

## My Doctor Says My Thyroid is Normal! Why Optimizing Your Thyroid Matters

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*"My doctor says my thyroid is normal!"* How many times have we heard this exact phrase from our patients?

The American Thyroid Association states that: Thyroid disease impacts over 40% of the world's population. One in eight women will develop a thyroid disorder during her lifetime. Sixty percent (60%) of patients with thyroid disease are unaware of their condition. Undiagnosed thyroid disease may put patients at risk for certain serious conditions, such as cardiovascular diseases, osteoporosis, and infertility. Autoimmune thyroid disease is on the rise as well with autoimmune thyroiditis being the most common cause of hypothyroidism in the United States.

Traditional medicine has taught us to diagnose thyroid disease based on TSH alone, but that doesn't cut it anymore. Normal lab TSH ranges from 0.3-5.0. However, 84% of patients with subclinical hypothyroidism will have a normal TSH level.<sup>1</sup> Back in 1982, Larsen demonstrated that TSH cannot be reliably used as a marker of thyroid status in the rest of the body because peripheral tissue levels of T3 are impacted by numerous disorders including stress, chronic illness, diabetes, insulin resistance, obesity, depression, chronic fatigue syndrome, fibromyalgia, and others. Biote recommends that optimizing thyroid means targeting TSH levels below 2.5, a Total T4 level of 8-10, Free T3 of 3.7-4.3, Free T3/Free T4 ratio > 0.33 and thyroperoxidase (TPO) antibodies <35. So why is this important and how do we truly optimize patients' thyroid?

Thyroid regulates metabolism and thus can impact obesity and diabetes. Thyroid receptors are found not only in the thyroid but also in the brain, bones, heart, liver, muscle and even mitochondria, so proper activation of thyroid hormones help with gene expression. It is specifically the T3 that activates mitochondria, so optimizing T3 is essential for improved mitochondrial function.<sup>2</sup> Wrutniak et al, in 2001 showed evidence of the existence of a direct T3 mitochondrial pathway and clarifies the respective importance for organelle activity including mitochondrial protein synthesis and mitochondrial genome transcription. Therefore, optimizing T3 levels is paramount to cellular performance.

The thyroid gland controls metabolism, especially fat metabolism, energy levels, heart rate and temperature regulation. Thyroid hormones decline with age, stress, and exposure to toxins from our foods and environment. Thyroid hormone regulation of metabolism demonstrates that thyroid hormones regulate adaptive thermogenesis, cholesterol lipolysis, and hepatic gluconeogenesis. Direct actions of T3 targets lipid homeostasis in the liver showing improvements in LDL cholesterol and APO Lipo B proteins, insulin resistance and nonalcoholic steatohepatitis (NASH).<sup>3</sup>

Nutritional deficiencies also play a role in poor thyroid absorption and response. Essential vitamins and minerals for optimal thyroid performance includes: Zinc, Selenium, Iron, Vitamin D and Iodine. In fact, patients with Hashimoto's demonstrate up to a 40% reduction of TPO antibodies when given selenium 200mcg per day. Selenium helps T4 convert to T3.<sup>4</sup> Vitamin D deficiency is a risk factor for Autoimmune Hashimoto's disease as vitamin D helps modulate the immune system.<sup>5</sup> This is another benefit in recommending *Biote Iodine+* and *Biote ADK* to help support thyroid function.

As such, it is important to ask about thyroid related symptoms including dry skin, brittle nails, cold intolerance, constipation, hair loss, weight gain or difficulty losing weight, depressed mood and when their thyroid hormones are optimized, they will feel better. Combination T4 and T3 therapy showed a better quality of life for patients than T4 therapy alone with 49% of patients preferring the combined treatment.<sup>6</sup>

Importantly, low T3 and subclinical hypothyroidism is also associated with increased cardiovascular events and mortality. In heart failure patients or following acute myocardial infarction (MI), thyroid testing is recommended to restore thyroid hormones levels which have been shown to improve ventricular remodeling and contractility.<sup>7</sup>

Thyroid optimization is a key contributor to patient's health, thus don't be fooled by TSH levels. Remember to fully evaluate the thyroid and treat with T3 or combination T3 & T4 medication, because your patients deserve it! Thyroid optimization will improve longevity, reduce cardio- and metabolic risk factors and even change important genomic expressions.

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- <sup>1</sup> Larsen, P. Thyroid pituitary interaction: feedback regulation of thyrotropin secretion by thyroid hormones. *NEJM* 1982; 306 (1): 23-32.
  - <sup>2</sup> Wrutniak-Cabello C, Casas F, Cabello G. Thyroid hormone action in mitochondria. *J Mol Endocrinol*. 2001 Feb;26(1):67-77.
  - <sup>3</sup> Mullur R, Liu YY, Brent GA. Thyroid hormone regulation of metabolism. *Physiol Rev*. 2014 Apr; 94 (2): 355-82.
  - <sup>4</sup> Omer, T, Kamil, K. Selenium Treatment in Autoimmune thyroiditis: 9 month follow up with variable doses. *J of Endocrinology*. 2006. 190, 151-156.
  - <sup>5</sup> Zhao R, Zhang W, MA C, Zhao Y, Xiong R, Wang H, Chen W, Zheng SG. Immunomodulatory function of Vitamin D and Its Role In Autoimmune Thyroid Disease. *Front Immunol*. 2021 Feb 19;12: 574967.
  - <sup>6</sup> Biondi B, Wartofsky L. Combination treatment with T4 and T3: toward personalized replacement therapy in hypothyroidism? *J Clin Endocrinol Metab*. 2012 Jul;97(7):2256-71.
  - <sup>7</sup> Gilani N, Wang K, Muncan A, Peter J, An S, Bhatti S, Pandya K, Zhang Y, Tang YD, Gerdes AM, Stout RF, Ojamaa K. Triiodothyronine maintains cardiac transverse-tubule structure and function. *J Mol Cell Cardiol*. 2021 Nov;160:1-14.