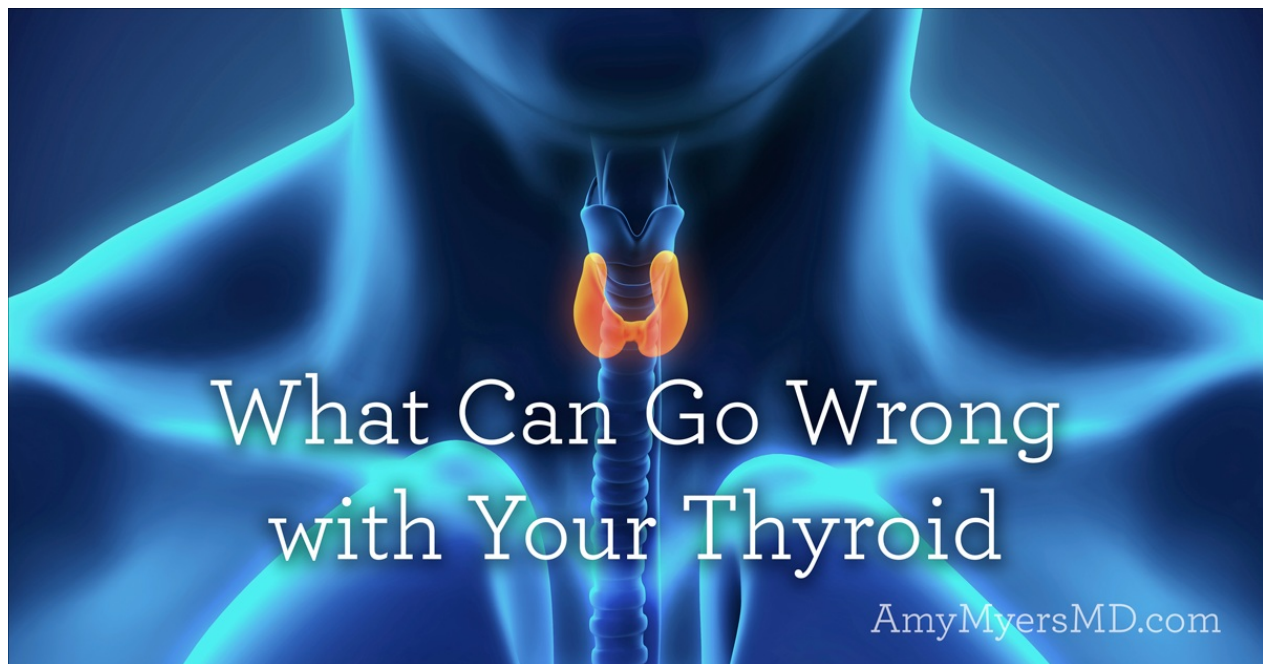


## What Can Go Wrong with Your Thyroid

 [amymyersmd.com/2015/07/what-can-go-wrong-with-your-thyroid/](http://amymyersmd.com/2015/07/what-can-go-wrong-with-your-thyroid/)

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*This is the first article in a multi-part series on the thyroid. Follow along as we explore how the thyroid works and how you can use The Myers Way<sup>®</sup> Four Pillars of Health to prevent, control, or reverse thyroid disease.*

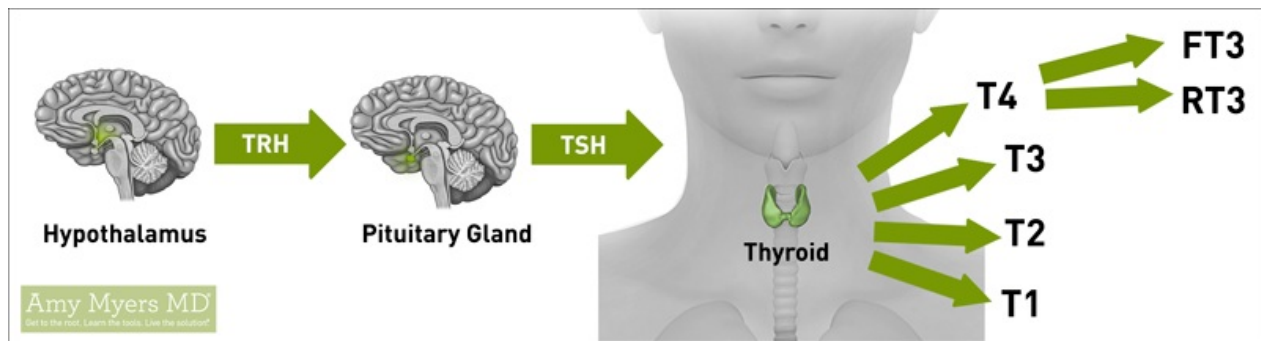
According to the American Thyroid Association, more than 20 million Americans suffer from thyroid disease, and up to 60% of them are unaware of their condition. For women, the statistics are even more alarming: women are five to eight times more likely than men to develop thyroid disease.

**Thyroid disease** is a topic particularly near and dear to my heart because [I battled thyroid disease myself](#) in medical school after being diagnosed with Graves' disease. I have since made it a primary focus in [my practice](#) to help those facing thyroid disease overcome their symptoms and return to optimal health using an arsenal of scientifically proven treatment protocols that address the root causes of thyroid disease (and are often overlooked by conventional medicine).

To understand what causes thyroid disease and then [how it can be treated or prevented](#), let's first take an in-depth look at what role the thyroid plays in your body. (*Note: This is a bit of a lengthy explanation but stick with me as each of these steps give us important clues as to what can cause your thyroid to stop working properly.*)

### Understanding How the Thyroid Works

Your thyroid powers every cell in your body through the hormones it produces. These hormones determine the energy level and reproduction of each cell, keeping your organs powered up and managing your overall metabolism. The process of creating, regulating, and delivering these hormones is complex, and it all begins in your brain.



The hypothalamus, which is responsible for managing hunger, thirst, sleep, hormones, and body temperature, among other important functions, continuously monitors the level of thyroid hormones present in your bloodstream. If it determines that energy levels are low, it sends out TRH, *Thyroid Releasing Hormone*, to your pituitary gland. Your pituitary gland, a pea-sized gland at the base of your brain, then releases TSH *Thyroid Stimulating Hormone*, which is sent directly to the thyroid.

Your thyroid is then prompted to produce thyroid hormone using an amino acid called tyrosine and iodine (we will cover the importance and effect of iodine later in the series). It converts the tyrosine into thyroglobulin and then attaches between one and four iodine atoms, creating T1, T2, T3, and T4 respectively.

The primary output of your thyroid is T4 (thyroglobulin plus four iodine atoms), which is a storage form of the hormone. It is circulated throughout the bloodstream and stored in tissues so that it's available when needed. A much smaller percentage of the hormones produced is T3, which is the active form of thyroid hormone. T2 and T1 make up an even smaller percentage, and researchers are still unsure of what role these two hormones play.

When each local area of your body determines that it needs active T3 for more power, it converts the storage T4 to active T3 using an enzyme called deiodinase. This enzyme (which needs selenium, zinc, and iron to function properly) strips one of the *outside* iodine atoms off of the T4, turning it into Free T3 (FT3). Your body also uses a portion of the T4 to create Reverse T3 (RT3), which is done by stripping away one of the *inside* iodine atoms, creating another inactive form of thyroid hormone, but one that can attach to the receptors for Free T3.

The T3 then enters cell membranes (with the help of cortisol) and regulates how much energy your mitochondria produce. Your mitochondria are the "power plants" of your cells and there are trillions of them in your body. The Free T3 acts as a gas pedal for the mitochondria, revving up power production, and the Reverse T3 acts as a brake pedal, slowing down the power.

These micro-level reactions all work in concert to control hugely important metabolic factors such as heart rate, fatigue, weight regulation, brain function, and more. When your thyroid isn't functioning properly it can affect any or all of these separate systems, creating a wide array of symptoms that might seem unrelated (which is why thyroid disease often goes undiagnosed), but can all be traced back to your thyroid.

## When Your Thyroid Goes Awry: Types of Thyroid Disease

### Hypothyroidism – An Underactive Thyroid

The most common form of thyroid disease is hypothyroidism, which is when your thyroid is underactive and does

not produce enough thyroid hormone. This can either be because your pituitary gland is malfunctioning and not sending enough TSH to your thyroid, or, more commonly, your TSH levels are normal, but for various reasons your thyroid isn't producing enough T4 and T3 to adequately fuel your cells. Hypothyroidism causes a general slowing down of your metabolic processes, and can lead to these symptoms:

- Fatigue
- Brain Fog
- Weight Gain or Inability to Lose Weight
- Cold Hands or Feet
- Hair Loss
- Constipation
- Poor Concentration
- Infertility
- Low Libido
- Depression
- Decreased Heart Rate
- Decreased Body Temperature

## **Hyperthyroidism – An Overactive Thyroid**

On the other end of the spectrum is [hyperthyroidism](#), which is less common but more dangerous than hypothyroidism. The type of thyroid disease I was diagnosed with, Graves' disease, is a form of hyperthyroidism. In patients with hyperthyroidism the thyroid produces an excess of thyroid hormones, sending your body into overdrive and producing symptoms such as

- Rapid heart rate
- Severe Anxiety and Panic Attacks
- Insomnia
- Weight Loss
- Hair loss
- Increased Body Temperature
- Shakiness or Tremors
- Loose Stool
- Increased Hunger

## **Digging Deeper: Root Causes of Thyroid Disease**

### **Autoimmune Thyroid Disease**

Hypo- and hyperthyroidism are how thyroid disease manifests, but there are several possible underlying causes for each. Most patients' thyroid disease is caused by [autoimmune disease](#). As you know, autoimmune disease occurs

when the immune system confuses parts of the body (in this case the thyroid) with outside invaders and attacks them. [Hashimoto's disease](#) (hypothyroidism) and Graves' disease (hyperthyroidism) are both autoimmune diseases. In this series we will cover toxins and gluten, the primary contributors of autoimmune thyroid, and you can learn about all five of the environmental triggers of autoimmune disease in [The Autoimmune Summit](#), featuring empowering education and actionable advice from 38 experts. You can also learn to live the four pillars of preventing and reversing autoimmune disease in my book, [The Autoimmune Solution](#).

Unfortunately, many doctors who suspect a patient has thyroid disease will only check their thyroid hormone levels, which indicate if the patient has hypo- or hyperthyroidism, but will not determine if it is caused by an autoimmune disease. I highly recommend that any patient diagnosed with thyroid disease have their thyroid antibodies (the markers for thyroid autoimmunity) checked using blood tests for Thyroid Peroxidase Antibodies (TPOAb) and Thyroglobulin Antibodies (TgAb). This is crucial because, as I explain in [my book](#), once you have one autoimmune disease, you are 3 times more likely to develop another one, and you should immediately begin searching for the underlying causes so that you do not progress further on the autoimmune spectrum. Fortunately, these two blood tests are very accessible and inexpensive, and can even be run without a doctor ordering them.

### **Non-Autoimmune Thyroid Disease**

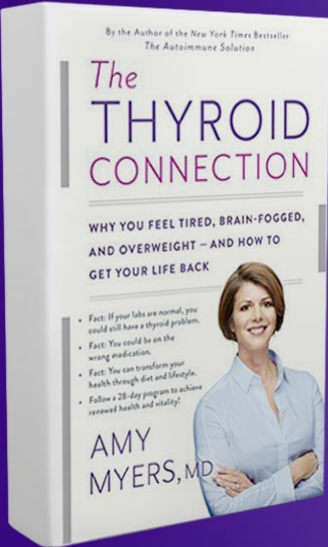
Although the majority of thyroid disease is caused by autoimmunity, there are several other factors that can be the culprit. If you're lacking in tyrosine or iodine (needed to create thyroid hormone), or selenium, zinc, or iron (needed to convert T4 to T3), or [Vitamin D](#) or B (needed to regulate metabolism and hormones), you can develop hypothyroidism. Luckily, these deficiencies can all be corrected fairly easily and this is why I recommend that everyone take a high quality [multivitamin](#).

Other causes of thyroid disease include pituitary disease, adrenal system imbalances (which we will cover in this series), and thyroid cancer, which fortunately is one of the most curable forms of cancer but should still be detected and treated as early as possible.

Over the next several weeks we will look at how the 4 pillars I discuss in [The Autoimmune Solution](#) and 5 key factors we talk about in [The Autoimmune Summit](#): how diet, the gut, toxins, stress, and infection all play a role in thyroid health, as well as how the abundance of chemicals in our modern lifestyles might be sabotaging our iodine levels, and how to choose the best thyroid medication.

### **Restore Thyroid Function & Take Your Health Back**

In my new book, [The Thyroid Connection](#), I cover everything you need to know about thyroid disease, including its true underlying causes, how to work with your doctor, how to choose the right medication, and a 28-day program to get your life back.



By the Author of the New York Times Bestseller  
*The Autoimmune Solution*

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