



PATHOLOGY TESTS EXPLAINED

Information about pathology tests to help everyone take control of their health and make the right decisions about their care.

WHAT YOU SHOULD KNOW ABOUT YOUR **THYROID FUNCTION TESTS**

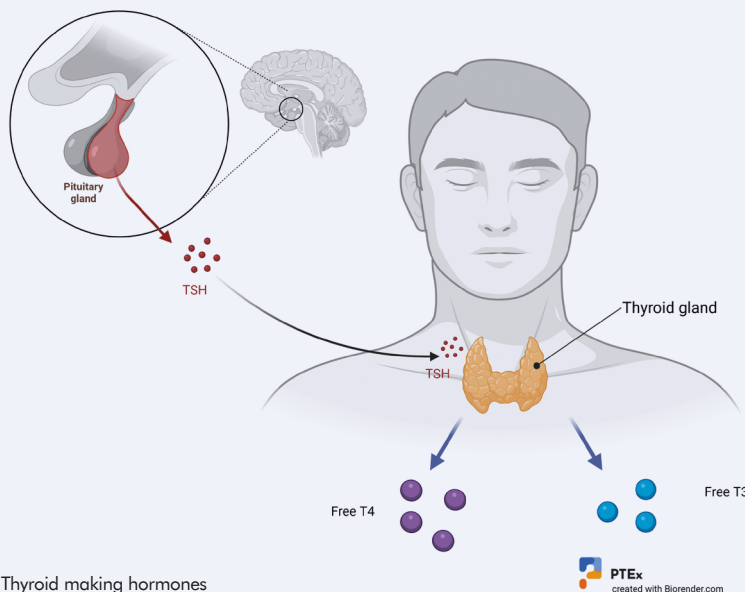
This is a group of blood tests that gives information about how your thyroid is working.

Your thyroid is a small gland at the front of the base of your neck. It is responsible for making hormones that travel around your body contributing to many functions, including metabolism – the way your body uses energy.

Your metabolism is a set of interconnected chemical processes that together regulates heart rate and body temperature among a host of other things. Making thyroid hormones requires iodine, which comes from your diet.

Because thyroid hormones are so important to the function of your entire body, if you have too much or too little you can feel very unwell.

- **Hypothyroidism** – when there is too little – sometimes referred to as an underactive thyroid.
- **Hyperthyroidism** – when there is too much – sometimes referred to as an overactive thyroid.



- Your thyroid makes the hormones T3 (Triiodothyronine) and T4 (Thyroxine).
- It is important to keep these in balance and a feedback mechanism makes sure levels don't get too high or too low.
- The levels of how much hormone your thyroid produces are controlled by your pituitary gland which sits at the base of your brain.
- The pituitary gland tells your thyroid gland how much to make by releasing more or less TSH - Thyroid Stimulating Hormone.
- If T3 and T4 production falls, TSH levels rises.
- If T3 and T4 become too high, TSH levels fall.



Testing for thyroid disease

If you have symptoms that suggest a thyroid problem you will most likely be assessed with a TSH test. This measures the level of TSH in your blood. If your TSH level is low or high, the levels of free T4 will next be measured to get a better understanding of what is going on.

The term 'free' thyroid hormones means the hormones are in the active form and can enter tissues when needed.

The levels of free T3 are not normally measured unless your symptoms and other test results suggest it could be useful. T3 is used mainly to help diagnose hyperthyroidism. It is not helpful if your doctor thinks you have hypothyroidism.

Because the FT3 level can become abnormal earlier than FT4 and return to normal later than FT4 it is often used to monitor your thyroid if you are having treatment.

Each test result gives different information. Together they create a picture of how your thyroid and pituitary gland are working.



What can your results tell you?

TSH	FT4	FT3	INTERPRETATION
High	Normal	Normal	Mild Hypothyroidism
High	Low	Low or normal	Hypothyroidism
Low	Normal	Normal	Mild Hyperthyroidism
Low	High or normal	High or normal	Hyperthyroidism
Low	Low or normal	Low or normal	Non-thyroidal illness: rare pituitary hypothyroidism



What are reference intervals (reference ranges)?

Your results are shown in your report as a comparison against a set of numbers called reference intervals or reference ranges. This is the range of test results considered normal for the general population. If a result in your report is outside this range, it can be flagged as high (H) or low (L). This does not necessarily mean that anything is wrong. It depends on your personal situation. Your results need to be interpreted by your doctor.



Autoimmune conditions

If it is possible that you have an autoimmune condition your doctor may order further tests. There are two main autoimmune conditions affecting the thyroid:

Hashimoto's thyroiditis – the immune system attacks the thyroid gland, causing inflammation which slows the production of thyroid hormones.

Graves' disease – the immune system makes an antibody that acts against TSH and causes the thyroid gland to produce too much thyroid hormone.

Some of the antibody tests used are:

- Thyroid peroxidase antibodies (TPO)
- Thyroid-stimulating hormone (TSH) receptor
- Thyroid-stimulating immunoglobulin (TSI)



What happens next?

Interpreting the many variations in test results is complex. An abnormal result from your thyroid tests may not mean you have anything to worry about. Other health conditions, extreme stress and pregnancy affect the levels of thyroid hormones, as well as some medications. Talking with your doctor about what your results mean for you is important.

Your doctor may want to repeat tests over time to monitor your thyroid. They may order an ultrasound of your thyroid. If you are prescribed treatment, thyroid tests will need to be repeated to monitor how well it is working. If you are being assessed for thyroxine treatment, you need only a T4 test. Rarely, your results may indicate a pituitary problem and you may need further, different tests for this.



Questions to ask your doctor

- Why does this test need to be done?
- Do I need to prepare (such as fast or avoid medications) for the sample collection?
- Will an abnormal result mean I need further tests?
- How could it change the course of my care?
- What will happen next, after the test?

For more detailed information on these and many other tests go to pathologytestsexplained.org.au



www.pathologytestsexplained.org.au

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Click on the link to find information about what your tests are investigating or measuring and what your results can tell your doctor.