

TREATING HYPOTHYROIDISM — DEBUNKING THE STANDARD OF CARE

Hypothyroidism is a condition characterized by an insufficient level of thyroid hormone in the body, compared to what is required to meet bodily demand. Hypothyroidism occurs either due to inadequate thyroid hormone production (primary hypothyroidism) or inappropriate assimilation of the thyroid hormones being produced.

Primary hypothyroidism may stem from a variety of etiologies, including but not limited to iodine deficiency, postpartum thyroiditis, autoimmune thyroiditis and drug-induced hypothyroidism.

Drug-induced hypothyroidism is classically associated with drugs such as lithium, rifampin, amiodarone, carbamazepine and some tyrosine kinase inhibitors.¹ Autoimmune thyroid diseases, such as Hashimoto's thyroiditis, are the leading cause of hypothyroidism in the United States and other iodine-sufficient areas worldwide.

Regardless of etiology, hypothyroidism exhibits a wide array of symptoms and is likely to require lifelong thyroid hormone supplementation. Therefore, choosing the appropriate thyroid replacement product for your patient from the start is crucial.²

COMMON SYMPTOMS OF HYPOTHYROIDISM



Conventional Testing Is Not Enough

Despite the wide range of products available to treat hypothyroidism symptoms, traditional medical approaches frequently leave patients' hypothyroidism symptoms untreated or undertreated, indicating either an inappropriate initial diagnosis or an insufficient treatment approach.

Missing the mark with thyroid treatment is often the result of relying on "gold standard" testing parameters, which truthfully fall short of providing adequate information for an all-inclusive

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Physicians Preference Pharmacy is a Houston-based, PCAB-accredited compounding pharmacy serving physicians and patients since 2001. We are licensed to work with and ship to doctors and patients in all 50 states. Our standards are more stringent than those of the United States Pharmacopeia (USP). Physicians Preference Pharmacy ranks first in Houston for the number of samples sent for potency testing and in the top 8% of pharmacies nationwide.

thyroid assessment. The conventional way of screening for hypothyroidism, which solely measures thyroid stimulating hormone (TSH) on a blood test, is simply not enough.

For patients exhibiting symptoms of hypothyroidism, **measuring TSH alone often does not provide enough information to the practitioner about the functionality of the thyroid gland itself nor how thyroid hormones are being assimilated within the body to guide an appropriate treatment choice.** TSH levels provide information only regarding the extent to which the pituitary gland is releasing this hormone but fail to assess the functionality of the thyroid gland itself, or how adequately thyroid hormones are being assimilated into the tissues.

What Should Be Ordered on a Thyroid Panel

A comprehensive initial thyroid panel for patients exhibiting symptoms of hypothyroidism should include: TSH, T3 (tri-iodothyronine), T4 (thyroxine), FT3 (free T3), FT4 (free T4), rT3 (Reverse T3) and TPOAb (thyroid peroxidase antibodies).³

- ▶ **TSH:** TSH is released from the pituitary gland and acts on the thyroid gland to stimulate the production of thyroid hormones. Measuring TSH helps identify an underactive or overactive thyroid state.
- ▶ **T3:** T3 is known as the active form of thyroid hormone and assists in regulating metabolism, body temperature and heart rate. Some T3 is produced directly by the thyroid gland, while the remaining results from the conversion of T4 to T3.
- ▶ **T4:** T4 is the primary hormone secreted into the bloodstream by the thyroid gland and plays an important role in digestion, weight control, muscle function and more.
- ▶ **FT3:** FT3 levels help evaluate how much of the active thyroid hormone produced is readily available for the body to use. Additionally, it helps in assessing abnormal binding protein disorders.
- ▶ **FT4:** FT4 may be indicated when thyroid binding globulin (TBG) problems are perceived. It

A COMMON SCENARIO

A 45-year-old female visits her doctor for an annual check-up, presenting with classic signs and symptoms of hypothyroidism: hair loss, cold intolerance, fatigue, difficulty losing weight, depression and brittle, ridged nails. Lab results are ordered and indicate that her TSH is within “normal” range. Her doctor says her thyroid is normal but prescribes Zoloft to help with the depression, recommends Rogaine for the hair loss and dismisses all other symptoms as “normal signs of aging.” At a six-month follow-up appointment, this patient has a fuller head of hair but still complains of all the same symptoms, and now also complains of a diminished sex drive.

Here’s the problem.

If patients’ TSH levels fall within the “normal” range on a blood test, their symptoms (even if synonymous with hypothyroidism), frequently result in the prescribing of additional unnecessary medications to mask the clinical presentation of symptoms. In many cases, their symptoms are dismissed altogether. Part of the problem is that patients are treated based on lab results, rather than their symptoms, while the root cause is never actually addressed.



How lab reference ranges are determined.

“Normal” lab reference ranges are determined by measuring a given lab test parameter (i.e., TSH) amongst the population within a certain geographical area and assessing the average spread of that lab test parameter within the given population to determine the range. When a patient receives his or her lab result and it falls within this range, the result is considered “normal.”

But what if the patient doesn’t feel normal?

Why are symptoms simply being masked or dismissed? It is important to recognize that a “normal” lab result does not prove health, nor does it warrant dismissal of a patient’s symptoms. This is why many patients with “normal” TSH levels continue to exhibit symptoms of hypothyroidism when left untreated.

Untreated hypothyroidism poses a major threat to several body systems, including those which regulate energy, mood, menstruation, fertility, healing, body temperature, concentration and maintenance of a healthy skin barrier to fight off pathogens and infection.

So, are you still willing to treat based on lab values alone?

may also be helpful when conventional test results are inconsistent with clinical presentation.

- ▶ **rT3:** Reverse T3, the biologically inactive form of T3, is produced as a natural consequence of thyroid hormone production. Patients with a well-functioning thyroid will still be producing rT3, and this is a healthy occurrence. What isn’t normal is when excessive amounts of thyroid hormone are shunted towards rT3 production, leaving little leftover to be converted into the active thyroid hormone. This can happen for several reasons,

including stress (cortisol increases conversion of T4 into rT3), poor blood sugar management and insulin resistance, inflammation, crash dieting, nutritional deficiencies and chronic illness.

- ▶ **TPOAb:** Thyroid peroxidase (TPO) is an enzyme normally found in the thyroid gland. The presence of TPO antibodies in the blood, however, suggests that the cause of thyroid disease is an autoimmune disorder, such as Hashimoto’s disease, where the immune system makes antibodies that mistakenly attack normal tissue. TPOAb are estimated

to be present in more than 90% of patients with chronic thyroiditis.⁴ The presence of TPOAb is more frequent in females and increases with age.

To guide an appropriate diagnosis and treatment regimen in hypothyroidism, a comprehensive thyroid panel should be collected, and choosing the appropriate thyroid medication dose and dosage form should focus on individual patient preference and response.

Customized Compounded Thyroid Hormone Replacement

There are several types of thyroid hormone therapies available to treat the symptoms associated with hypothyroidism, most of which are oral products. At Physicians Preference Pharmacy, we specialize in compounded oral thyroid hormone replacement, offering customized doses for each patient, in both oral capsule and sublingual tablet dosage forms. Thyroid hormone medication has a narrow therapeutic index, so choosing a customized dose and dosage form for the patient is crucial to assist them in achieving optimal thyroid support and function.

Compounded thyroid hormone replacement options available at Physicians Preference Pharmacy:

- **Desiccated porcine thyroid capsules**
- **T3/T4 slow-release capsules**
- **T3 slow-release capsules**
- **T4 slow-release capsules**
- **T3/T4 sublingual tablets**
- **T3 sublingual tablets**
- **T4 sublingual tablets**

Because of our commitment to complete health and wellness, all our compounded

preparations are free of lactose, parabens, artificial sweeteners and any unnecessary dyes, binders and fillers which may negatively impact treatment.

Choosing the Right Form of Thyroid Supplementation From Physicians Preference Pharmacy for Your Patient:

Physicians Preference Pharmacy compounds thyroid medications using two different types of active ingredients: either desiccated porcine thyroid powder or bio-identical T3 and T4 powder. Desiccated porcine thyroid powder is extracted from the thyroid gland of pigs whereas bio-identical T3 and T4 are chemically identical to the hormones produced by the human body and are typically sourced from wild yams.

- Desiccated Porcine Thyroid capsules are good for patients requiring supplementation of both T3 and T4 who respond better to a higher ratio of T3 to T4, or for those who have previously shown a sluggish response to T3/T4.
- Bio-identical T3, T4 and T3/T4 are sufficient for the majority of patients requiring supplementation and are appropriate for vegans, those who prefer a non-animal-derived product and individuals who request vegetable capsules.

When choosing a thyroid replacement dosage form for the patient, prescribers should specifically consider patient preference, compliance, cost and hepatic and gastrointestinal health. Most individuals respond well to oral capsules, while others, specifically those with poor gut health or liver function, should consider sublingual products for improved absorption and drug efficacy. Examples of patients who may require sublingual therapy may include those with:

- Poor or altered gut microbiome due to diet, infection or chronic use of medications such as antibiotics, laxatives, opioids and proton pump inhibitors
- Bowel resection procedures
- Hepatic function impairment

It is imperative to consider a patient's gut health (microbiome) and hepatic function, as both are important in performing most of the conversion of T4 to T3, which is required to maintain optimal thyroid levels. These bodily systems are frequently overlooked, which is why prescribing T4-only products, such as Synthroid®, often produces little benefit for the patient.

To provide a complete assessment of thyroid function and activity in patients exhibiting symptoms of hypothyroidism, a comprehensive thyroid panel is recommended, along with evaluation of lifestyle choices such as diet, vitamin and mineral intake and bodily stressors. Considering patients' cellular requirements and personal preference is crucial when choosing an appropriate thyroid supplementation product. In addition to thyroid supplementation, optimizing thyroid health requires a functional assessment of other related body systems, such as adrenal function, gut health and the immune system.

For guidance choosing the appropriate compounded thyroid hormone replacement products for your patients, **please contact your pharmacist at Physicians Preference Pharmacy at 281-828-9088.** A full list of doses we compound can be found here: physicianspreferencex.com/practitioners/drug-catalog/

REFERENCES

¹ Gaitonde DY, et al. Hypothyroidism: An Update. *Am Fam Physician*. 2012 Aug 1;86(3):244-251. <https://www.aafp.org/afp/2012/0801/p244.html>
² Patil N, et al. Hypothyroidism. [Updated 2021 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK519536/>

³ Thyroid #4: Comprehensive Blood Test Panel. *Walk-In-Lab*. <https://www.walkinlab.com/products/view/thyroid-4-comprehensive-blood-test-panel>

⁴ Estimated prevalence of antithyroid antibodies (in percent). UpToDate. 2021. https://www.uptodate.com/contents/image?imageKey=ENDO%2F76522&topicKey=ENDO%2F7854&source=see_link