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Take Control of Your Health

Your Thyroid Is the Regulator of Your Entire Existence

Analysis by Dr. Joseph Mercola | April 13, 2024

STORY AT-A-GLANCE

- Thyroid hormones are key regulators of metabolism and are essential for almost every physiological function, with imbalances leading to various health issues such as fibromyalgia and autoimmune disorders, highlighting the thyroid's widespread impact on the body
- Your thyroid catalyzes the conversion of glucose into ATP, hence low thyroid function is a state of energy impairment that affects all aspects of health
- Simple methods like monitoring body temperature and pulse rate upon waking can allow you to assess your thyroid function
- Lifestyle factors like stress, poor diet, high polyunsaturated fat (PUFA) intake and exposure to endocrine-disrupting chemicals can contribute to low thyroid function
- Progesterone and a carb-rich low-PUFA diet will support thyroid health by balancing estrogen levels, ensuring glucose availability and safeguarding your cells' ability to use active thyroid hormone; natural desiccated thyroid supplementation can help resolve lingering thyroid issues

The word "hormone" derives from the Greek word "hormon," which means "to excite" or "set in motion." They have shaped your life ever since you were an embryo. More than 80 human hormones have been identified, all with distinctly different roles.

Each hormone acts as a chemical messenger and is aimed at a specific target cell and has no effect on any other cells as it washes past them. When a hormone acts on its

specific target cell, it can change the way it behaves to make it perform a specific task.

Hormones exert their influence in very small concentrations; every molecule packs a punch. This is also why endocrine-disrupting chemicals are so dangerous even in tiny amounts.

Your Thyroid Is a Master Regulator

Of the many hormones in your body, thyroid hormones are perhaps the most important, as they regulate your metabolism and are required for nearly every physiological process in your body. When your thyroid levels are unbalanced, it can spell serious trouble.

An imbalance can lead to significant health issues, including fibromyalgia, irritable bowel syndrome, eczema, gum disease and autoimmune disorders, just to name a few. This is because the thyroid impacts various parts of the body, making the symptoms of dysfunction diverse.

Fortunately, thyroid hormone imbalances are often treatable, and can potentially reverse symptoms of related health conditions. As explained by Nate Lawrence, a bioenergetic medicine coach, in the featured video:

> *"The thyroid gland regulates metabolism, which can really be seen as systemic energy production. If you aren't producing energy efficiently, this is where we find all of the problems of life.*
>
> *When your hormones are properly balanced and you have enough thyroid [hormone], this is when life comes natural, action comes from second nature and the flow of energy is not only maintained but expanded upon with adequate stimulation.*
>
> *Thyroid is synthesized to increase the metabolic rate. In deprivation stress, hormones rise to oppose the thyroid and lower the metabolic rate. This is an adaptive mechanism, but if upregulated chronically will lead to decay.*

Essentially, low thyroid function can be seen as an impaired flow of energy at all levels of life.

The main role of thyroid is to allow your cells to convert glucose into ATP, CO2, heat and water in the presence of oxygen. Thyroid also helps to convert cholesterol into the downstream steroid hormones, most notably pregnanolone, progesterone and DHEA, which are three youth hormones that reinforce energy."

How Your Thyroid Works

Your thyroid gland is shaped like a butterfly on your neck just under your voice box and secretes four hormones: T1, T2, T3 and T4. The number indicates the number of molecules of iodide attached to the hormone. These hormones interact with other hormones, such as insulin, cortisol and sex hormones.

Your hypothalamus secretes thyrotropin-releasing hormone (TRH) that triggers the pituitary gland to release thyroid stimulating hormone (TSH) that then causes your thyroid to release T4.

Nearly 90% of your thyroid hormone is released in an inactive form of T4. Your liver then converts T4 to T3 with the help of an enzyme. T2 is currently the least understood form of thyroid hormone and is the subject of ongoing studies.

When everything is working properly, your body makes enough T4 that is converted to T3 to control the metabolism of every cell in your body. T3 is critical in the communication of messages to your DNA to increase your metabolism by burning fat. In this way, it helps keep you lean.

Nutritional imbalances, toxic exposures, allergens, infections and stress can disrupt this hormonal balance, leading to a series of health complications including hypothyroidism, hyperthyroidism and thyroid cancer.

As noted by Lawrence, hypothyroidism (low thyroid function) is a downstream effect of inefficient oxidation of glucose that leads to inflammation, insulin resistance,

cholesterol buildup, soft tissue calcification and "an overall inability to oppose stress."

The most common symptoms of hypothyroidism are fatigue (low energy), feeling cold regardless of the ambient temperature, dry skin, hair loss, constipation and/or diarrhea, edema (water retention), brain fog, anxiety, depression and weight gain.

Simple Way to Assess Your Thyroid Function

One simple way to evaluate the health of your thyroid is to measure your body temperature first thing in the morning, upon waking. The reason this works is because when your tissue level of T3 is high, you'll have a higher metabolic rate, and hence, higher body temperature and pulse rate.[1]

Having a body temperature right around 98 degrees Fahrenheit upon waking is a sign of healthy thyroid. Around midday, you want a temperature of about 98.6 degrees F. Your pulse should also rise between morning and midday and be between 60 to 100 beats per minute.

If your temperature and pulse rate are consistently low, then you have low metabolism. If your temperature and pulse fall after eating breakfast, that's another bad sign, as this indicates you're running on stress hormones, which is anything but healthy.

Oftentimes, people with subclinical hypothyroidism will have normal lab work, but if your body temp and pulse rate are off, that's a tipoff that your thyroid is not functioning properly. Also, even if your TSH is low (which is what you want), it could be suppressed by cortisol and adrenaline. Checking your temperature and pulse after eating is one way to double-check that.

A cholesterol test can also be helpful. High cholesterol (mid- to high-200s) is often a sign that your thyroid is not converting cholesterol to steroid hormones. Conversely, low cholesterol can be a sign of infection.

Top Contributors to Low Thyroid Function

Several lifestyle factors can contribute to low thyroid function, including stress, inadequate light exposure and exposures to endocrine-disrupting chemicals. In terms of diet, high polyunsaturated fat (PUFA) intake is a major culprit, as PUFAs interfere with your cell's ability to use active thyroid hormone. To maintain or increase energy production, your cells must be able to access T3. As explained in a 1990 paper in the Journal of Nutrition:[2]

> *"Safflower oil (high in omega-6 PUFA) was more effective than tallow as a repressor of T3 action ... polyunsaturated fats uniquely suppress the gene expression of lipogenic enzymes by functioning as competitive inhibitors of T3 action, possibly at the nuclear receptor level."*

Similarly, a 1992 study in the journal Metabolism[3] that analyzed the effects of linoleic, oleic and palmitic acid on T3-receptor binding found that linoleic acid was the most potent inhibitor of T3. As noted by Lawrence, indigestible foods and low-carb diets can also wreak havoc with your thyroid.

Tips to Protect Your Thyroid

For healthy thyroid function, you need to make sure T4 can be efficiently converted into T3. The primary inhibitors of T4 to T3 conversion are:

- **Cortisol**
- **Estrogen**
- Impaired liver function
- **PUFAs**
- **Endotoxin**

So, to encourage the conversion of T4 to T3, consider the following suggestions:

Eat a diet of whole, unprocessed or minimally processed foods and make sure you include enough protein and healthy, easily digested carbs that won't cause intestinal

irritation or endotoxin production, such as whole fruit.

Also incorporate more collagen and gelatin in your diet (think homemade bone broth) and avoid all PUFAs (this includes seed oils for cooking, processed foods, junk foods, fast food and most restaurant food, as well as conventionally raised chicken and pork).

Optimize your intake of magnesium, potassium, calcium, vitamins A,[4] B,[5] C, D, E and K, selenium and zinc.

Avoid fluoride,[6] perchlorate and flame-retardant chemicals,[7] as these chemicals have a very deleterious effect on thyroid hormone. Keep in mind that polybrominated diphenyl ethers (PBDEs) are commonly found in household dust, so clean often to keep dust to a minimum.

Perchlorate is a chemical frequently found in tap water (along with fluoride), so a water purification system is a good health investment. Perchlorate prevents iodide uptake at the thyroid gland, and your thyroid requires iodide to produce thyroid hormone.[8] Thus if the perchlorate prevents iodide uptake, it reduces the amount of thyroid hormones in your body.

Avoid things that raise cortisol and estrogen, as both inhibit the conversion of T4 to T3.

Address endotoxin production in your gut by **avoiding refined sugar**.

Optimize bile acid synthesis, as bile acids upregulate the conversion of T4 to T3. Taurine, pregnenolone and progesterone are all known to facilitate bile acid synthesis.

Progesterone and Carbs Support Thyroid Health

To counterbalance elevated estrogen, you can use mucosal progesterone (not oral or transdermal), as it is a potent estrogen blocker. As a general recommendation, I

recommend taking 25 to 50 mg of bioidentical progesterone per day, taken in the evening one hour before bed, as it can also promote sleep by increasing GABA levels.

For optimal bioavailability, progesterone needs to be mixed into natural vitamin E. The difference in bioavailability between taking progesterone orally without vitamin E and taking it with vitamin E is 45 minutes versus 48 hours.

Simply Progesterone by Health Natura is premixed with vitamin E and MCT oil. You can also make your own by dissolving pure USP progesterone powder into one capsule of a high-quality vitamin E, and then rub the mixture on your gums. Fifty milligrams of powdered progesterone is about 1/32 teaspoon.

Do not use synthetic vitamin E (alpha tocopherol acetate — the acetate indicates that it's synthetic). Natural vitamin E will be labeled "d alpha tocopherol." This is the pure D isomer, which is what your body can use. There are also other vitamin E isomers, and you want the complete spectrum of tocopherols and tocotrienols, specifically the beta, gamma, and delta types, in the effective D isomer.

Progesterone, while being a precursor in cortisol synthesis, can also indirectly help suppress cortisol by competing for glucocorticoid receptors and influencing the hypothalamic-pituitary-adrenal (HPA) axis, which regulates cortisol production.

Perhaps the best strategy to keep cortisol in check though is to make sure you're eating enough carbs. Your body needs glucose and if you don't supply it through your diet, your body will make glucose by elevating cortisol. As a result, your metabolism will be downregulated, catabolism (breakdown of muscle tissue) will be upregulated, and your thyroid health will suffer.

Desiccated Thyroid

In addition to the fundamentals above, taking a bioidentical thyroid supplement can in many cases resolve any lingering problems. Natural desiccated thyroid (NDT) is a prescription medication that may be referred to as "natural thyroid" or "thyroid extract" as it's made from the thyroid gland of pigs or cows.

Lawrence suggests staring with half a grain of an NDT, which supplies 5 mcg of T3 and 20 mcg of T4. Increase by half a grain every two weeks until your morning temperature is stabilized at 98 degrees F. If the 1 to 4 ratio of T3 to T4 doesn't provide the results you seek, you may need a higher ratio of T3. As noted by Lawrence in an accompanying Substack article:[9]

> *"When liver function is poor, which can be very common in hypothyroid individuals, supplementing with high amount of the inactive hormone T4 in relation to T3 can actually impair the thyroid further, since a burdened liver can't as easily convert T4 into the active T3.*
>
> *The standard ratio of T3 to T4 is 1:4, but Ray Peat postulated that using a combination of T3 and T4 in a ratio of 1:3, 1:2 or even 1:1 may be more optimal or necessary to see improvement.*
>
> *Supplementing thyroid is extremely dependent on a person's context, and this is why it's important to be very rational evaluating your current circumstance and history. Some individuals may thrive with half a grain in a warm stimulating environment but might need closer to one or two grains in a colder more stressful place especially with a deeper history of issues.*
>
> *According to Dr. Peat, most individuals won't need much more than 2 grains of thyroid, but in words of William Blake, 'The true method of knowledge is experiment.'"*

Other Helpful Supplements

Other supplements that can help support your thyroid function include:

- **Ashwagandha —** Ashwagandha is an adaptogen, meaning it helps your body adapt to challenges by balancing your immune system, metabolism and hormonal systems.[10] Studies have shown it helps normalize thyroid hormone levels and may be an effective treatment for subclinical hypothyroidism. In one,[11] ashwagandha

was found to significantly improve serum thyroid stimulating hormone (TSH) levels, T3 and T4 levels, compared to placebo.

The root contains the highest concentration of the active ingredients in the plant and helps modulate hormone balances, including your thyroid hormone. It has also demonstrated positive effects on estrogen and progesterone balance as women move toward menopause.

The root reduces cortisol levels, restores insulin sensitivity and helps to stabilize your mood, even if depression isn't part of your thyroid condition.[12] Other research indicates it may protect your brain from oxidative stress and improve your energy level.[13]

- **Iodine —** Iodine is required for normal thyroid hormone function, and many are deficient in this nutrient.
- **Tyrosine —** The amino acid tyrosine has demonstrated beneficial effects in people with suboptimal thyroid function.[14]
- **Guggul —** This is an extract of the sap from an Indian myrrh tree, which enhances the conversion of T4 to T3 in your body.[15,16] Traditionally, the supplement was used to treat low metabolism, a symptom of suboptimal thyroid function. Guggul may be unsafe during pregnancy, however, so evaluate the interactions with your physician before using it.[17]
- **Korean ginseng —** This is an adaptogen like ashwagandha and contains properties that block production of excessive amounts of reverse T3 (rT3).

  Asian practitioners have developed a fermented ginseng preparation that is absorbed better, faster and stays in your body longer.[18] A human study looked at the impact of this preparation on thyroid hormone levels and found that treatment by injection resulted in better clinical outcomes, healthy increase of T3 and T4 levels and a reduction in rT3.[19]

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