



Thyroid Disorder Panel

MDL Test Number: 644, Tests Included: 18

Specimen Requirements

Specimen	Collection Platform	Stability	Turnaround Time
Serum	2 Serum Separator Tube (SST)	Room Temperature	24 – 72 hrs.
Serum	1 Serum Separator Tube (SST)	Refrigerated	24 – 72 hrs.

Special handling and timing

This panel is drawn into a single serum separator tube, but several of its tests place requirements on how and when that tube is taken.

- **One tube is refrigerated immediately.** Calcitonin is not stable at room temperature. The laboratory refrigerates one SST as soon as the specimens are received, which is why this panel should reach the laboratory without delay.
- **A morning draw is preferred.** Testosterone is highest in the morning and falls throughout the day, and prolactin rises with sleep, stress, and the draw itself. The time of collection should be recorded on the request.

What is the Thyroid Disorder Panel?

Thyroid disease is common, is commoner in women, and produces symptoms — tiredness, weight change, palpitations, low mood, hair and skin changes, irregular periods — that are easily attributed to something else. This panel is designed to answer not only whether the thyroid is underactive or overactive, but why.

It measures thyroid function completely, with the pituitary signal and both thyroid hormones in free and total form, so that the uncommon patterns are recognised rather than missed. It then measures the antibodies that establish the cause: the two that indicate autoimmune thyroid disease, and the antibody specific to Graves' disease, which distinguishes it from the other reasons a thyroid can be overactive and treats it quite differently.

The panel also carries the tests used to follow thyroid nodules and thyroid cancer, and the measures — iron, vitamin B12, vitamin D, bone turnover and inflammation — that are affected by thyroid disease or that account for the same symptoms when the thyroid turns out to be normal.

Why order the Thyroid Disorder Panel?

It is commonly used to:

- Investigate suspected thyroid disease, and establish whether the thyroid is underactive, overactive, or normal.
- Establish the cause rather than only the state. The antibodies distinguish autoimmune thyroid disease from other causes,

and the Graves' antibody distinguishes Graves' disease from a nodule producing hormone on its own or a temporarily inflamed gland.

- Reach that answer without a thyroid scan, which matters when a scan is unsuitable or unwanted, as in pregnancy and breast feeding.
- Monitor established thyroid disease and its treatment, including the assessment of relapse risk before antithyroid tablets are stopped.
- Follow thyroid nodules and treated thyroid cancer, using the tumor markers carried in this panel.
- Identify the conditions that produce the same symptoms when thyroid function proves normal — iron deficiency, vitamin B12 or vitamin D deficiency, and a raised prolactin.

Special Instructions

- **Protection from light:** Vitamin B12 and folate break down on exposure to light, so the sample is protected from the moment it is drawn. This is handled by the laboratory and the draw site and needs nothing from the patient.
- **Thyroid treatment must be listed:** Levothyroxine, antithyroid tablets, radioactive iodine, and thyroid surgery all change these results, and they do not change them all in the same direction or over the same period. What treatment has been given, and when, should be on the request.
- **Biotin supplements:** Biotin is sold on its own and is present in many hair, skin, and nail products, often at high doses. Several tests in this panel can be affected, and the most sensitive of them was tested by its manufacturer only up to a level that a high-dose supplement can exceed. Patients should tell the ordering provider what they take and at what dose.
- **Recent supplements and infusions:** Iron tablets, iron infusions, vitamin B12 injections, and high-dose vitamin D taken shortly before the draw can all overstate the corresponding result. When these were last taken should be on the request.
- **Medicines and recent illness:** Steroids, some psychiatric medicines, and any recent significant illness can affect these results. A current medication list should accompany the request.



Which tests are included in this panel?

Each test below is also available individually, and a separate fact sheet for each one gives its reference ranges, limitations, and the conditions it is used to assess.

Free testosterone and the free androgen index, where included, are calculated from the total testosterone and SHBG results already in this panel. They are not separately charged.

Test No.	Analyte	CPT Code	Method
612	Thyroid-Stimulating Hormone (TSH)	84443	Immunoassay
613	Thyroxine, Total (Total T4)	84436	Immunoassay
615	Triiodothyronine, Total (Total T3)	84480	Immunoassay
616	Triiodothyronine, Free (Free T3)	84481	Immunoassay
617	Thyroxine, Free (Free T4)	84439	Immunoassay
618	Parathyroid Hormone, Intact (PTH)	83970	Immunoassay
623	Thyroglobulin	84432	Immunoassay
628	Calcitonin	82308	Immunoassay
638	Anti-Thyroid Peroxidase Antibody (Anti-TPO)	86376	Immunoassay
639	Sex Hormone-Binding Globulin (SHBG)	84270	Immunoassay
652	Anti-Thyroglobulin Antibody (Anti-TG)	86800	Immunoassay
654	Prolactin	84146	Immunoassay
655	Vitamin B12	82607	Immunoassay
657	Ferritin	82728	Immunoassay
658	Ostase (Bone-Specific Alkaline Phosphatase)	84080	Immunoassay
659	Vitamin D, 25-OH	82306	Immunoassay
663	C-Reactive Protein, High Sensitivity (hsCRP)	86141	Immunoassay
664	Thyroid Stimulating Immunoglobulin (TSI)	84445	Immunoassay

Limitations:

Every laboratory panel has limits. For this one, the main ones are:

- A normal panel does not exclude a diagnosis, and a single abnormal result does not establish one. The pattern across the panel is what carries the meaning.
- Thyroid results are altered by any serious illness, by pregnancy, and by several common medicines, and can be misleading when the patient is acutely unwell. Where that is the case, testing is usually better repeated once the illness has settled.
- The thyroid tumor markers in this panel are interpreted only in patients being followed for a nodule or for treated thyroid cancer. Outside that context, they do not mean what they mean within it.
- Results are interpreted against the reference range printed on the report for each individual test. Those ranges differ by age and, for several of these tests, by where the patient is in her cycle.
- These results are one piece of a larger picture. They are meant to be read together with the patient's symptoms, medical history, and examination — never on their own.

What are some references that discuss the medical necessity of this panel?

1. Jonklaas, J. et al. Guidelines for the treatment of hypothyroidism. *Thyroid* **24**, 1670–1751 (2014).
2. Ross, D. S. et al. 2016 American Thyroid Association guidelines for diagnosis and management of hyperthyroidism and other causes of thyrotoxicosis. *Thyroid* **26**, 1343–1421 (2016).
3. Haugen, B. R. et al. 2015 American Thyroid Association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer. *Thyroid* **26**, 1–133 (2016).
4. Krassas, G. E. et al. Thyroid function and human reproductive health. *Endocr. Rev.* **31**, 702–755 (2010).
5. Melmed, S. et al. Diagnosis and treatment of hyperprolactinemia: an Endocrine Society clinical practice guideline. *J. Clin. Endocrinol. Metab.* **96**, 273–288 (2011).

