

Thyroxine Blood Test

What is the thyroxine (T4) test?

Thyroxine (T4) is a hormone produced by the thyroid gland. A test of the amount of T4 in the blood is a way to see how well the thyroid gland is working. If you have to take thyroid hormone (often called thyroid replacement hormone), this test also makes sure you have the correct amount in your blood.

The thyroid gland is located at the lower front of the neck. Its main job is to make T4 and release it into the bloodstream. T4 circulates throughout the body, affecting all your organs. T4 regulates metabolism, like a thermostat regulates a furnace or air conditioner. The amount of T4 made by the thyroid gland is controlled by the pituitary gland, which is located in the brain.

The test for T4 is one of several tests that can be done to check the functioning of the thyroid gland.

Why is this test done?

This test can show if your thyroid gland is producing too much or too little thyroid hormone. If you are taking thyroid hormone to make up for what your body does not produce, this test can help your healthcare provider know if you are taking the right amount of thyroid hormone.

How do I prepare for this test?

- Your healthcare provider will tell you if you need to stop eating and drinking before the test. Food and drink before the test usually do not affect the results.
- You may need to avoid taking certain medicines before the test because they might affect the test result. Make sure your healthcare provider knows about any medicines, herbs, or supplements that you are taking. Don't stop any of your regular medicines without first talking to your healthcare provider about it.
- Talk to your healthcare provider if you have any questions about the test.

How is the test done?

Having this test will take just a few minutes. A small amount of blood is taken from a vein in your arm with a needle. The blood is collected in tubes and sent to a lab.

How will I get the test result?

Ask your healthcare provider when and how you will get the result of your test.

What does the test result mean?

Your blood level of T4 may be **higher than normal** if:

- Your thyroid gland is producing too much thyroxine, a condition called hyperthyroidism.
- You are taking too much thyroid hormone replacement medicine.

Your blood level of thyroxine may be **lower than normal** because:

- Your thyroid gland is not producing enough thyroid hormone, a condition called hypothyroidism.
- You are not getting enough thyroid hormone replacement medicine.

Other factors can affect the level of thyroxine in your blood. For instance:

- Results from this test may be abnormal when you are sick for another reason.
- Because most of the thyroxine in the blood is attached to blood proteins, you may have an abnormal level of thyroxine if you have a blood protein level that is higher or lower than normal.
- Hormones such as estrogen affect protein levels in the blood and therefore affect thyroxine levels.
- Some medicines affect protein levels and may therefore affect thyroxine levels.
- Thyroxine contains iodine. Too little iodine sometimes can cause hypothyroidism (low T4) and too much can cause high levels of T4. It is hard to get too much iodine in your diet. However, some substances such as contrast materials (dye) used for special types of X-rays like angiograms and CT scans contain a lot of iodine. They can temporarily affect T4 levels in the blood.

Because of the many factors that can affect T4 levels, other thyroid function tests (such as a test measuring thyroid stimulating hormone, or TSH) are usually done in addition to or instead of the thyroxine test.

What if my test result is not normal?

Test results are only one part of a larger picture that takes into account your medical history and current health. Sometimes a test needs to be repeated to check the first result. Talk to your healthcare provider about the result and ask questions.

If your test result is not normal, ask your healthcare provider:

- If you need additional tests
- What you can do to work toward a normal value
- When you need to be tested again

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