



The most complete line of endocrine testing

## Comprehensive Thyroid Assessment

The **Comprehensive Thyroid Assessment** provides a thorough analysis of thyroid hormone metabolism. It includes central thyroid gland regulation and activity, thyroid production and secretion, peripheral thyroid conversion, and thyroid autoimmunity. This test allows the practitioner to pinpoint common imbalances that underlie a broad spectrum of chronic illness.

Thyroid hormones are essential and primary regulators of the body's metabolism. Imbalances can affect virtually every metabolic process in the body, exerting significant effects on mood and energy level.

### Thyroid function has a profound impact on overall health via:

- Modulation of carbohydrate, protein and fat metabolism
- Vitamin utilization
- Mitochondrial function
- Digestive process
- Muscle and nerve activity
- Blood flow
- Oxygen utilization
- Hormone secretion
- Sexual and reproductive health
- Many other physiological parameters

Thyroid imbalances may elicit fatigue, depression, coldness, constipation, poor skin, headaches, PMS, dysmenorrhea, fluid retention, weight gain, anxiety/panic attacks, decreased memory and concentration, muscle and joint pain, and low sex drive.

### Thyroid Testing

The **Comprehensive Thyroid Assessment** reveals imbalances that often go undetected with more limited assessments. Testing measures:

- **Unbound levels of T4 and T3** which reflect the bioactive portion of thyroid hormone. This assessment can identify not only overt hyper- and hypothyroidism, but subtle sub-clinical manifestations of thyroid dysfunction.
- **Reverse T3**, levels of which can increase when peripheral conversion of T4 to active T3 is impaired. Peripheral thyroid imbalances may arise from nutrient shortages, heavy metal exposure, adrenal stress, enzyme deficiencies, and other chronic illness.
- **Thyroid antibody levels**, which help gauge autoimmune response and may reflect metabolic irregularities and hypothyroidism even when TSH and T4 levels appear normal. Thyroid antibody levels may rise in response to trauma, dysbiosis, inflammation (including thyroiditis) or progressive thyroid degeneration.

Ensuring healthy thyroid function is clinically essential. Optimal thyroid function may help safeguard against the pathogenesis of diabetes, obesity, heart disease, and depression. Thyroid hormones also play central metabolic roles in healthy sexual and reproductive function in both women and men. Because they are essential for IGF-1 production, thyroid hormones significantly affect lipid metabolism.

#### •Analytes:

Hypersensitive thyroid-stimulating hormone (TSH)  
 free serum thyroxine (fT4)  
 free triiodothyronine (fT3)  
 reverse T3 (rT3)  
 anti-thyroglobulin antibodies (anti-TG)  
 anti-thyroid peroxidase antibodies (anti-TPO)  
 fT4/fT3  
 fT3/rT3

#### •Specimen Requirements:

5ml serum in SST

#### •Before Patient Takes This Test:

- Inform practitioner of all medications and supplements
- Arrange serum collection for Monday-Thursday
- See instructions inside test kit for blood draw



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Diagnostics®

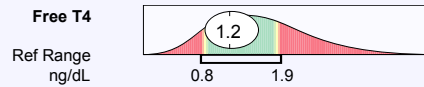
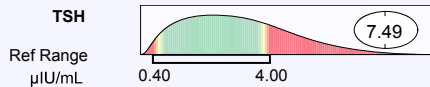
Improving Healthcare for Chronic Disease



# Comprehensive Thyroid Assessment

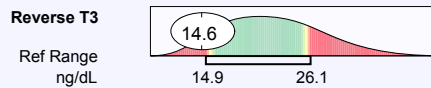
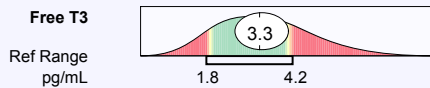
Patient: **SAMPLE PATIENT**      **Order Number:**  
Age: 38      Completed: May 23, 2006  
Sex: F      Received: May 19, 2006  
MRN:      Collected: May 11, 2006

## Central Thyroid Regulation & Activity



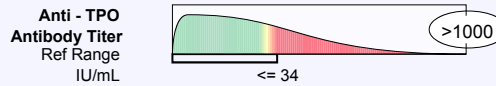
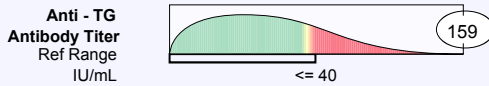
Histograms represent idealized data based upon large populations

## Peripheral Thyroid Function



Histograms represent idealized data based upon large populations

## Thyroid Auto Immunity



Histograms represent idealized data based upon large populations

The test for Reverse T3 has been developed and its performance characteristics determined by GSDL, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration

## Thyroid Metabolism Summary

Thyroid hormone production is centrally regulated (hypothalamus-pituitary-thyroid axis) but thyroxine (T4) from the thyroid gland is peripherally transformed in liver and kidney cells into T3 and reverse T3 (rT3). Ultimately, the site of action for thyroid hormones is at cell nuclei throughout the body, where T3 is five times as potent as T4, and rT3 is completely inert. Thyroid dysfunction may occur even when the hypothalamus-pituitary-thyroid axis is operating adequately. Problems with peripheral conversion (reflected by T3 and rT3 levels) and/or with immune system interference in the form of auto-antibodies (reflected by anti-thyroglobulin and anti-thyroidal peroxidase antibodies) may still affect thyroid hormone production or its action at the cellular level. Thus to achieve a comprehensive assessment of thyroid adequacy, central regulation, peripheral conversion, and auto-immune involvement must be thoroughly evaluated.

This test reveals important clinical information about:

- **Central thyroid dysregulation** indicating primary or secondary thyroid dysfunction that may be associated with fatigue, depression, coldness or cold extremities, hair loss, headaches, PMS, menstrual irregularities, fluid retention, unexplained weight gain or weight loss, anxiety or panic attacks, decreased memory or concentration, muscle and joint pain, low libido, and infertility
- **Peripheral thyroid imbalances** arising from nutrient shortages, heavy metal exposure, adrenal stress, enzyme deficiencies, and other chronic illness, which may result in functional hypothyroidism, known variously as euthyroid sick syndrome (ESS), low T3 syndrome, or Wilson's syndrome
- **Thyroid antibody levels**, to gauge autoimmune response that can interfere with thyroid receptor function and promote inflammatory thyroid diseases like Hashimoto's thyroiditis, Graves' disease or postpartum thyroiditis

For test kits, clinical support, or more information contact:

Client Services  
Genova Diagnostics  
63 Zillicoa St.  
Asheville, NC 28801-1074  
800-522-4762 • Fax: 828-252-9303

More detailed publications with references are also available: [www.GDX.net](http://www.GDX.net)