

Understanding Your Thyroid: Your Body's Metabolic Engine

Have you been told your thyroid levels are "normal" despite experiencing classic hypothyroid symptoms?

- Do you struggle with weight gain, brain fog, cold intolerance, hair loss, or insomnia?
- Is your LDL ("bad" cholesterol) high despite a good diet and exercise?
- Are you taking thyroid medication but still feeling "off"?
- Are you told your TSH is normal (or well supported by your thyroid medication), but you feel as though there may still be something 'off' with your thyroid?

If so, your thyroid health may need a deeper evaluation.

Your thyroid is a butterfly-shaped gland in your neck that plays a vital role in:

Function	Role in the Body
Energy Production	Supports cellular energy levels and overall vitality
Metabolism and Weight Regulation	Helps maintain healthy weight and metabolic rate
Digestion and Hormone Balance	Affects gut motility and hormonal interactions
Vitamin D Absorption	Supports immune function and bone health
Cholesterol Regulation	Helps maintain appropriate levels of LDL ("bad" cholesterol)
Heart Rate and Circulation	Influences cardiovascular function and heart rhythm
Temperature Control	Regulates body heat and cold sensitivity
Hair and Skin Health	Supports healthy skin, hair growth, and hydration
Cognitive Function	Plays a role in memory, focus, and mental clarity

How the Thyroid Works:

1. The Brain's Role: The hypothalamus signals the pituitary gland to release TSH (thyroid-stimulating hormone).
2. Thyroid Hormone Production: The thyroid produces T4 (thyroxine) and T3 (triiodothyronine). About 95% of thyroid hormone is T4, which must be converted into active T3 for the body to use.



3. The Liver's Role: The liver converts T4 into usable T3.
4. Cellular Impact: T3 enters the cells to regulate metabolism, energy, and overall function.
5. The Feedback Loop: The hypothalamus and pituitary adjust signals to keep thyroid hormones balanced.

The Gut-Thyroid Connection: Why a Healthy Gut is Essential

A well-functioning gut is crucial for the absorption of nutrients needed for T4 to T3 conversion, the process by which the thyroid produces its active hormone. Without proper nutrient absorption, thyroid function becomes impaired, leaving you with symptoms of fatigue, weight gain, brain fog, and sluggish metabolism despite "normal" lab values.

How Digestive Health Impacts Thyroid Function

1. Gut Microbiome & Nutrient Absorption:

- A balanced gut microbiome helps break down and absorb key nutrients like selenium, zinc, iron, iodine, and B vitamins, which are essential for thyroid hormone production and conversion.
- Dysbiosis (an imbalance of gut bacteria) can hinder T4 to T3 conversion, leading to persistent hypothyroid symptoms.

2. Irritable Bowel Syndrome (IBS) & Leaky Gut:

- Chronic gut inflammation, as seen in IBS, leaky gut, and food sensitivities, can trigger autoimmune thyroid disorders like Hashimoto's.
- Increased intestinal permeability allows toxins and undigested food particles into the bloodstream, provoking an immune response that may attack the thyroid.

3. Physical & Emotional Stress:

- Chronic stress elevates cortisol, which can reduce T3 levels and increase Reverse T3 (rT3), an inactive form that blocks active thyroid hormone from working efficiently.
- High cortisol also weakens gut integrity, further worsening absorption issues.

4. Hormone Fluctuations:

- Estrogen dominance (common in perimenopause and PCOS) can increase thyroid-binding globulin (TBG), reducing free T3 levels.



- Low progesterone levels (often seen in chronic stress or post-menopause) may further impair thyroid hormone utilization.

5. **Poor Sleep & Circadian Disruptions:**

- Sleep deprivation impairs the body's ability to regulate TSH (thyroid-stimulating hormone), which can lead to low T4 and T3 levels.
- Disruptions in sleep-wake cycles also contribute to higher cortisol levels, reducing thyroid hormone efficiency.

6. **Diet & Inflammation:**

- Highly processed, high-sugar diets can increase systemic inflammation, slowing down T4 to T3 conversion.
- Deficiencies in protein, healthy fats, and fiber can reduce enzyme activity needed for optimal thyroid function.
- Gluten sensitivity is often linked to Hashimoto's thyroiditis, making a gluten-free diet beneficial for some individuals.

Why "Normal" Thyroid Tests May Miss the Full Picture

Many healthcare providers only check TSH levels, which doesn't provide a complete picture of thyroid health. Functional medicine looks beyond "normal" ranges to find optimal levels:

Lab Test	Traditional "Normal" Range	Functional Medicine "Optimal" Range
TSH	0.4 - 4.5	0.5 - 2.5
Free T3	2.3 - 4.3	3.0 – 4.0
Free T4	0.7 - 2.0	0.8 - 1.2
Reverse T3	Not typically tested	Lower half of reference range

Thyroid Antibodies Neg - Not treated unless TSH abnormal Watch for and treat Hashimoto's if positive

If TSH is "normal" but you still have symptoms, testing Free T3, Free T4, Reverse T3, and Thyroid Antibodies can uncover hidden thyroid dysfunction.

Common Causes of Thyroid Dysfunction:

1. Nutrient Deficiencies: Iron, iodine, selenium, zinc, vitamins D, B12, and A are essential.



2. **Chronic Stress & High Cortisol:** Cortisol disrupts thyroid hormone conversion and cell receptivity.
3. **Gut Health Issues:** 70% of your immune system is in your gut. Leaky gut, food sensitivities, and imbalanced gut bacteria can impair thyroid function.
4. **Toxin Exposure:** Halides like fluoride (in water, toothpaste), chlorine, and bromine compete with iodine, reducing thyroid function.
5. **Autoimmune Conditions:** Hashimoto's thyroiditis is the most common cause of hypothyroidism, often triggered by stress, infections, or environmental toxins.
6. **Poor Conversion of T4 to T3:** Liver dysfunction, inflammation, and stress can impair this process, leaving you hypothyroid even if TSH is "normal."

Supporting Your Thyroid:

A functional medicine approach focuses on restoring balance with food, lifestyle, and targeted supplements.

1. Eat for Thyroid Health:

- Iodine-rich foods: Kelp sprinkles, seaweed, low mercury fish, dairy, eggs
- Selenium-rich foods: Brazil nuts, turkey, sunflower seeds
- Zinc-rich foods: Oysters, beef, pumpkin seeds, chickpeas, nuts, seeds, dark chocolate
- Iron-rich foods: Grass-fed beef, dark poultry, leafy greens, lentils, tofu, nuts, seeds
- Anti-inflammatory foods: Eat the rainbow, berries, turmeric, green tea
- Gut-supporting foods: Probiotic-rich foods (kimchi, kombucha, pickles, sauerkraut, yogurt)

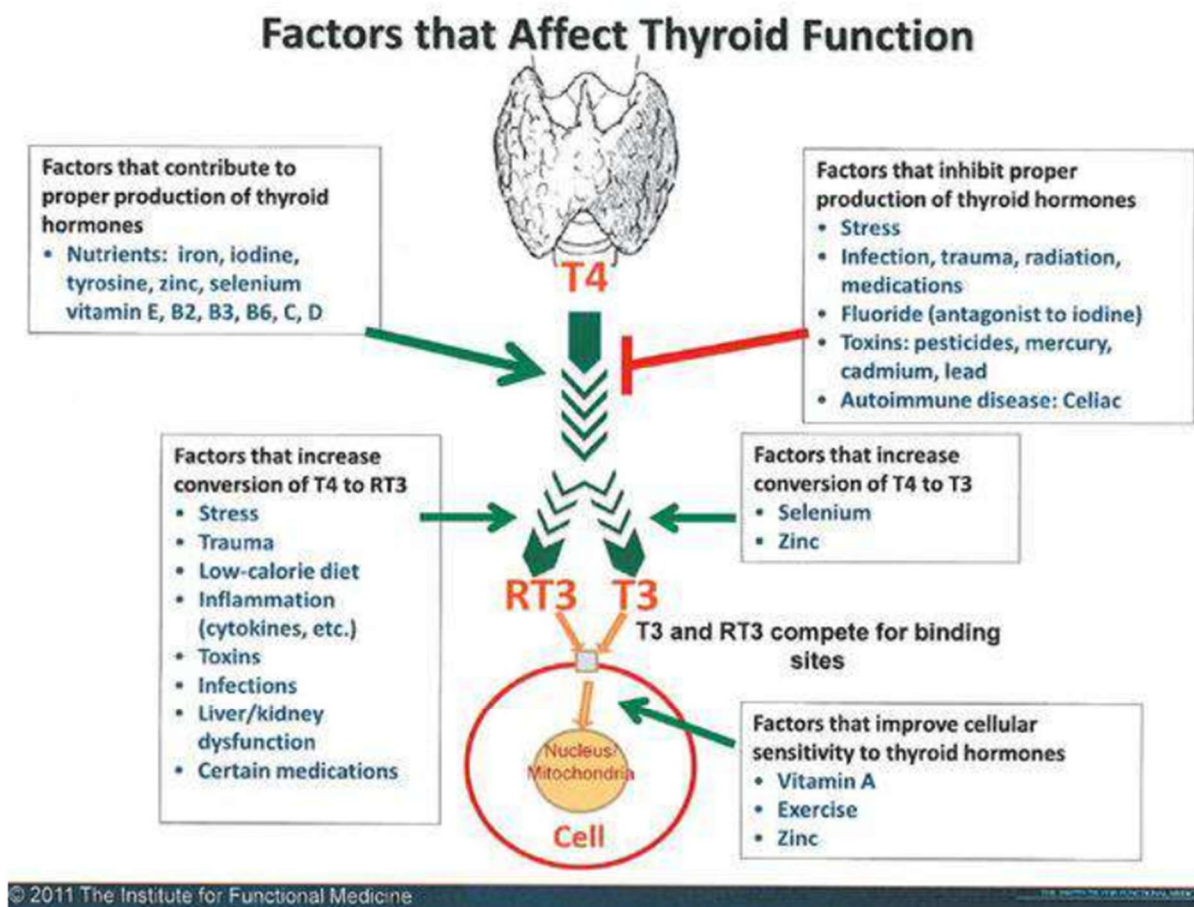
2. Reduce Toxin Exposure:

- Use fluoride-free toothpaste and filtered water
- Avoid processed foods with brominated vegetable oil (BVO)
- Limit exposure to pesticides and heavy metals

3. Manage Stress:

- Reduce cortisol with yoga, meditation, acupuncture, and breathwork

- Prioritize high quality sleep (7-9 hours) *if this is a challenge, we recommend seeking care to optimize this
- Exercise regularly (but avoid overtraining, which can stress the thyroid)
- Mindset work – living in doom, gloom ‘never going to get better’ will drastically reduce healing – podcasts, affirmations, journaling, laughing, envisioning the body healthy, vibrant and strong moves the ‘health needle’



How to Properly Take Thyroid Medication

To ensure optimal absorption and effectiveness of your thyroid medication:

- Take it first thing in the morning on an empty stomach.
- Wait at least 2 hours before eating or drinking anything other than water.



- Avoid taking it with coffee, calcium, iron, or high-fiber foods, as they can interfere with absorption.
- Be consistent with timing—try to take your medication at the same time every day.
- If you take any other medications or supplements, separate them for at least 4 hours.
- Hormones such as Hormone replacement or Birth control compete with thyroid medications for the hormone ‘receptor’. For this reason, we recommend taking hormones at the opposite end of the day as thyroid medications.
- Insulin is also a hormone and recommended to be at least 2h from thyroid medication.
- Consider bedtime dosing if absorption issues persist (consult your practitioner for best timing).

Testing thyroid levels:

- Hold any supplements containing biotin for a minimum of 7d prior to testing thyroid levels
- Hold thyroid medications for a minimum of 12h prior to testing thyroid levels.

Possible supportive supplements

- Selenium (200 mcg/day): Supports immune function and T4 to T3 conversion
- Zinc (30 mg/day): Supports thyroid hormone production
- Vitamin D (2,000-5,000 IU/day): Dosing dependent on Vit D levels. Essential for immune function, intestinal integrity, neurotransmitter function, T4 to T3 conversion.
- Iodine: **Dependent on urine iodine levels - Needed for thyroid hormone synthesis (but too much can trigger autoimmunity)*
- Ashwagandha (600 mg/day): Supports thyroid balance and stress resilience

Conventional vs. Functional Treatment:

Most conventional doctors prescribe T4-only medications (Levothyroxine, Synthroid), which don't always relieve symptoms if your body struggles to convert T4 into active T3. Functional medicine considers options like:

- **Adding T3 (Cytomel)** to T4 medication
- **Combination therapy (T4 + T3)** (e.g., Armour Thyroid, Naturethroid, NP Thyroid)
- **Addressing root causes:** Nutrient deficiencies, gut health, adrenal health



- **Optimizing** diet, lifestyle, reducing stress, improving sleep, optimizing overall metabolic function, and supplementation

Take Control of Your Thyroid Health

If you're struggling with persistent thyroid-related symptoms, don't settle for "your labs are normal." A functional medicine approach can help uncover hidden imbalances and restore your well-being. At 4 Better Health, we offer comprehensive thyroid testing and personalized treatment plans to help our patients regain energy, balance, and optimal health. Schedule a Consultation Today. Let's uncover the root cause and help you live vibrantly 4 Better Health

4 Better Health, Inc
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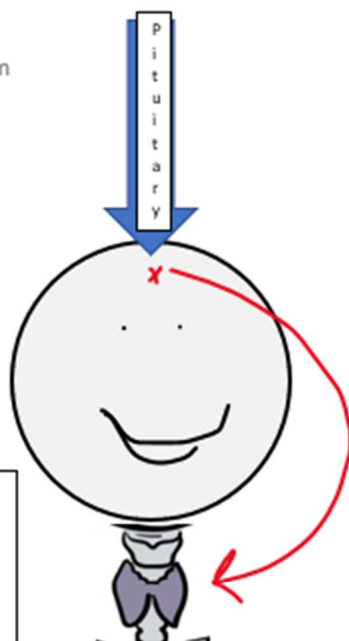
You and Your Thyroid

The thyroid responds to the message with releasing Total T4, Total T3 and calcitonin

The thyroid gland releases more T4, which is actually a more stable, durable molecule than T3.

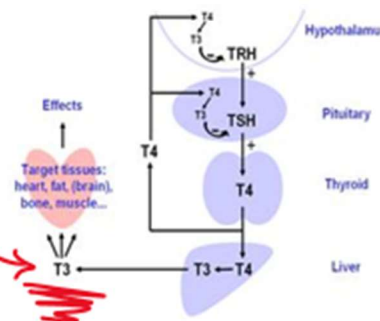
T4 must travel through the circulatory system and gut to get to the tissues. Being tough and durable is useful for the trip from one place to another.

Once it gets to the tissue, T4 needs to convert to T3. T3 is actually more biologically active – meaning it has a stronger bond and produces a stronger effect on the target cells

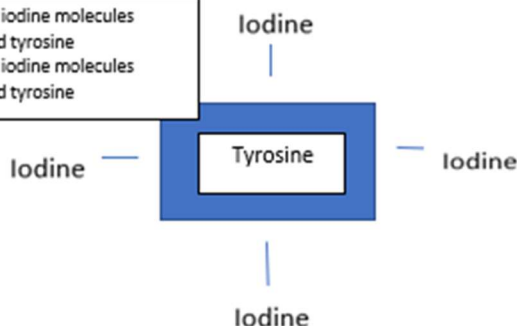


TSH stands for Thyroid Stimulating Hormone. TSH is actually a Pituitary hormone. The hypothalamus sends out TRH (thyroid releasing hormone) to the Pituitary gland. TSH, therefore, is a 'message' that comes from the pituitary gland sent to 'stimulate' the thyroid.

Your cells
require
available T3



T4 = 4 iodine molecules
around tyrosine
T3 = 3 iodine molecules
around tyrosine



Conversion occurs throughout the body, via special enzymes called deiodinases. These deiodinase enzymes are present in the liver, kidney, adipose fat (and placenta).

Deiodinases are activated and deactivated by several factors: Gut dysfunction, suboptimal nutrients, cold exposure, over feeding, stress & stress hormones, gallbladder and bile acid dysfunction, and tissue injury.

Optimal nutrient status is necessary for adequate thyroid hormone and T4 to T3 conversion:

Protein absorption, Zinc, Selenium, Iodine, Vitamin D, Copper, Iron, Vitamin A