

## **T4**

Thyroxine (T4) is one of the hormones produced by the thyroid gland. It plays an important role in controlling metabolism. T4 makes up about 90% of thyroid hormones. In the blood, only 0.1% of T4 is free (not bound to protein), the rest is bound to thyroxine-binding globulin.

Production of T4 is controlled by the hypothalamus and the pituitary gland. When the T4 level decreases in the blood, the hypothalamus releases thyrotropin releasing hormone, which stimulates the pituitary gland to release TSH. This hormone then stimulates the thyroid to release more T4. And if T4 levels increase, with the help of negative feedback TSH release is inhibited.

### **Why the T4 Test is Performed?**

The T4 test measures the total T4 (both bound and free T4). Unfortunately, this test can be affected by the amount of protein available in the blood. For this reason, FT4 test, which measures only free T4 (FT4), is considered to be a more accurate test. Nevertheless, the total T4 test is still useful and helps doctors diagnose different diseases of the thyroid.

T4 test is ordered if a person has symptoms of hyperthyroidism or hypothyroidism; or if a person has abnormal TSH test result.

This test is used to:

- Help diagnose hypothyroidism or hyperthyroidism
- Screen for congenital hypothyroidism in newborns
- Monitor the effectiveness of treatment in patients with thyroid disorders
- Evaluate a patient with goiter
- Aid diagnosis of female infertility

Often the T4 test is ordered along with TSH, T3 or thyroid antibody tests.

### **How the Test is Performed and How to Prepare for the Test?**

A blood sample is taken from a vein. No special preparation is needed.

### **What Abnormal Results Mean**

Higher-than-normal T4 levels may indicate hyperthyroidism and lower-than-normal T4 levels may indicate hypothyroidism. T4 test results alone are not diagnostic and often additional tests are performed along with T4 to help the doctor interpret the results.

**Alternative Names**

No alternative names.

**Useful Information**

Some medications (e.g. oral contraceptives and large doses of aspirin) may interfere with the test results.