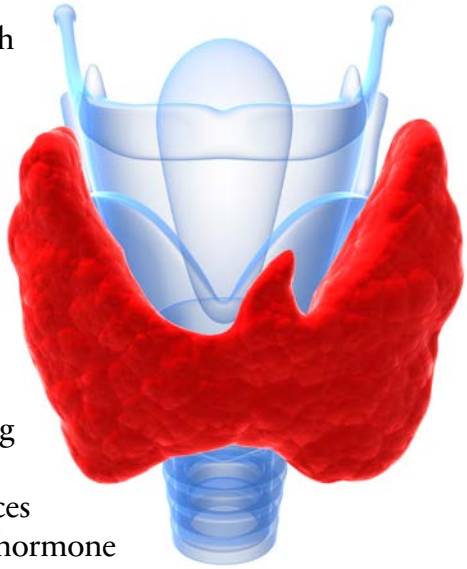
Dr. David Brownstein Presents

A SPECIAL HEALTH REPORT FROM MEDIX HEALTH®

A Doctor's Guide to a Healthy Thyroid

Your small, butterfly-shaped thyroid gland sits in the lower part of the neck, below your larynx or Adam's apple. Your thyroid is part of your body's endocrine system.

Perhaps you remember from high school biology that the endocrine system contains glands that secrete hormones directly into the bloodstream. The main endocrine glands include the pituitary, thyroid, adrenals, pancreas, ovaries, and testes. Hormones are chemicals released by glands, organs, or cells in one part of the body that send out messages affecting cells in different parts of the body.



While your thyroid gland produces only about one teaspoon of thyroid hormone per year, this hormone drives the metabolic rate of every cell in your body, 24 hours a day.

Because your thyroid is so critical to your overall health — particularly your energy levels, weight, and mood — I've created this guide to help you become more familiar with its functioning.

Thyroid Dysfunction Is Common

Some people produce too much thyroid hormone. However, it is far more common to produce too little. In fact, about 4 out of 10 adult Americans, or more than 52 million people, suffer from making too little thyroid hormone. This can happen at any age, even in the womb. And, unfortunately, small variations in thyroid hormone have big effects on the body.

Signs and symptoms of thyroid malfunction are many, and include the following:

- Fatigue
- Weight gain
- Headaches
- Cold hands and feet
- Dry skin
- Constipation
- Hair loss
- Poor eyebrow growth
- Mood problems
- Brain fog or poor brain function
- Joint pain
- Muscle aches
- Loss of libido
- Elevated cholesterol
- Swelling under the eyes

Those over age 50 are at highest risk for thyroid

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concerns, and females suffer more frequently than males. Other risk factors include smoking or even just a past history of smoking, high stress, pregnancy, certain medications, and insufficient dietary iodine — which will be discussed in detail later in this report.

Understanding the Gaps in Thyroid Testing

No single thyroid blood test can tell the whole story. I do not believe you can truly uncover a thyroid concern without running a full thyroid panel, as well as doing a thorough examination and history.

Several laboratory tests can be used to test the thyroid gland, including T3, T4, and TSH (or thyroid stimulating hormone). To understand the meaning of these tests, you have to understand a bit more about the physiology of the thyroid gland.

Most of the thyroid hormone produced is known as thyroxine or T4. The "four" in T4 refers to the number of iodine atoms attached to the thyroid hormone. T4 is considered the "inactive" thyroid hormone, and T3, containing three iodine atoms, is considered the "active" thyroid hormone.

Within the cell, T3 is the hormone that increases the cell's metabolic rate. Research has shown that T3 (triiodothyronine) is 300% more active than T4. T4 is released into the bloodstream and carried throughout the body to the tissues. At the tissues and individual cells, the majority of T4 is converted to the more active T3.

Many times, the only test ordered by practitioners is the TSH test. This hormone is secreted from the pituitary gland in the brain and transported in the blood to the thyroid gland, where it stimulates the production and release of thyroid hormone — T4. In times of need, the pituitary gland will produce more TSH to try to force the thyroid gland to produce more thyroid hormone. If the TSH is elevated, doctors are taught that it is a sign of an underactive thyroid.

Studies have shown that elevated TSH levels — even within the "normal" reference range — are associated with an increased weight gain. In fact, studies have shown that for every 1 mIU/L increase in TSH within the reference range, women experience a 5-pound weight gain.

There has been a lot of controversy over the years about what the optimal normal range for the TSH test should be. In my opinion, a major problem with the TSH test is that the "normal" range has been set much too broadly.

The other major problem is that many doctors rely solely on the TSH test, which may not reveal many instances of thyroid dysfunction. To evaluate thyroid function fully, T3 and T4 levels also need to be drawn.

T4 or thyroxine is taken up by every cell in the body and converted to the more active thyroid hormone, T3. The T3 and T4 levels provide information on how the thyroid gland is functioning. If the TSH test is normal and T3 and T4 levels are low, one might suspect that the thyroid gland is malfunctioning. You would never know this, however, if your doctor only ordered a TSH test.

Furthermore, it is important to do a reverse T3 test. If reverse T3 levels are too high, it is an indication that the body cannot convert inactive thyroid hormone (T4) into active thyroid hormone (T3).

It is also important to look at thyroid antibody tests — TPO and antithyroglobulin antibodies. Thyroid antibodies are produced when there is

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inflammation in the thyroid gland.

We can measure both T4 and T3 with blood testing. However, the blood testing does not tell us what is happening inside the cells. Thyroid hormone has its major effect by binding inside the cells (intracellularly).

Unfortunately, we do not have a way to measure intracellular thyroid function. The blood tests are all indirect measurements.

Thyroid Hormone Resistance

What happens if there are adequate levels of thyroid hormone in the bloodstream, but the hormone can't be utilized by the cells? This condition is known as thyroid hormone resistance. In this case, signs or symptoms of low thyroid could be present even when blood tests indicate normal thyroid hormone levels.

Thyroid hormone resistance has been described in scientific literature for over 40 years. In a case of thyroid hormone resistance, someone may exhibit many of the symptoms of low thyroid, or hypothyroidism, yet have normal levels of TSH as well as other thyroid hormones.

The T4 Conversion Block

Another problem not picked up by typical thyroid blood testing — one that affects a large proportion of the population — is known as a T4 conversion block.

As you've already heard, the thyroid gland primarily produces T4, a form of the hormone that has four iodine atoms. In the periphery of the body as well as inside the cells, T4 is converted into the more active form of thyroid hormone, T3 (which contains three iodine atoms).

It is the T3 thyroid hormone that offers most benefits to the body, such as increasing the metabolic rate and producing energy. There are many people who produce enough T4, yet cannot convert some (or most) of this thyroid hormone into T3. In these cases, the TSH and T4 blood tests may look normal, yet people will exhibit many of the signs of a thyroid concern.

So how can you tell if you have a T4 conversion block? The levels of T4 and T3 thyroid hormone must be examined closely.

In most cases of a conversion block, the T4 levels will be in the mid-normal range of the lab test while the T3 will be in the lower range. Keep in mind that the T3 hormone level may still be in the laboratory reference range, but it will often be on the lower side of that range. Furthermore, as previously stated, the TSH test will look normal in this case.

T4 conversion block is very common. In my opinion, many people are erroneously told by their doctors that they do not have a thyroid problem because their lab tests (particularly the TSH test) are in the normal range. It takes careful reading of thyroid blood tests to ascertain if there is a T4 conversion block happening.

Another issue to be aware of is that certain medications and inadequate amounts of certain nutrients can cause a T4 block.

Unfortunately, some pharmaceutical drugs — particularly beta-blockers, birth control pills, and SSRI antidepressant medications — can disrupt this conversion.

Additionally, inadequate levels of certain nutrients may cause an inability of the body to convert T4 thyroid hormone into T3. I've observed that nutritional deficiencies are occurring in a large part of our population. One reason is that our food supply has become more polluted and is lacking in basic nutrients. In fact, our soil has been depleted of

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basic nutrients due to poor farming techniques and the overuse of pesticides and fertilizers.

Basal Body Temperature and Your Thyroid

One overlooked test for evaluating the thyroid gland — and one you can perform yourself — is the basal body temperature test. To do this test, simply take your temperature first thing in the morning, before you get out of bed and become active.

Your basal body temperature is an indirect measure of your metabolic rate. Remember, your thyroid gland is one of the main controllers of your metabolic rate. A low thyroid state is often accompanied by a lower metabolic rate. Normal basal body temperatures range from 97.8 to 98.2 degrees Fahrenheit, under the arm. If taking the basal body temperature orally or rectally, add a degree.

In a low thyroid state, the body does not receive adequate amounts of thyroid hormone. This means the basal metabolic rate will slow down in order for the body to try to conserve its dwindling energy supply and thyroid hormones. The end result is that the core body temperature drops. However, the core temperature of the body is very important. Enzymes, hormones, blood cells, and other body tissues all function optimally within a narrow body temperature range.

The Importance of Iodine to Your Health

I am sometimes asked by my patients, if I had only one natural item to treat them with, what would it be? Though there are many natural substances that provide extremely helpful effects for the body, one nutrient stands head and shoulders above the rest — iodine.

In all my years of practicing medicine, I have yet to see anything provide such beneficial results on the body as iodine does.

Iodine is particularly important for the thyroid. As far back as 1600 B.C., healers in China used seaweed and burnt sponge (both containing large amounts of iodine) to relieve swelling of the thyroid gland.

So there is no doubt in my mind that iodine status needs to be evaluated in anyone with a thyroid concern. Iodine helps cells utilize thyroid hormone more efficiently. It not only helps the thyroid gland produce more hormones, but also aids the body's detoxification pathways. Plus, I have seen many cases of thyroid hormone resistance aided with iodine.

Unfortunately, in iodine testing more than 5,000 patients, my partners and I found over 96% of patients were low in iodine to some extent, with most significantly lacking.

Remember, the thyroid gland cannot manufacture thyroid hormone without an adequate amount of iodine available to it.

The Biggest Myth About Iodine

There are several myths about iodine, but the biggest one is that we get enough iodine in salt.

The iodization of refined salt was hailed many years ago as the first public health miracle. Even though refined iodized salt can prevent enlargement of the thyroid in the majority of people, the minuscule amount of iodine found in it falls far short of the amount necessary for promoting optimal thyroid function. Furthermore, I don't find that refined salt provides enough iodine for the rest of the body's needs.

Research indicates that only 10% of iodine in salt is bioavailable, that is, completely absorbed by your body. Additionally, about 70% of the salt used by the food industry in the United States is not iodized salt.

And not only is iodized salt a poor source of iodine, but we have been conditioned to avoid salt by the media and by mainstream medicine. Presently, less than half of U.S. households use salt. As a result, iodine levels have fallen by more than half over the last 30 years, according to the Centers for Disease Control. This is a recipe for making a whole population iodine-deficient. In my opinion, that is exactly what has happened in the United States.

And unfortunately, a thyroid concern cannot be addressed correctly without ensuring iodine sufficiency.

The largest amount of iodine is found in the oceans. Sea vegetables and ocean fish contain large amounts of iodine and are the foods that provide

Some Nutrients Necessary for the T4 to T3 Conversion Process

- Iodine
- Vitamins A & D
- Riboflavin
- Niacin
- Selenium
- Magnesium
- Zinc

To keep from developing a T4 conversion block, be sure to get adequate amounts of all of these nutrients.

the most usable iodine for the body. Diets lacking in seafood can predispose one to iodine deficiency.

On the other hand, diets high in refined bakery products, such as breads, pastas, and cereals, can cause or worsen an iodine deficiency problem. One of the reasons I see so many iodine-deficient patients is mismanagement by the food industry. It has provided refined, devitalized food that has left us, as a population, nutrient-deficient, overweight, and fatigued. But by far, the food industry's biggest mistake has been removing iodine from baked goods.

Until the early 1970s, iodine was added to bakery products as a dough conditioner. Then the food industry began substituting bromine for iodine. It has never been made clear why. Since that time, iodine levels have been falling and bromine levels have been rising in our bodies.

The consequence of this shift has been immense. Bromine is in the chemical family of halides, of which iodine is a member. Bromine and iodine are very similar in size and structure. Our body has receptors and needs for iodine. There is no known use for bromine in the body.

In fact, bromine interferes with iodine utilization in the thyroid as well as wherever iodine concentrates in the body. Bromine promotes enlargement of the thyroid and other health concerns. Remember, iodine concentrates in the glandular tissues — the thyroid, breasts, ovaries, uterus, and probably the prostate gland. Lowering the amount of iodine in them and replacing it with bromine is a recipe for problems in these glandular tissues.

The problem is this: Iodine and bromine compete with one another. If we have too much bromine, iodine is released from the body — you actually lose this key nutrient. The receptors that are supposed to bind iodine now bind bromine instead. Thus hormones that are supposed to contain iodine now contain bromine.

For example, the thyroid gland produces thyroxine, or T4. In the case of T4, there are four iodine molecules attached to it. If we ingest too much bromine and too little iodine, there is a good chance that our thyroid hormone will contain not iodine but bromine. Unfortunately, thyroid blood tests cannot distinguish between the two. Bromine can make you feel dull and lethargic, and cause difficulty in concentrating. It can also cause headaches, irritability, and mood changes.

With most of the patients I've seen being low in this key nutrient, I do recommend supplementing your diet with a high-quality natural iodine product. However, it is best to not self-medicate, but rather to work with a healthcare provider knowledgeable about iodine.

Also, it is important to know what the iodine levels are in your body. Urinary testing is the easiest way to do this. I recommend three labs for iodine testing: FFP Labs (www.ffplab.org), Hakala Research Labs (www.hakalalabs.com), and Doctors Data.

Your Diet and Thyroid Health

As noted above, it's important to eat ocean fish and sea vegetables like dulse, nori, wakame, and others for their iodine content.

I recommend using natural sea salt rather than typical lifeless refined salt, even iodized salt.

Also, avoid unfermented soy products (including tofu and soy milk), which contain substances that block the production of thyroid hormones and interfere with iodine metabolism, thereby hindering your thyroid function.

Substances in cruciferous vegetables like broccoli, cauliflower, kale, and cabbage can, in some people, cause the thyroid gland to enlarge and actually slow down thyroid function. This is usually only an issue when eating a vegan diet, but should not be a problem when these vegetables are steamed

or cooked as part of a whole foods diet.

One common thyroid issue also involves autoimmune thyroid concerns. I've found that many people with these concerns have nutritional imbalances, and particularly need to avoid gluten, which is found in grains such as wheat, barley, rye, and oats.

Natural Supplements for Thyroid Health

Certain vitamins, minerals, and herbs can be helpful in keeping thyroid hormones balanced. This is critical, since these hormones help regulate a number of body functions, including basal metabolic rate, cell metabolism, oxygen use, growth and development, and body temperature. Thyroid hormones are also key to maintaining optimal body weight and energy levels.

Here are a few particularly important nutrients to consider in helping maintain peak thyroid function:

Iodine: You've already read about how important it is to keep your iodine intake at sufficient levels. Iodine helps form the chemical structure of thyroid hormone, and is crucial to its production.

L-tyrosine: This amino acid and protein building block is necessary to produce not only thyroid hormone, but also other hormones such as noradrenaline and dopamine. In fact, without tyrosine, you would have no thyroid hormone function. That's because tyrosine makes up the central molecule of thyroid hormone, with four iodine molecules attached to one tyrosine to make thyroxine or T4, and three iodine molecules attached to make T3.

MSM or methylsulfonylmethane: This organic source of bioavailable sulfur is another nutrient necessary to regulate thyroid hormones. This sulfur compound provides excellent support to the thyroid.

Selenium: After iodine, selenium could be the most important mineral affecting thyroid function. In fact, selenium is more concentrated in the thyroid gland than in any other organ in the human body, and plays a crucial role in thyroid function. Selenium is a vital component of the enzymes necessary to remove iodine molecules from T4 when converting it into the more active form, T3. So without sufficient selenium, there would be no activation of thyroid hormone. Plus, selenium acts as an antioxidant to protect the thyroid gland and immune system.

Zinc: Insufficient zinc can prevent your thyroid from making enough active thyroid hormone, as zinc is necessary to support the conversion of T4 to the more active T3.

Copper: Copper plays a significant role in thyroid metabolism, especially in hormone production and absorption.

Manganese: This trace mineral, along with copper, protects your thyroid from cell-damaging free radicals. Additionally, manganese assists with the proper activation of thyroid hormone.

Vitamin D: The "sunshine vitamin" is required for thyroid hormone to function properly. Vitamin D helps convert T4 to T3 and is needed for thyroid stimulating hormone production in the pituitary gland.

Vitamin E: Another antioxidant nutrient with a beneficial effect on thyroid function, vitamin E exerts a protective influence against thyroid cell damage. Vitamin E also helps to balance the correct amount of thyroid hormones.

Vitamin A: Important for optimal pituitary and thyroid function, vitamin A helps convert T4 to T3. If you are low in vitamin A, your ability to produce TSH is decreased.

Magnesium: This mineral helps regulate thyroid function, and is required for conversion of T4 to T3. Those with low thyroid function often have low magnesium levels.

Niacin and riboflavin: These B-complex vitamins regulate thyroid activity and contribute to the prevention of either an overactive or underactive thyroid. Niacin is also an antioxidant.

Several Ayurvedic herbs have also been found helpful in maintaining optimal thyroid function:

Ashwagandha: Known as "Indian ginseng," ashwagandha has been used for thousands of years to help gently balance out the body's endocrine functions, including those of the thyroid, adrenal, and reproductive systems. In the Ayurvedic tradition, ashwagandha is considered an adaptogen, an herb

that normalizes body physiology, particularly when disturbed by chronic stress. In modern times, recent animal studies show promise in the use of this plant extract to stimulate thyroid function.

Forskohlii: Derived from the coleus plant, forskohlii has been used traditionally to help a sluggish thyroid. Scientists believe it encourages optimal thyroid function by activating a particular cell-regulating enzyme to stimulate the release of more thyroid hormones.

Guggul gum: This resin from a tree native to India has been used by Ayurvedic practitioners for thousands of years to optimize thyroid function and increase the body's fat-burning activity.

One last thing when it comes to nutritional support for the thyroid: Make sure you also support your adrenals. Your adrenal glands, which sit on top of your kidneys, frequently become fatigued when overstimulation (such as from chronic physical or emotional stress) leaves them unable to supply your body with an adequate amount of their hormones.

Low-functioning adrenals often lead to low thyroid function. And what's even more confusing, some symptoms of these two health concerns look similar, such as excessive fatigue, brain fog, weight gain, and sad mood.

So I often recommend some gentle natural support for your adrenals in the form of a high-quality adrenal glandular product.

Final Thoughts

Millions of Americans suffer fatigue, weight gain, mood changes, and many other issues due to dysfunction of their tiny thyroid gland. That makes this a major health issue, particularly for women and those over age 50.

I hope this brief guide has given you some key information about your thyroid function and some simple tips to naturally help prevent problems with this all-important part of your anatomy. □