

THE LATEST GUIDE FOR PEOPLE WITH...

**Hypothyroidism * Hyperthyroidism * Autoimmune Thyroid Disease
Graves' Disease * Hashimoto's Thyroiditis * Goiter
Nodules * Thyroid Cancer**

THYROID AWARENESS MONTH

Guide to Thyroid Disease

2007 Edition

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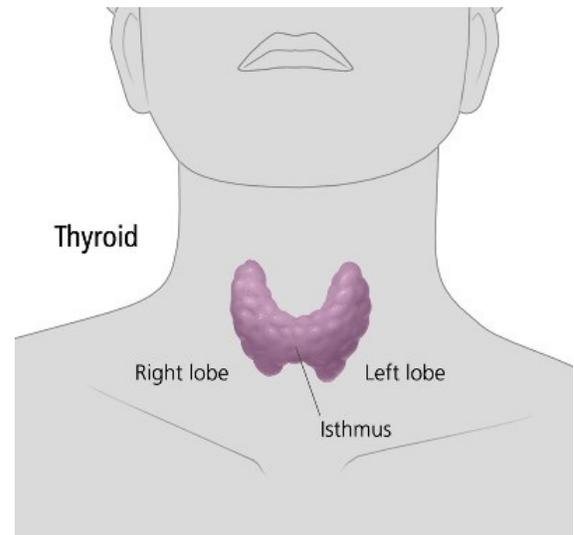
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ABOUT THE THYROID

The thyroid is a small gland, shaped like a butterfly or bowtie, located in the lower part of your neck, in front of your windpipe. Like other glands, the thyroid secretes hormones. The main hormones released by the thyroid -- triiodothyronine, abbreviated as T3, and thyroxine, abbreviated as T4 -- deliver energy to cells of the body.

Thyroid hormones control your metabolism — the process by which oxygen and calories are converted to energy for use by your cells and organs.



When your thyroid works normally, it produces and secretes the amount of T4 and T3 necessary to keep various bodily functions moving at their proper pace. The thyroid frequently is a common target of disease or dysfunction. It's estimated that more than 200 million people at minimum worldwide have thyroid disease, and some experts estimate that anywhere from 30 to 59 million Americans have thyroid disease.

The thyroid requires iodine -- usually ingested through the diet -- to produce thyroid hormone. Thyroid problems are particularly common in areas covered at one time by glaciers, where iodine is not present in the soil and in foods. In many of these countries, an enlarged thyroid, known as goiter, is seen in as many as one in five people, and is usually due to iodine deficiency.

According to the World Health Organization, iodine deficiency is the world's most prevalent – yet easily preventable – cause of brain damage. It affects more than 740 million people worldwide -- 13% of the world's population. As many as an additional 30% of the population worldwide is at risk of iodine deficiency-related problems. In the U.S., use of iodized salt helped reduce iodine deficiency, but as many as 20% of Americans are still iodine-deficient.

When it occurs during pregnancy, mild iodine deficiency in a pregnant mother can cause cognitive and developmental problems in her children that may reduce their IQ by as much as 15 IQ points. But serious iodine deficiency in a pregnant woman can cause stillbirth, miscarriage, and in particular, a congenital abnormality known as cretinism in her child. Cretinism is a serious, irreversible condition often involving severe mental retardation, and is most common in iodine-deficient areas of Africa and Asia.

In the U.S., the majority of thyroid conditions is due to autoimmune disease, and in particular, Hashimoto's disease. Thyroid disease prevalence increases with age and is more common in women. A woman in the U.S. faces as high as a one in five chance of developing a thyroid problem during her lifetime, and generally, women are seven to eight times more likely than men to develop thyroid conditions.

Besides iodine deficiency and being a woman, there are a number of risk factors for thyroid disease. These include genetics and heredity, personal or family history of endocrine or autoimmune disease, infection, exposure to goitrogenic foods, cigarette smoking, pregnancy, certain drugs, particular chemical exposures, radiation exposure, and many other factors.

The most common health issues affecting the thyroid include:

- Hypothyroidism -- the condition whereby the thyroid is not producing enough -- or any -- thyroid hormone. Congenital hypothyroidism is present at birth, usually due to a missing or poorly developed thyroid gland.
- Hyperthyroidism -- the condition whereby the thyroid is producing too much thyroid hormone
- Autoimmune Thyroid Disease -- Hashimoto's Disease is an autoimmune disease that typically causes hypothyroidism. Graves' Disease typically causes hyperthyroidism.
- Goiter -- enlargement of the thyroid
- Nodules -- lumps or masses in the thyroid, benign
- Thyroiditis -- viral, autoimmune, or post-pregnancy inflammation of the thyroid, causing hyperthyroidism, hypothyroidism, or alternating hyperthyroidism and hypothyroidism after pregnancy, sometimes temporary or transient.
- Thyroid cancer -- cancerous nodules or tissue in the thyroid

COMMON THYROID DISEASES AND CONDITIONS

There are a number of conditions that can affect the thyroid, its function and structure:

Hypothyroidism/Underactive Thyroid

Hypothyroidism means that there is too little thyroid hormone. This can be due to a missing or undeveloped thyroid, a surgically removed thyroid, or a thyroid that is not capable of producing enough hormone due to radioactive treatment, drugs, nutritional deficiencies, nodules, infection, or atrophy. Symptoms of hypothyroidism tend to mirror the slowed metabolism that results from insufficient thyroid hormone, and include fatigue, weight gain, constipation, fuzzy thinking, depression, body pain, slow reflexes, and much more.

Conventional treatment typically involves replacing the missing thyroid hormone using prescription thyroid hormone replacement drugs. Most commonly, a levothyroxine (T4) drug is prescribed, as this is considered the "standard" treatment for hypothyroidism. The most prescribed levothyroxine drug is Synthroid, however, the other name levothyroxine drugs (including Levoxyl and Levothroid) are considered equivalent in quality, potency and effectiveness, and are less expensive.

Research has shown, however, that some patients feel better with the addition of a second hormone, T3, and so some numbers practitioners are prescribing either levothyroxine plus a synthetic T3 (Cytomel), or less commonly, levothyroxine plus specially compounded T3.

Another option is a synthetic T4 plus T3 combination drug known as liotrix (Thyrolar). While this drug is not very commonly prescribed, it is a safe and effective option for some patients.

Finally, some practitioners and patients prefer natural, desiccated thyroid, which has been available for treating hypothyroidism for 100 years. The most known brand is Armour Thyroid, others include Naturethroid and Biotech. While some physicians disparage natural thyroid and claim that it's less effective than synthetic thyroid drugs, other practitioners and patients prefer these FDA-regulated natural drugs

Hyperthyroidism/Overactive Thyroid -- Thyrotoxicosis

Thyrotoxicosis refers to the various effects of exposure to too much thyroid hormone. Hyperthyroidism implies that this excess of hormones originated in the thyroid gland itself, and not, for example, by taking too much of your thyroid medication. Hyperthyroidism can be caused by a number of thyroid problems, including autoimmune thyroid disease, nodules that produce thyroid hormone, overdosage of thyroid hormone replacement drugs, infection, and other causes. Hyperthyroidism is typically treated by drugs to reduce the thyroid's ability to produce hormone, by radioactive iodine treatment to chemically ablate the thyroid, or by surgery.

Symptoms of hyperthyroidism tend to mirror the rapid metabolism that results from an oversupply of thyroid hormone, and include anxiety, insomnia, rapid weight loss, diarrhea, high heart rate, high blood pressure, eye sensitivity/bulging and vision disturbances, and many other concerns.

Conventional treatment in the U.S. focuses on disabling the thyroid permanently, by administering radioactive iodine (RAI) treatment, which renders most patients hypothyroid for life. Some physicians in the U.S. use prescription antithyroid drugs such as propylthiouracil (PTU) and methimazole (Tapazole) and beta blockers to calm down the thyroid and the immune system, with the hope of remission of the disease, which occurs in as many as 30% of patients. (Antithyroid drugs are the first choice, however, for doctors outside the U.S.)

In rarer cases in the U.S., and more commonly outside the U.S., surgery to remove the thyroid may be the treatment. Holistic and integrative treatments prior to RAI or surgery focus on supplementing antithyroid drug approaches with natural antithyroid foods, supplements and herbs that have no side effects, as well as calming and rebalancing the immune system through nutrition, herbs, supplements, movement therapy such as yoga, and energy work. Ultimately, most people with Graves' disease and hyperthyroidism do end up hypothyroid for life as a result of RAI or surgery.

Autoimmune Thyroid Disease

There are two different autoimmune diseases in which an immune system dysfunction targets the thyroid - Graves' disease and Hashimoto's disease. In the United States, the vast majority of thyroid patients are either hypothyroid or hyperthyroid due to an autoimmune disease.

Hashimoto's disease is the most common form of thyroiditis, an inflammation of the thyroid, and so the condition is also often referred to as Hashimoto's thyroiditis. It is far more common than Graves' disease, and is the cause of most hypothyroidism in the U.S. In Hashimoto's, antibodies react against proteins in the thyroid, causing

gradual destruction of the gland itself. Occasionally, before the thyroid is destroyed, it has thyrotoxic periods -- known as Hashitoxicosis -- during which the thyroid overproduces thyroid hormone. Eventually however, the gland's attack on itself destroys the ability to produce the thyroid hormones the body needs.



Symptoms of Hashimoto's disease usually parallel the hypothyroidism that results, however, the thyroid can periodically sputter into life during Hashitoxic periods, causing hyperthyroidism symptoms. For most people, treatment is for hypothyroidism

and involves life-long thyroid hormone replacement. Holistic and integrative approaches tend to look at healing the underlying autoimmune imbalance, and may include nutritional support for the thyroid (i.e., selenium, tyrosine, B vitamins, etc.) and overall support for the immune system.

Graves' disease -- sometimes referred to as diffuse toxic goiter because of the usual presence of a goiter -- typically causes hyperthyroidism. In the U.S., it's thought that Graves' disease and hyperthyroidism affect slightly less than 1 percent of the US population, or slightly less than 2.9 million people. Some experts believe, however, that as many as 4 percent of Americans, or 11.8 million people, may have a mild, subclinical Graves' disease, with few or no symptoms, but exhibit blood test evidence of slight hyperthyroidism.

In Graves' disease, autoantibodies bind to the gland, which causes the thyroid to overproduce hormone, and cause hyperthyroidism. Treatment for Graves' disease

follow hyperthyroidism treatment, and involves antithyroid drugs, radioactive iodine ablation, or surgical removal of the thyroid. Most Graves' disease patients end up hypothyroid over time, requiring life-long thyroid hormone replacement.

Goiter/Enlargement

Goiter is the term used to describe an enlargement of the thyroid gland. The thyroid gland can enlarge as a response to deficiencies of iodine, thyroid inflammation or infection, or autoimmune disease. The thyroid becomes large enough so that it can be seen as enlarged on ultrasounds or x-rays, and may be enlarged enough to thicken the neck area visibly. Particularly large goiters may be cosmetically problematic, and can compromise breathing and swallowing, and are often surgically removed. Smaller goiters may respond to drug treatment.

Symptoms of goiter include a swollen, tender or tight feeling in the neck or throat, hoarseness or coughing, and difficulty swallowing or breathing.

Goiter can be due to an autoimmune condition that triggers an inflamed thyroid, or due to too much or too little iodine in the diet. In the U.S., 10 to 20 percent of goiters are iodine-induced.

- Treatment for goiter depends on how enlarged the thyroid has become, as well as other symptoms. Treatments can include:
- Observation and monitoring, which is typically done if your goiter is not large and is not causing symptoms or thyroid dysfunction

- Medications, including thyroid hormone replacement, which can help shrink your goiter, or aspirin or corticosteroid drugs, to shrink thyroid inflammation.

If the goiter is very large, continues to grow while on thyroid hormone, or symptoms continue, or the goiter is in a dangerous location, i.e., the windpipe or esophagus, or cosmetically unsightly, most doctors will recommend surgery. If the goiter contains any suspicious nodules, you may also need surgery.

Nodules/Lumps

Many people have nodules in the thyroid, but few are palpable (capable of being felt externally). Thyroid nodules are actually fairly common. An estimated one in 12 to 15 women and one in 50 men has a thyroid nodule. In some cases, nodules on the thyroid exist without any disease, don't have any active function, and cause no symptoms. Some nodules impair the thyroid's ability to function properly and cause hypothyroidism. In some cases, nodules are overactive and produce far too much thyroid hormone -- these are called "toxic nodules," and can trigger hyperthyroidism. Particularly large nodules can compromise breathing or swallowing. A very small percentage of nodules are cancerous. In non-pregnant patients, 90 to 95 percent of nodules are benign. In pregnant women, however, approximately 27% of nodules are cancerous.

Symptoms of nodules depend on what action they are having. Some people will have no symptoms, while others may have more hyperthyroid symptoms such as palpitations, insomnia, weight loss, anxiety, and tremors. Nodules can also trigger hypothyroidism, and symptoms might include weight gain, fatigue, depression. Some people will cycle back and forth between hyperthyroid and hypothyroid symptoms.

Others may have difficulty swallowing, a feeling of fullness, pain or pressure in the neck, a hoarse voice, or neck tenderness. And finally, many people have nodules with no obvious symptoms related to thyroid dysfunction at all.

Depending on the results of the evaluation, nodules may be left alone and monitored periodically, assuming they aren't causing serious difficulty, or treated with thyroid hormone replacement to help shrink them. They will be surgically removed if they are causing difficulties with breathing, or if test results indicate a suspected malignancy.

Thyroiditis

While Hashimoto's disease is by far the most common form of thyroiditis, there are other forms of thyroiditis that also involve an inflammation of the thyroid gland, including De Quervain's thyroiditis, painless or silent thyroiditis, and



postpartum thyroiditis , among others. Symptoms of thyroiditis typically include pain and tenderness in the thyroid area, neck and throat, difficulty sleeping, and may also manifest as either hypothyroid or hyperthyroid symptoms.

Treatment depends on the manifestation of thyroiditis, and may include a short course of antithyroid drugs or beta blockers if hyperthyroid, thyroid hormone replacement for hypothyroidism, or antibiotics for an suppurative thyroiditis. If the main symptom is pain, nonsteroidal anti-inflammatory drugs like ibuprofen (Motrin, Advil) or naproxen (Aleve) may be helpful.

Thyroid Cancer

Thyroid cancer is one of the least common cancers in the U.S., but is the most common of endocrine cancers. Thyroid cancer is one of the only cancers whose incidence in the U.S. is on the rise in recent years. The American Cancer Society estimated that there were almost 26,000 new cases of thyroid cancer in 2005 (some 19,200 occurring in women) and an estimated 1,500 who people died of thyroid cancer in 2005.

The treatment and prognosis for thyroid cancer depends on the type of thyroid cancer. Papillary and follicular thyroid cancer are the most common types; an estimated 80-90% of all thyroid cancers fall into this category. Most papillary and follicular thyroid cancer can be treated successfully when discovered early.

Medullary thyroid carcinoma makes up 5-10% of all thyroid cancers. If discovered before it metastasizes to other parts of the body, medullary cancer has a good cure rate. There are two types of medullary thyroid cancer: sporadic and familial. Anyone with a family history of medullary cancer should take a blood test to measure calcitonin levels that may indicate a strong possibility of a genetic predisposition. If found, many people undergo a thyroidectomy - surgical removal of the thyroid - as a preventive measure.

Anaplastic thyroid carcinoma is quite rare, accounting for only 1-2% of all thyroid cancers. It tends to be quite aggressive, and is the least likely to respond to typical methods of treatment.

Although many patients are asymptomatic at first, possible symptoms of thyroid cancer include a lump in the neck, voice changes, difficulty breathing or swallowing, or lymph node swelling.

Treatment for thyroid cancer almost always involves surgery to remove the thyroid and cancer. In some cases, lymph node dissection also removes lymph nodes in the neck that contain cancer. Radiation therapy is typically given to kill any remaining cancer cells. Radiation for thyroid cancer commonly is administered by ingesting liquid radioactive iodine (RAI). Because the thyroid takes up iodine, the radioactive iodine collects in any thyroid tissue remaining in the body and kills the cancer cells. Less commonly, external radiation therapy may be given. Hormone therapy, using thyroid hormone, is often used to stop cancer cells from growing.

Because the entire thyroid is removed as treatment for most thyroid cancers, almost all thyroid cancer survivors end up hypothyroid, and need to take thyroid replacement hormone for life. Their medication needs to be at a high enough dose to ensure that their TSH levels remain low - nearly undetectable, actually - to help prevent a relapse of cancer. Survivors need regular checks to watch for a reoccurrence.

RISK FACTORS FOR THYROID DISEASE

Some of the key risk factors for thyroid disease include...

- ___ Female: Women are at greater risk than men.
- ___ Over 50 -- women 50 and above are at the highest risk, though thyroid disease can strike at any age.
- ___ A personal or family history of thyroid and/or autoimmune disease increases risk.
- ___ Being left-handed, ambidextrous or prematurely grey mean greater risk of autoimmune disease, including thyroid problems
- ___ Being pregnant or within the first year after childbirth
- ___ Current or former smoker
- ___ Recent exposure to iodine via contrast dye or surgical antiseptic
- ___ Iodine or herbal supplements containing iodine, in pill or liquid form
- ___ Living in an iodine deficient area
- ___ Various medical treatments, including Interferon Beta-1b, Interleukin-4, immunosuppressants, antiretrovirals, monoclonal antibody (Campath-1H), bone marrow transplant, Lithium, amiodarone (Cordarone), and other medications (See the book "Thyroid Hormone Breakthrough for a more comprehensive list)
- ___ Overconsumption of raw goitrogenic foods, i.e., Brussels sprouts; turnips; cauliflower; soy products and others
- ___ Overconsumption of soy foods
- ___ Recent neck trauma, biopsy, injection or surgery
- ___ Radiation exposure, through radiation to neck area, or exposure to nuclear facility or accident, i.e., Chernobyl
- ___ High stress life events

SIGNS AND SYMPTOMS OF THYROID DISEASE

Some of the key signs and symptoms of thyroid disease include...

- Low body temperature
- Particularly low or high pulse
- Unusually low or high blood pressure
- Enlarged, tender, or sensitive neck or lump in neck
- Hoarse, husky, or gravelly voice
- Extreme thirst or hunger
- Noticeable change in weight (gain or loss) despite no change in diet and exercise
- Feeling warm or hot when others are cold, or cold when others are warm
- Heart palpitations, flutters, skipped beats, strange patterns or rhythms
- Constipation and or diarrhea/loose stools
- Fatigued, weakness
- Pains, aches, and stiffness in various joints, hands, and feet.
- Carpal tunnel, tarsal tunnel, plantar's fasciitis
- Puffiness around my eyes
- Loss of outer eyebrow hair
- Lesions on lower legs, feet, toes, arms, face, shoulders and/or trunk.
- Hair loss
- Dry eyes
- Swollen hands or feet
- Dry, sensitive, gritty or achy eyes
- Changeable moods
- Brain fog, difficulty concentrating or remembering
- Depression

- ___ Anxiety, panic attacks, jumpy
- ___ Tremors
- ___ Insomnia
- ___ Irregular periods
- ___ Low sex drive
- ___ Infertility
- ___ Miscarriage or multiple miscarriages
- ___ Difficulty breastfeeding
- ___ Leaking milk when not lactating or breastfeeding
- ___ Difficult perimenopause/menopause symptoms

DIAGNOSIS AND TREATMENT

The standard line about thyroid disease is that it's "easy to diagnose, and easy to treat." Or, you may hear "just one blood test and we'll find out what we need to know." While there are some cases where thyroid disease or a thyroid condition are fairly simple to identify, most cases are not quite that easy.

- a thorough conventional medical evaluation for thyroid disease should include:
- a thorough review of your thyroid risk factors
- a thorough review of your family history and personal history
- a thorough review of your symptoms
- a medical examination, including feeling for enlargement or masses in the thyroid, a reflex check, evaluation of skin/hair/eyes, blood pressure, heart rate check, body temperature, weight, and lymph/node spleen exam
- clinical evaluation for thyroid-specific signs, including loss of eyebrow hair, facial/hand/feet swelling, myxedemic patches on legs, bulging eyes, and other signs
- blood tests
- imaging tests as needed

THYROID BLOOD TESTS

TSH Test

Most conventional doctors rely on a test known as the TSH test to diagnose an overactive or underactive thyroid. The TSH test is a blood test that measures the amount of thyroid-stimulating hormone—TSH—in your bloodstream. (The test is sometimes also called the thyrotropin stimulating hormone test.) Elevated TSH levels can indicate hypothyroidism. Low or nonexistent TSH levels can indicate hyperthyroidism.



You'll need to know what the normal values are for the lab where your doctor sends your blood because "normal" varies from lab to lab.

Thyroid normal ranges are in tremendous flux right now. Throughout the 1980s and 1990s in North America, the "normal" TSH range was from about 0.3-0.5 at the bottom end, to a high end of from 5.0 to 6.0. In November of 2002, the National Academy of Clinical Biochemistry (NACB), part of the Academy of the American Association for Clinical Chemistry (AACC), issued revised laboratory medicine practice guidelines for the diagnosis and monitoring of thyroid disease, which prompted the American Association of Clinical Endocrinologists (AACE) to recommend a narrower margin of 0.3 to 3.0.

In the years since the original NACB guidelines were released, most laboratories and many doctors have yet to adopt these new guidelines, and the medical world is still not in complete agreement about changing the guidelines. This means that for patients who test above below 0.5, or above 3.0, whether or not you get diagnosed and treated for a thyroid condition depends on how up-to-date both your laboratory and practitioner are.

TSH LEVELS CHART			
	HYPERTHYROIDISM Numbers below range are considered hyperthyroid / overactive	TSH "Normal" Range Euthyroid / thyroid is neither hyperthyroid nor hypothyroid	HYPOTHYROID Numbers above range are considered hypothyroid / underactive
Former Outdated Guidelines*	Below 0.5	00.5 to 5.0-6.0	Above 5.0-6.0
New Guidelines -- Per NACB & AACE, as of 2003	Below 0.3	.3 to 3.	Above 3.0

**** Note, many laboratories and practitioners still use these outdated guidelines, and all evidence indicates that this will continue.***

OTHER TESTS

Total T4/Total Thyroxine/Serum Thyroxine

Total T4 measures the total amount of circulating thyroxine in your blood -- the T4 bound to protein and T4 that is free and unbound. A high value can indicate hyperthyroidism, a low value hypothyroidism. Most practitioners prefer the Free (unbound) T4 test.

Free T4

Free T4 measures the free, unbound thyroxine levels circulating in your bloodstream. Free T4 is typically elevated in hyperthyroidism, and lowered in hypothyroidism.

Total T3/Total Triiodothyronine/Serum Triiodothyronine

Total T3 is a measure of the T3 bound to protein as well as the T3 that is free and unbound. The Total T3 level will typically be elevated in hyperthyroidism, lowered in hypothyroidism.

Free T3

Free T3 measures free unbound triiodothyronine in your bloodstream. Again, the "Free" levels are considered more accurate than the total in the case of T3.

Thyroglobulin/Thyroid Binding Globulin/TBG

Thyroglobulin, also known as thyroid binding globulin or TBG, is a protein, produced by your thyroid primarily when it is injured or inflamed, due to thyroiditis or cancer, and leaks thyroglobulin into the bloodstream. Normal thyroid produces low or no thyroglobulin, and so undetectable thyroglobulin levels usually mean normal thyroid function. Thyroglobulin is typically elevated in Graves' disease, thyroiditis, and thyroid cancer.

T3 Resin Uptake (T3RU)

When done with a T3 and T4, the T3 resin uptake (T3RU) test is sometimes referred to as the T7 test. This test can help assess whether your thyroid is actually dysfunctional thyroid, or whether hormones are binding in the bloodstream, causing abnormal results. Conditions causing hyperthyroidism typically increase T3RU.

Thyroid Peroxidase (TPO) Antibodies (TPOAb) / Antithyroid Peroxidase Antibodies

Thyroid Peroxidase or TPO Antibodies -- also known as Antithyroid Peroxidase Antibodies., frequently show up as a sign that the thyroid tissue is being destroyed, such as in Hashimoto's disease and in some other types of thyroiditis such as post-partum thyroiditis, and TPO antibodies are detectable in approximately 95% of patients with Hashimoto's thyroiditis. Some 50 to 85% of Graves' disease patients have them as well, but they are not a reliable stand-alone test for diagnosing Graves' disease.

Antithyroid Microsomal Antibodies / Antimicrosomal Antibodies

This test is typically elevated when you have Hashimoto's thyroiditis. It's thought that as many as 80 percent of Hashimoto's patients have elevated levels of these antibodies.

Thyroglobulin Antibodies / Antithyroglobulin Antibodies

Thyroglobulin antibodies (also called antithyroglobulin antibodies) in someone with hyperthyroidism confirm autoimmune disease -- but are not formally diagnostic of Graves' disease. Tg antibodies are positive in about 60% of Hashimoto's patients and 30% of Graves' patients.

Thyroid Receptor Antibodies (TRAb)

TSH receptor antibodies (TRAb) are seen in most patients with a history of or who currently have Graves' disease. TRAb may be:

- * stimulatory, in which case they cause hyperthyroidism [TSH stimulating antibodies (TSAb)]
- * blocking, in which case they prevent TSH from binding to the cell receptor, and cause hypothyroidism [TSH receptor blocking antibodies (TBAb/TSBAb)]
- * binding, in which case they interfere with the activity of TSH at the cell receptor

Patients with Graves' disease tend to test positive for stimulatory TRAb, and patients with Hashimoto's disease tend to test positive for blocking TRAb.

Thyroid-Stimulating Immunoglobulins (TSI)

Thyroid-stimulating immunoglobulins (TSI) can be detected in the majority of Graves' disease patients, some say as many as 75 to 90%. Their presence of is considered diagnostic for Graves' disease. The higher the levels, the more active the Graves' disease is thought to be. The absence of these antibodies does not, however, mean that you don't have Graves' disease. Monitoring TSI may help predict relapse of Graves' disease, and lower TSI levels can indicate that a treatment is working. TSI is also monitored during pregnancy, as they are a risk factor for fetal or neonatal thyroid dysfunction.

Nuclear Scan / Radioactive Iodine Uptake (RAI-U)

Radioactive iodine uptake (RAI-U) is a test that is done to help differentiate between Graves' disease, toxic multinodular goiter, and thyroiditis. In this test, a small dose of radioactive iodine 123 is administered as a pill. Several hours later, the amount of iodine in your system is measured, often accompanied by an x-ray that views how iodine concentrated in your thyroid.

Almost all forms of hyperthyroidism show as higher uptake because an overactive thyroid usually takes up higher amounts of iodine than normal, and that uptake is visible in the x-ray. A thyroid that takes up iodine is considered "hot" -- or overactive, versus a cold or underactive thyroid.

- In Graves', RAI-U is elevated, and you can see that the entire gland becomes hot. (In contrast, in Hashimoto's thyroiditis, the uptake is usually low, with patchy hot spots in the gland.)

- If you have thyroid nodules, RAI-U can show them and whether they are hot. If you are hyperthyroid due to a hot nodule, and not Graves' disease, the nodule will show up as hot, and the rest of your thyroid will be cold. Hot nodules may overproduce thyroid hormone, but they are rarely cancerous. An estimated 10 to 20 percent of cold nodules are cancerous, however.

CT Scan

A CT scan -- known as computed tomography or "cat scan" -- is a specialized type of x-ray that is used -- not very frequently, however -- to evaluate the thyroid. A CT scan can not detect smaller nodules, but it can diagnose a goiter, or larger nodules.

MRI / Magnetic Resonance Imaging

MRI is done when the size and shape of the thyroid needs to be evaluated. MRI can't tell anything about how your thyroid is functioning -- i.e., whether it is hyperthyroid or hypothyroid -- but can detect enlargement, and may be able to along side blood tests. It is sometimes preferable to x-rays or CT scans because it doesn't require any injection of contrast dye, and doesn't require radiation.

Thyroid Ultrasound

Ultrasound of the thyroid is done to evaluate nodules, lumps and enlargement of your gland. Ultrasound can also determine whether a nodule is a fluid-filled cyst, or a mass of solid tissue. Ultrasound cannot tell whether a nodule or lump is benign or malignant, however. In Graves' disease, the thyroid is usually enlarged. A reduction in the size of your thyroid is one of the first signs that you are responding to

antithyroid drug treatment for Graves' disease. If you are on antithyroid drugs, therefore, your doctor may use ultrasound to monitor the success of your treatment.

Needle Biopsy / Fine Needle Aspiration / FNA

This technique helps to evaluate lumps or cold nodules. In a needle biopsy, a thin needle is inserted directly into the lump, and some cells are withdrawn and evaluated. In some cases, ultrasound is used to help guide the needle into the correct position. Pathology assessment of the cells can often reveal Hashimoto's thyroiditis, as well as cancerous cells. Definitive information is available in approximately 75 percent of nodules biopsied.

Other Blood Tests

There is other bloodwork that a physician may do to rule out thyroid disease, or to identify related conditions that may raise the suspicion of a thyroid condition.

Besides thyroid tests, other blood test results that may be pointing to (but are not conclusively diagnostic of) thyroid conditions include:

- High sedimentation (aka, "sed" rate)
- Abnormal (high or low) cholesterol
- Abnormal (high or low) triglycerides
- Abnormal (high or low) iron or ferritin
- Elevated serum calcium
- Elevated alkaline phosphatase
- Elevated sex hormone-binding globulin levels
- Elevated blood sugar / Poor glucose tolerance
- Elevated hemoglobin A1C

- Elevated bilirubin
- Elevated aminotransferases
- Decreased free testosterone levels
- Elevated C-Reactive protein levels
- Elevated Homocysteine levels

Alternative Testing

Saliva and urinary thyroid testing are means of thyroid testing that a growing number of alternative or complementary practitioners are using. Some practitioners also use basal body temperature measurements to aid in diagnosis.

A Self-Check: The Thyroid Neck Check



One simple, at-home self-test that can potentially detect some thyroid abnormalities is a thyroid neck check. To take this test, hold a mirror so that you can see your thyroid area -- the neck, just below the Adam's apple and above the collarbone. Tip your head back, while keeping this view of your neck and thyroid area in your mirror. Take a drink of water and swallow. As you swallow, look at your neck. Watch carefully for any bulges, enlargement, protrusions, or unusual appearances in this area. Repeat this process several times. If you see any bulges, protrusions, lumps or anything that appears unusual, see your doctor right away. You may have a goiter (an enlarged thyroid), or a thyroid nodule, and your thyroid should be evaluated. Be sure you don't get your Adam's apple confused with your thyroid gland. The Adam's apple is at the front of your neck; the thyroid is further down, and closer to your

collarbone. Remember that this test is by no means conclusive, and cannot rule out thyroid abnormalities. It's just helpful to identify a particularly enlarged thyroid or masses in the thyroid that warrant evaluation.

LINKS

Mary Shomon's "Thyroid-Info"
Website

<http://www.thyroid-info.com>

Thyroid Site at About.com

<http://thyroid.about.com>

Thyroid Top Doctors Directory

<http://www.thyroid-info.com/topdrs>

Thyroid History

<http://www.thyroidhistory.net>

Endocrineweb

<http://www.endocrineweb.com>

Thyroid Disease Manager

<http://www.thyroidmanager.org>

Elaine Moore's Graves'/Hyperthyroidism/Thyroid Eye Disease Web Site

<http://www.elaine-moore.com>

Broda Barnes Research Foundation

<http://www.brodabarnes.org>

Thyroid Foundation of Canada/La Fondation Canadienne de la Thyroïde

<http://www.thyroid.ca/>

American Autoimmune Related Diseases Association

<http://www.aarda.org>

National Center of Endocrine Education and Research (NCEER)

<http://www.NCEER.com>

The Thyroid Foundation Of America

<http://www.allthyroid.org>



The Endocrine Society
<http://www.endo-society.org/>

American Association of Clinical Endocrinologists
<http://www.aace.com>

Alt.support.thyroid
<http://www.altsupportthyroid.org/>

Hormone Foundation
<http://www.hormone.org>

American Thyroid Association
<http://www.thyroid.org>

Thyroid Drugs

Levoxyl (Thyroid Hormone Replacement Drug)
<http://www.levoxyl.com>

Cytomel (Thyroid Hormone Replacement Drug)
http://www.kingpharm.com/product_view.asp?id_product=36

Tapazole (Antithyroid Drug)
http://www.kingpharm.com/product_view.asp?id_product=47

Armour Thyroid (Thyroid Hormone Replacement Drug)
<http://www.armourthyroid.com>

Thyrolar (Thyroid Hormone Replacement Drug)
<http://www.thyrolar.com>

Levothroid (Thyroid Hormone Replacement Drug)
<http://www.levothroid.com>

Westhroid/Nature-Throid (Thyroid Hormone Replacement Drug)
<http://www.westernresearchlaboratories.com/>

Synthroid (Thyroid Hormone Replacement Drug)
<http://www.synthroid.com>

Thyrogen (Thyroid Hormone Replacement Drug)
<http://www.thyrogen.com>

STAY INFORMED!



Since 1997, when I launched my first thyroid website, and my *Sticking Out Our Necks* thyroid disease email news report, I have regularly provided up to date news, information and findings about thyroid disease, and a variety of other conditions, via my websites, and email and print newsletters. In my sites and newsletters, I compile patient-oriented news from around the world related to the causes, treatments, drugs and research, new websites of interest, and other information that helps you live well with thyroid disease, autoimmune conditions, or helps you

successfully and effectively lose weight.

The real difference between my approach and other thyroid, autoimmune and diet-related resources is that I am not funded by any pharmaceutical companies or special interests who might not want YOU to know the whole range of options and information when it comes to your health and treatments you choose. Because I do not have to cater to the medical establishment, or pharmaceutical advertisers, you get patient-oriented information, direct from another patient who respects you, doesn't talk down to you, isn't out to sell you drugs or herbs or vitamins. I'm simply a patient advocate who spends many hours each week scouring the latest information, looking for findings to share regarding thyroid disease, autoimmune disease, metabolism, weight loss, related symptoms, syndromes and side effects.

Even though many pharmaceutical companies and multilevel marketing vitamin companies have asked, I don't accept that type of advertising for any of my publications, and don't plan to in the future. I don't sell your email addresses, or use them in any way except to contact you regarding the news report. I produce the newsletters because I believe every person deserves the best information -- the kind of information that helps you get well and stay well! I invite you to visit my websites, sign up for one of my free newsletters, subscribe to my mail-delivery bimonthly *Sticking Out Our Necks*, or read one of my books.

Websites

Mary Shomon's Thyroid Information Center: <http://www.thyroid-info.com>

About.com Thyroid Disease Information: <http://thyroid.about.com>

"A Weight Off My Mind" Diet/Weight Loss Email Newsletter

Every month, the free email newsletter *A Weight Off My Mind: Thyroid/ Autoimmune Diet and Weight Loss News* brings you a wealth of information that helps thyroid, autoimmune and metabolism-impaired patients lose weight, stay healthy, and manage symptoms using nutrition and diet. For the latest breaking news on all facets of diet, fitness and nutrition, subscribe to this free newsletter now. You can read back issues of *A Weight Off My Mind* online at the site at <http://www.thyroid-info.com/dietnews/index.htm> To subscribe, send an email that says "Subscribe Diet" to diet@thyroid-info.com

"Sticking Out Our Necks" Thyroid Disease News Report, Email Newsletter

Sticking Out Our Necks is the only independent patient-oriented newsletter focused on the diagnosis and treatment of thyroid disease and related conditions. You'll find unbiased conventional and alternative information, including the latest medical journal research that even your doctor hasn't gotten around to reading yet. If you want to be informed, empowered, and have the information you need to live well with your thyroid condition, sign up now for a free subscription by emailing news@thyroid-info.com



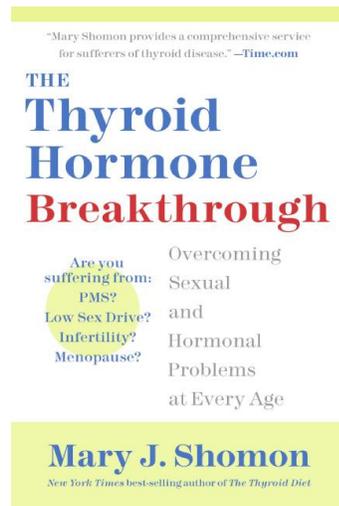
Read back issues online now at <http://www.thyroid-info.com/news/index.htm>

"Sticking Out Our Necks" Thyroid Disease News Report, Print Edition

Sticking Out Our Necks -- print edition is a bimonthly, 12-page information packaged newsletter that provides in-depth full-text versions of the news summaries you'll find in the email newsletter, plus special features on new drugs, interviews with cutting-edge practitioners, diet and weight loss help, and much more.

The newsletter is advertiser-free, because you deserve an independent, patient-oriented newsletter that is not colored by advertising from drug companies or other advertisers with a vested interest in what you hear. You'll find thyroid information you won't get from your doctors -- conventional and alternative news -- with no strings attached, and no hidden agenda.

Thyroid Hormone Breakthrough: Overcoming Sexual and Hormonal Problems at Every Age, 2006



Millions of American women suffer from a variety of sexual and reproductive health problems, such as low sex drive, infertility, difficult pregnancies, PMS, and menopausal symptoms. Unfortunately, many of these women -- and their practitioners -- don't recognize that undiagnosed or improperly treated thyroid conditions may be the real cause of their problems. The *Thyroid Hormone Breakthrough: Overcoming Sexual and Hormonal Problems at Every Age* (Collins; November 2006; Paperback Original, \$14.95; ISBN 0-06-079865-3) offers a holistic guide to help women identify, diagnose and resolve thyroid-related hormonal problems. Written by nationally recognized patient advocate and best-selling author Mary Shomon, this groundbreaking handbook delivers practical advice to help women of all ages cope with the hormonal effects of thyroid conditions.

The book offers step-by-step guidance on how to differentiate thyroid symptoms from other hormonal problems. Then, the book arms readers with the knowledge and practical tools they need to find the right practitioner, get properly diagnosed, and effectively relieve conditions and symptoms with approaches chosen from among the conventional and alternative options.

As an integral part of the endocrine system, the thyroid can affect nearly every aspect of sexual and reproductive health. Women with undiagnosed or improperly treated thyroid conditions can suffer a host of resulting hormonal problems, including:

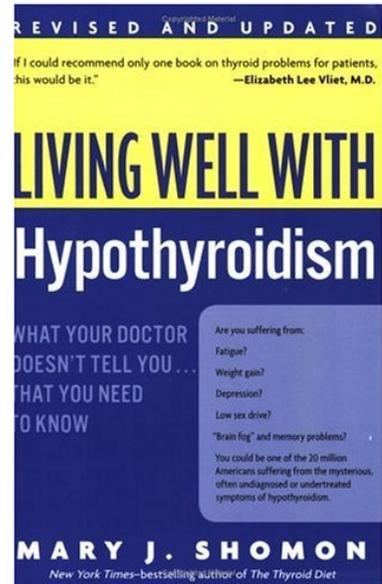
- Early/late puberty
- PMS, menstrual irregularities
- Low sex drive
- Infertility, recurrent miscarriage
- Difficult pregnancies (i.e., morning sickness, premature birth)
- Post-partum depression, breastfeeding difficulties, and weight problems
- Perimenopause and menopausal symptoms

By helping them address the thyroid as a root cause, The Thyroid Hormone Breakthrough can help many women resolve these problems, while avoiding unnecessary drugs, invasive treatments, costly procedures and even surgery. The Thyroid Hormone Breakthrough features a handy Risks and Symptoms Checklist to help pinpoint thyroid and hormonal issues, and the detailed Resources section provides a wealth of information on experts, resources, web sites, and other support. Readers will come away empowered with the tools and knowledge to overcome the effects thyroid conditions can have on everything from puberty to PMS, to pregnancy, to perimenopause.

Living Well With Hypothyroidism: What Your Doctor Doesn't Tell You...That You Need to Know, Revised Edition 2005

Living Well With Hypothyroidism: What Your Doctor Doesn't Tell You. . . That You Need to Know by Mary Shomon is a bestselling book that had 20 printings, and more than 150,000 copies in print, since its publication in 2000. Now, the revised and updated 2005 edition is available, and even if you have the 2000 copy, there's so much new information in the world of hypothyroidism, that you'll want a copy.

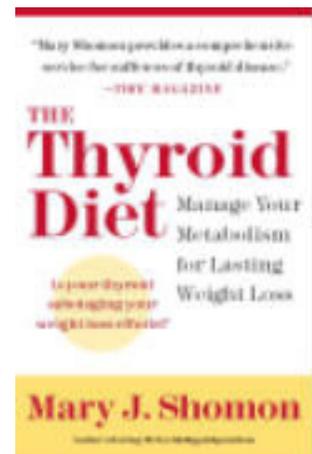
It's a one-stop source for information on how to get properly diagnosed and treated for hypothyroidism (whether autoimmune, or due to surgical removal or radiation of the thyroid), plus help on how to live well, with tips on alternative medicine, other medicines, depression, weight loss, pregnancy, and other issues. The book also features a huge Resources chapter featuring organizations, books, websites, TV/radio shows, support groups and more that can help you get information and support...and live well! Here's the info on how to get it:



List price: \$14.95(US dollars), Pages: 624 pages Published by: HarperCollins/HarperResource 2005 Available: Bookstores everywhere Book's website: <http://www.thyroid-info.com/book.htm>

The Thyroid Diet: Manage Your Metabolism for Lasting Weight Loss

The Thyroid Diet: Manage Your Metabolism for Lasting Weight Loss, published in August 2004, is a *New York Times* Bestseller, and was on the Amazon.com "Best Books of 2004" list.



It's the first book to help frustrated dieters with undiagnosed thyroid problems identify their symptoms and get the proper diagnosis. And, it's the first book to also serve as a handbook for those patients who find that even after optimal treatment, weight is still a problem. *The Thyroid Diet* identifies the many frustrating impediments to our

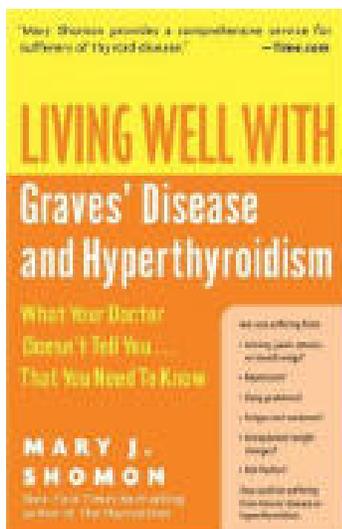
weight loss, and offer solutions -- both conventional and alternative -- to help. Discussing optimal dietary changes, thyroid-damaging foods to avoid, and metabolism-supporting herbs and supplements, *The Thyroid Diet* contains several different eating plans, food lists, and a set of delicious and healthy gourmet recipes. With handy worksheets to use in weight-loss tracking and a special resource section featuring Web sites, books, and support groups, here is vital help for millions.

Published by: HarperCollins/HarperResource 2004, List price: \$14.95(US dollars)

Available: Bookstores everywhere

Book's website: <http://goodmetabolism.com>

Living Well With Graves' Disease and Hyperthyroidism: What Your Doctor Doesn't Tell You... That You Need to Know



In this helpful guide, you'll learn about the history and science behind the disease, along with checklists of risks, signs and factors, honest case studies and testimonials. After learning how to examine symptoms and verify a diagnosis, the book draws on Shomon's extensive network of experts to discuss treatment options. Understanding that treatment is ultimately a personal choice; Shomon lists various routes a patient can follow, including the pros and cons of each: A Complete Alternative/ Holistic/Nutritional Approach; An Integrative (Conventional/Alternative) Approach; Antithyroid Drugs; Radioactive Iodine Treatment; and Surgery.

Published by: HarperCollins/Collins, Sept. 2005

Available: Bookstores everywhere

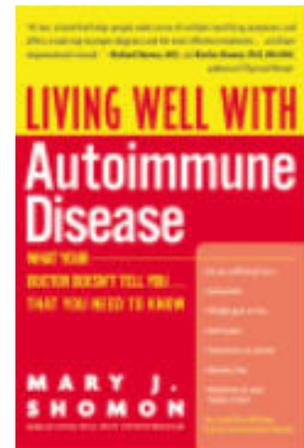
Book's website: <http://www.thyroid-info.com/graves>

448 pages, ISBN #: 0060730196

Living Well With Autoimmune Disease: What Your Doctor Doesn't Tell You...That You Need to Know

Living Well With Autoimmune Disease, published late 2002, is a complete guide to understanding the mysterious and often difficult-to-pinpoint autoimmune disorders--and finding the conventional and alternative keys to diagnosis, treatment, recovery...and even prevention or cure.

An estimated 50 million Americans suffer from symptoms -- everything from fatigue to joint pains to depression, to numb hands and feet, to heart palpitations -- signs that the immune system has turned upon itself, causing autoimmune conditions such as thyroid disease, diabetes, multiple sclerosis, rheumatoid arthritis, psoriasis, and irritable bowel disease. All too frequently, these symptoms are overlooked or misdiagnosed for years!



Once diagnosed, while doctors may prescribe pain relievers, hormones, or immunosuppressants to treat the symptoms, but when a patient asks about the cause, the life-long health implications, or how to heal such conditions, doctors simply shrug their shoulders. *Living Well With Autoimmune Disease* is the first book that to recognize that these conditions are closely related, not standalone, and frequently stem from toxic exposures and underlying dysfunctions that may be treatable using nutritional and alternative approaches to complement traditional treatments. The book features:

THYROID AWARENESS MONTH **GUIDE TO THYROID DISEASE**

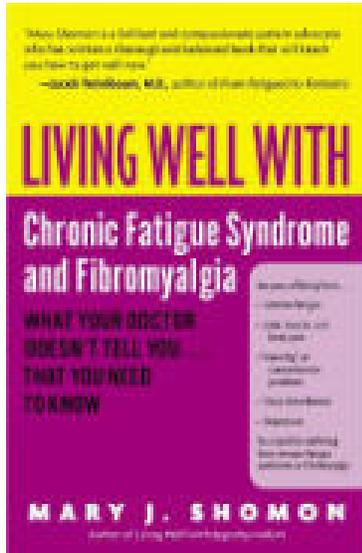
- First-person accounts from autoimmune disease patients
- Recommendations and treatment suggestions from some of the nation's leading practitioners
- A detailed Risk Factors and Symptoms Checklist that you can take to your practitioner to aid in diagnosis
- Information on the latest innovative conventional and alternative treatments for autoimmune conditions
- The optimal diet to prevent, heal -- and sometimes even, cure -- autoimmune disease
- A detailed Resources section featuring patient support groups, hotlines, websites, practitioners and more to help you in your effort to live well
- The future of autoimmune disease diagnosis and treatment

Published by: HarperCollins, HarperResource, 2002

More Online Information: <http://www.autoimmunebook.com>

ISBN number: 0060938196, List price: \$14.95 (US dollars)

Living Well With Chronic Fatigue Syndrome and Fibromyalgia: What Your Doctor Doesn't Tell You...That You Need to Know



If you are one of the estimated 6 to 12 million Americans, the majority women, who suffer from Chronic Fatigue Syndrome and/or Fibromyalgia, you know how difficult it is to cope with these difficult conditions. Both CFS and Fibromyalgia can be characterized by debilitating fatigue, insomnia, and "brain fog" or difficulty with concentration and memory, along with varying degrees of muscle and joint pain. As you suffer these symptoms, you may face the additional challenge of getting properly diagnosed. You may

have already discovered that some of the more shortsighted members of the medical profession consider CFS and Fibromyalgia to be "fad" diseases or psychosomatic illnesses. *Living Well With Chronic Fatigue Syndrome and Fibromyalgia* demystifies in Mary Shomon's trademark accessible, conversational style -- these often confusing conditions and arms you with vital information on every important aspect of CFS and Fibromyalgia.

Published by: HarperCollins, HarperResource, 2004

More Online Information: <http://www.cfsfibromyalgia.com>