could explain the finding.

They may recommend repeating the test or measuring 5-HIAA in urine or plasma. If the biochemical results and symptoms support further investigation, imaging may be arranged to look for a neuroendocrine tumor.

A normal result may need no further action when the original concern was low. If there remains a strong clinical concern, a different biochemical test or imaging may still be appropriate.

Most result discussions are routine follow-up. However, do not wait for a serotonin result if you develop severe breathing difficulty, fainting, new chest pain, or rapidly worsening illness.

Serotonin syndrome is a separate medical emergency usually caused by medicines or drug combinations. Seek urgent help for a sudden combination of agitation or confusion, heavy sweating, fever, diarrhea, tremor, marked muscle stiffness, or uncontrolled muscle jerking, especially after starting or increasing a serotonin-affecting medicine.

## Common questions

Can I drink coffee before a serotonin blood test?

If you have been told to fast, have water only unless your laboratory says otherwise. Even black coffee may not be allowed. If fasting was not requested, follow any separate food and drink instructions.

Does the time of day matter?

There is no universal collection time. Consistent timing can help when results are being compared over time, so follow the appointment and fasting instructions provided by your laboratory.

Can I exercise beforehand?

Ordinary activity is unlikely to be the main influence, but strenuous exercise can affect platelets and other blood measurements. Ask whether your laboratory wants you to avoid vigorous exercise on the day of the test.

Should I stop my antidepressant before the test?

Not on your own. Some antidepressants alter platelet serotonin and can affect the result, but suddenly stopping them can be harmful. The healthcare professional arranging the test should decide how to handle your medicines.

Can this test diagnose serotonin syndrome?

No. Serotonin syndrome is diagnosed from symptoms, medicine exposure, and an examination. A blood serotonin level does not reliably confirm or exclude it.

Can this test tell whether I have low serotonin or depression?

No. Blood serotonin does not measure serotonin activity in the brain and is not a diagnostic test for depression, anxiety, or other mental health conditions.

## Sources

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