SOULSCRIPT

PRESCRIPTIONS FOR YOUR SOUL

HAIR LOVE HANDBOOK

A FUNCTIONAL MEDICINE ROOT-CAUSE GUIDE TO HAIR LOSS & FALLING IN LOVE WITH YOUR HAIR AGAIN

by Elena Genik. Pharm.D



www.thyroidloveclub.com

www.soulscript.co

TABLE OF CONTENTS

INTRODUCTION

CHAPTER 1:
UNDERSTANDING HAIR LOSS FROM A FUNCTIONAL MEDICINE PERSPECTIVE

CHAPTER 2:
THE ROOT CAUSES CONVENTIONAL MEDICINE MISSES

CHAPTER 3:
THE THYROID-HAIR CONNECTION DEEP DIVE

CHAPTER 4:
YOUR ROOT CAUSE INVESTIGATION

CHAPTER 5:
YOUR PERSONALIZED RECOVERY PROTOCOL

CHAPTER 6:
TIMELINE AND EXPECTATIONS

CHAPTER 7:
TROUBLESHOOTING AND ADVANCED CONSIDERATIONS

CHAPTER 8:
MAINTENANCE AND LONG-TERM SUCCESS

CHAPTER 9:
LAB INTERPRETATION CHEAT SHEET

REFERENCES

QUICK LINK
SUPPLEMENT SHOP HERE:
SHOP.THYROIDLOVECLUB.COM



HI & WELCOME!

Hi! I'm Elena Genik, PharmD, pharmacist turned functional medicine practitioner, and I'm right there with you in this journey. My thyroid story started with symptoms everyone told me were "normal." I was exhausted, anxious, and watching my hair fall out in clumps and chunks. It was terrifying. I had always taken so much pride in my hair, caring for my curls, perfecting my routine, loving the way they looked and felt. Watching them change, watching my curl pattern transform, watching handfuls come out in the shower... it broke something in me. I was terrified.

I saw doctor after doctor. My labs came back, and I heard the same thing over and over: "Your levels are fine." My TSH and Free T3 was "in range." But I wasn't fine. I was losing myself, strand by strand, and being told it was all in my head. They were wrong. When I finally demanded the full picture, I discovered what conventional testing had missed: my Free T3 was suboptimal (not optimal for ME), my vitamin D was low, my B vitamins were depleted, and my ferritin, the stored iron my hair desperately needed, was nowhere near where it should be for healthy hair growth (ummm it was at a 9). I was gaslit into believing my symptoms weren't related to my thyroid, that I should just accept this as normal aging or stress. But I knew better. I felt it in my bones that something deeper was wrong.

So I went all in. I tested my gut, and what I found changed everything: H. pylori infection, bacterial overgrowth, dysbiosis, parasites, Candida, and significant leaky gut. My gut was so inflamed and damaged that no matter how many supplements I took, my body couldn't absorb them. I was pouring nutrients into a broken system. I treated those infections holistically. I healed my gut lining. I supported my digestion. And everything started to shift. :)

My nutrient deficiencies became so much easier to correct once my gut could actually absorb what I was giving it. My energy returned, not in sporadic bursts but in sustained, steady waves. My Thyroid Eye Disease, which had made me avoid mirrors and photos, began to resolve. My eyes stopped bulging, became more symmetrical, looked like mine again. I reached remission. My hair finally started growing back. Stronger. Healthier. My curl pattern began to return. The shedding slowed, less and less hair falling out in the shower. I got myself back.



Here's what I learned, and what I now teach with my whole heart:

- "In range" is not the same as "optimal." Population statistics don't equal your personal wellbeing. We are all beautifully, frustratingly unique. What's "normal" for the masses might be disastrous for you.
- Optimal ranges match how you actually feel and function. Numbers on paper mean nothing if you're suffering. Your body tells the truth, even when labs try to silence it.
- Patterns matter more than single data points. It's not just one lab value, it's the story they tell together. It's the trends over time. It's your symptoms, your triggers, your lived experience.
- Your gut is the foundation of everything. If you can't absorb nutrients, nothing else works. Heal your gut, and you unlock your body's ability to heal everything else.
- Advocacy is a skill you can learn. You don't have to accept dismissal. You don't have to shrink. You can learn to ask for what you need, to push back on "you're fine," to find providers who actually listen.

This guide is the resource I desperately needed when I was scared, shedding, and being told to just accept it. I built it from my pain, my research, my relentless pursuit of answers, and my eventual triumph. I don't want you to settle for "fine." I don't want you to lose years of your life feeling dismissed and gaslit. I don't want you to watch your hair fall out while doctors shrug and move on to the next patient. I want you to heal. Completely. Deeply. Permanently.

This guide will walk you through:

- Understanding the root causes of your hair loss (it's rarely just one thing)
- Getting the RIGHT labs, not just the standard ones
- Interpreting your results through a functional medicine lens
- Addressing thyroid dysfunction, hormonal imbalances, nutrient deficiencies, gut health, inflammation, and blood sugar issues
- Creating your personalized recovery protocol
- Navigating setbacks and knowing when to dig deeper
- Maintaining your results long-term

You'll find detailed supplement protocols with specific dosages, warnings, and evidence. You'll get a lab interpretation cheat sheet so you can see exactly where your numbers should be. You'll learn which functional medicine tests reveal the hidden pieces conventional medicine misses. And most importantly, you'll have a companion who's been exactly where you are (terrified, frustrated, determined) and made it to the other side.
You can do this. Your hair can recover. Your body wants to heal.
I'm here with you, every step of the way.

If you need personalized support (help choosing tests, interpreting results, supplements, creating your protocol, or just having someone in your corner who truly understands) visit thyroidloveclub.com. I offer one-on-one guidance because I remember how confusing, lonely and overwhelming this journey can feel.

Elena





HOW TO USE THIS HANDBOOK

Before you dive into the decoder charts, take a deep breath. This guide isn't about turning you into your own doctor. It's about helping you finally understand what your body has been trying to tell you through your labs and symptoms.

Start by locating your most recent lab results. If you don't have them, you can usually download a copy from your patient portal or ask your doctor's office to print them. As you move through each section, use this workbook like a conversation between you and your body. Look up each lab in the decoder chart, circle or highlight where your results fall, and make notes about how you've been feeling lately.

You might begin to notice patterns, like perhaps your hair loss or fatigue worsens when Free T3 dips, or your anxiety spikes when your ferritin or estrogen dips. That's valuable data, and it's the first step in connecting your labs to your lived experience.

If you feel uncertain or confused at any point, that's completely normal. This process is about awareness, not perfection. The goal is simply to leave this workbook feeling more confident, informed, and ready to advocate for yourself at your next appointment.

For educational purposes only. This guide is not intended to diagnose or treat medical conditions. Always consult your healthcare provider before making changes to your medications, supplements, or treatment plan. Affiliate links may be included at no cost to you.



DISCLAIMER

This information is for your personal use ONLY. You cannot distribute, copy, reproduce, or otherwise sell this product or information in any form whatsoever, including but not limited to: electronic, or mechanical, including photocopying, recording, or by any informational storage or retrieval system without expressed written, dated and signed permission from the author. All copyrights are reserved.

The information, including but not limited to, text, graphics, images and other material contained in this guide are for informational purposes only. No material from this guide is intended to be a substitute for professional medical advice, diagnosis or treatment.

Always seek the advice of your physician or other qualified health care provider with any questions you may have regarding a medical condition or treatment and before undertaking a new health care regimen, and never disregard professional medical advice or delay in seeking it because of something you have read in this guide.

This is NOT medical advice. Strictly for informational purposes only.

This protocol serves as a general guideline and should be personalized based on individual health conditions and needs. Consultation with a functional health practitioner or qualified healthcare professional is essential before initiating any new supplement or lifestyle changes and to determine the personalized doses required for each person. Regular monitoring and adjustments may be necessary based on individual responses and evolving health status.

CHAPTER 1: UNDERSTANDING HAIR LOSS FROM A FUNCTIONAL MEDICINE PERSPECTIVE

Hair is a non-essential tissue, meaning when your body is under stress or lacking resources, it diverts everything to vital organs first. Your hair gets last priority.

This is why hair loss is often the first visible sign of:

- Hormonal imbalances
- Nutrient deficiencies
- Chronic inflammation
- Metabolic dysfunction
- Immune system dysregulation

The Hair Growth Cycle

Understanding how hair grows helps you understand why recovery takes time:

Anagen (Growth Phase): 2-7 years; hair actively growing. Approximately 85-90% of your hair is in this phase at any time.

Catagen (Transition Phase): 2-3 weeks; growth stops and the follicle shrinks.

Telogen (Resting Phase): 2-4 months; hair rests before shedding. About 10-15% of hair is in this phase normally.

When something disrupts this cycle like stress, hormones, nutrients, inflammation, hair shifts prematurely into the resting phase. You won't see shedding immediately; it takes 2-4 months, which is why pinpointing the trigger can be hard.

Normal shedding is 50-100 hairs per day. Excessive shedding is 150+ hairs per day.

A FUNCTIONAL MEDICINE PERSPECTIVE

Common Patterns of Hair Loss:

Diffuse Thinning (Telogen Effluvium)

- Overall thinning across the entire scalp
- Most common in hormonal, nutritional, or metabolic issues
- Hair comes out easily when washing or brushing
- Usually reversible with proper intervention
- Accounts for the majority of hair loss in women

Androgenic Pattern (Androgenetic Alopecia)

- Thinning at the crown and widening part line
- Hairline may recede at temples
- Related to androgen hormones and follicle sensitivity
- Common in PCOS, perimenopause, and insulin resistance
- Affects 30-40% of women by age 50

Patchy Loss (Alopecia Areata)

- Round or oval bald patches
- Autoimmune condition where body attacks hair follicles
- Can progress to total scalp (alopecia totalis) or body (alopecia universalis) hair loss
- Requires specialized approach and often medical treatment

Increased Shedding (Acute Telogen Effluvium)

- Temporary, dramatic shedding (200-300+ hairs daily)
- Triggered by stress, illness, medications, surgery, or hormonal shifts
- Typically occurs 2-4 months after triggering event
- Usually resolves in 6-12 months if trigger is addressed
- Can become chronic if underlying issues persist

CHAPTER 2: THE ROOT CAUSES CONVENTIONAL MEDICINE MISSES

Thyroid Dysfunction

Your thyroid regulates metabolism in every cell, including hair follicles. Both hypothyroidism (underactive) and hyperthyroidism (overactive) cause hair loss. This is covered extensively in Chapter 3.

Signs your thyroid might be involved:

- Fatigue that doesn't improve with rest
- Weight changes without diet changes
- Temperature sensitivity (always cold or always hot)
- Brain fog or difficulty concentrating
- Changes in bowel habits
- Dry skin or brittle nails
- Outer third of eyebrows thinning
- Hoarse voice or throat discomfort

The testing trap: Many people are told their thyroid is "normal" based only on TSH, but that's just one piece of the puzzle.

Perimenopause and Menopause

Perimenopause typically begins in the mid-to-late 40s but can start as early as the mid-30s. This transition can last 4-10 years before menopause (defined as 12 months without a period).

Declining estrogen and progesterone create a relative androgen excess, leading to:

- Thinning at the crown and temples
- Changes in hair texture (finer, dryer)
- Slower hair growth
- Increased facial hair while losing scalp hair

Important: Perimenopause involves wildly fluctuating hormones—not just low hormones—which disrupts the hair growth cycle. You can have hair loss even with "normal" hormone levels if they're fluctuating dramatically.

Studies show that up to 50% of women experience noticeable hair thinning during perimenopause and menopause.[1]

THE ROOT CAUSES

PCOS and Androgen Excess
Polycystic Ovary Syndrome (PCOS) affects 8-13% of reproductive-aged women and is a leading cause of hair loss in younger women.[2]
High androgens (testosterone, DHEA, DHT) shrink hair follicles on your scalp while increasing hair growth elsewhere (hirsutism).

Signs of androgen excess:

- Irregular periods or absent periods
- Acne (especially jawline and chin)
- Unwanted facial or body hair
- Weight gain, especially around the middle
- Insulin resistance or blood sugar issues
- Darkened skin in body folds (acanthosis nigricans)

The PCOS-insulin connection: Insulin resistance drives androgen production. High insulin signals the ovaries to produce more testosterone, creating a vicious cycle.[3]

Cortisol and Chronic Stress
Chronic stress elevates cortisol, which:

- Pushes hair prematurely into the shedding phase (can cause up to 70% of hair to enter telogen simultaneously)[4]
- Disrupts other hormones (thyroid, sex hormones, insulin)
- Increases inflammation systemically
- Depletes nutrients (especially B vitamins, magnesium, vitamin C)
- Impairs digestion and nutrient absorption
- Reduces blood flow to non-essential tissues like hair follicles

Even a single major stressor (surgery, illness, emotional trauma, childbirth) can trigger telogen effluvium 2-4 months later.

THE ROOT CAUSES: NUTRIENTS

Nutrient Deficiencies
Your hair follicles are among the most metabolically active cells in your body. They require abundant nutrients to function properly.

Iron and Ferritin
Iron deficiency is the most common nutritional cause of hair loss, especially in menstruating women. Studies show that even without anemia, low ferritin is associated with hair loss.[5]
The testing trap: Your serum iron can look "normal" while your ferritin (stored iron) is severely depleted.

Functional optimal range for ferritin: 70-100 ng/mL (standard range bottom is often 15-20 ng/mL, which is too low for optimal hair growth)

Causes of low iron in women:

- Heavy menstrual bleeding
- Low stomach acid (can't absorb iron efficiently)
- Vegetarian/vegan diet without adequate planning
- Gut inflammation or malabsorption
- Regular blood donation

Vitamin D
Vitamin D deficiency is epidemic, affecting over 40% of adults in the US.[6] It's important for:

- Immune regulation (especially important in autoimmune hair loss)
- Hair follicle cycling and the creation of new follicles
- Reducing inflammation
- Calcium metabolism (which affects hair)

Functional optimal range: 50-80 ng/mL (some practitioners even say 60-80 ng/mL) Standard range: Often lists 30-100 ng/mL, but 30 is insufficient for optimal function

Low vitamin D is associated with both telogen effluvium and alopecia areata. [7]

THE ROOT CAUSES: NUTRIENTS

Vitamin B12 (Cobalamin)
Essential for red blood cell production, oxygen delivery, and DNA synthesis. Low B12 can impair hair follicle activity and is associated with diffuse hair loss, fatigue, and neurological symptoms.
Functional optimal range: >500 pg/mL
(Some feel best closer to 600–800 pg/mL)

Common risk factors:

- Vegan or vegetarian diet
- Low stomach acid or chronic PPI use
- Age over 50
- MTHFR or methylation-related gene variants
- Autoimmune conditions (especially pernicious anemia)
- Gut dysfunction or infections (H. pylori, SIBO)

Clinical note: Serum B12 may appear normal despite functional deficiency. Consider methylmalonic acid (MMA) testing for deeper assessment.

Folate (Vitamin B9)
Required for DNA synthesis and cell division. Hair follicles rely on adequate folate due to their rapid growth cycle.
Functional optimal range: >20 ng/mL
Prefer methylfolate over folic acid, especially with MTHFR variants or supplement sensitivity.

Biotin (Vitamin B7)
Supports keratin structure and hair shaft strength. True deficiency is rare, but supplementation may improve hair quality and brittleness, especially when paired with zinc.
Typical dose: 2,500–10,000 mcg daily
⚠️ Lab interference warning: Biotin can interfere with thyroid, hormone, and cardiac labs. Discontinue 72 hours before blood work.
Note: Biotin alone will not resolve hair loss if iron, protein, thyroid function, or inflammation are not addressed.

Riboflavin (Vitamin B2)
Supports mitochondrial energy production and activation of other B vitamins, including B6 and folate. Important cofactor for thyroid hormone production.
Deficiency may contribute to brittle hair, poor stress tolerance, and slowed growth.

THE ROOT CAUSES: NUTRIENTS

Zinc
Critical for:

- Protein synthesis (hair is 95% keratin protein)
- Hormone balance
- Immune function
- Tissue repair and wound healing

Zinc deficiency is associated with hair loss, and supplementation has been shown to help restore growth.[9]
Functional optimal range: 90-110 mcg/dL
Standard range: Often 60-130 mcg/dL
Typical supplemental dose: 15-30 mg daily
Warning: Don't exceed 40 mg daily without testing. High-dose zinc can deplete copper and impair immune function. Take zinc with food to avoid nausea.

Protein
Hair is made of keratin, a protein. If you're not eating enough protein, your body can't build hair.
Minimum protein target: 0.7-1.0 g per pound of ideal body weight For a 150 lb woman: 105-150g protein daily
Signs of inadequate protein:

- Weak, brittle hair and nails
- Slow wound healing
- Sugar and carb cravings
- Muscle loss
- Fatigue and weakness
- Frequent illness

Omega-3 Fatty Acids
Essential for:

- Reducing inflammation
- Supporting cell membrane health
- Hormone production
- Scalp health

A study in women with hair loss showed that supplementation with omega-3s, omega-6s, and antioxidants improved hair density and reduced telogen hair after 6 months.[10]
Typical supplemental dose: 2-3g combined EPA/DHA daily
Food sources: Fatty fish (salmon, sardines, mackerel), flaxseed, chia seeds, walnuts

THE ROOT CAUSES: INFLAMMATION

Inflammation and Gut Health
Chronic inflammation disrupts hair growth and accelerates aging of hair follicles.
Common Inflammatory Triggers

- Food sensitivities: Gluten, dairy, sugar, processed foods, industrial seed oils Gut dysbiosis: Imbalanced gut bacteria (too much "bad" bacteria, not enough beneficial)
- Leaky gut: Intestinal permeability allowing undigested food particles and toxins into bloodstream
- Chronic infections: Low-grade viral, bacterial, or parasitic infections
- Environmental toxins: Heavy metals, pesticides, plastics, mold
- Blood sugar dysregulation: Creates inflammatory response

The Gut Connection
The gut is central to overall health:

- 70% of your immune system lives in your gut
- All nutrient absorption happens in your gut
- Gut bacteria influence hormone metabolism (especially estrogen)
- Gut inflammation creates systemic inflammation
- Gut health affects thyroid function and conversion

Poor gut health = poor nutrient status + inflammation = hair loss

Research shows that people with alopecia areata have significantly altered gut microbiomes compared to healthy controls.[11]

Testing for Inflammation

- hsCRP (high-sensitivity C-reactive protein):
  - Functional optimal: <1.0 mg/L
  - Standard range: Often <3.0 mg/L, but anything over 1.0 indicates chronic inflammation
- Homocysteine: Elevated levels indicate methylation problems and increased inflammation.
  - Functional optimal: <8 µmol/L
  - Standard range: Often <15 µmol/L
- Fecal lactoferrin, fecal occult blood, secretory IgA, zonulin
- Functional labs: comprehensive stool test (GI Advanced, Gut Zoomer, GI Map)

THE ROOT CAUSES: SUGAR

Blood Sugar Dysregulation and Insulin Resistance
Insulin resistance doesn't just lead to diabetes—it has profound effects on hair:

- Increases androgens (high insulin signals ovaries to produce more testosterone) [12]
- Creates chronic inflammation
- Disrupts other hormones
- Impairs nutrient delivery to cells
- Damages blood vessels, reducing circulation to follicles

Signs of Blood Sugar Issues

- Energy crashes between meals or after eating
- Strong sugar or carb cravings
- Difficulty losing weight despite diet and exercise
- Fat storage around the middle (apple shape)
- Brain fog, especially after meals
- Darkened skin in body folds (neck, armpits, groin)
- Skin tags
- Frequent urination or excessive thirst

Testing for Insulin Resistance

- Fasting Insulin:
  - Functional optimal: <5 mIU/L
  - Standard range: Often <25 mIU/L, but anything over 5-7 indicates developing insulin resistance
- Fasting Glucose:
  - Functional optimal: 70-85 mg/dL
  - Standard range: <100 mg/dL (but pre-diabetes starts at 100)
- Hemoglobin A1c:
  - Functional optimal: <5.3%
  - Standard range: <5.7% (pre-diabetes 5.7-6.4%)
- HOMA-IR (Homeostatic Model Assessment of Insulin Resistance): Calculated from fasting glucose and fasting insulin.
  - Functional optimal: <1.0 Indicates insulin resistance: >1.9

Studies show that women with PCOS and insulin resistance have significantly higher rates of androgenic hair loss.[13]

CHAPTER 3: THE THYROID-HAIR CONNECTION DEEP DIVE

Thyroid matters SO much for hair.

Your thyroid gland produces hormones that regulate metabolism in every single cell of your body, including hair follicles. Thyroid hormones directly influence:

- Hair follicle stem cell activation: Thyroid hormones are required to activate follicle stem cells and initiate the growth phase[14]
- Duration of the growth phase: Adequate thyroid hormone keeps hair in the anagen (growing) phase longer
- Protein synthesis: Hair is 95% keratin protein, which requires adequate thyroid function to produce
- Blood flow: Thyroid hormones regulate circulation, including to the scalp
- Nutrient metabolism: Affects how your body processes and uses nutrients needed for hair growth

Hypothyroidism and Hair Loss
Hypothyroidism (underactive thyroid) is one of the most common causes of diffuse hair loss in women, affecting an estimated 5-10% of the population (with subclinical hypothyroidism affecting even more).[15]

When thyroid hormone levels are low it can cause hair loss due to:
- Hair follicles enter the resting (telogen) phase prematurely
- The growth phase shortens
- Hair becomes dry, brittle, and coarse
- Hair growth rate slows significantly
- More hair sheds while less regrows

The hair loss is typically:
- Diffuse (all over the scalp, not in patches)
- Gradual in onset
- Accompanied by other hypothyroid symptoms
- Reversible with proper treatment

LOW THYROID

Signs of Hypothyroidism
Classic symptoms:

- Fatigue and low energy, especially in the morning
- Weight gain or inability to lose weight
- Cold intolerance (always feeling cold)
- Constipation
- Dry skin
- Brain fog and poor concentration
- Depression or low mood
- Hoarse voice
- Puffy face
- Slow heart rate
- Heavy or irregular menstrual periods
- Joint or muscle pain

Hair-specific signs:

- Loss of outer third of eyebrows (very specific to hypothyroidism)
- Dry, coarse hair texture
- Hair that breaks easily
- Loss of body hair (arms, legs)
- Diffuse thinning without bald patches

Hashimoto's Thyroiditis
Hashimoto's is an autoimmune condition where your immune system attacks your thyroid gland. It's the most common cause of hypothyroidism in developed countries, affecting 1-2% of the population (and up to 5% of women).[16]

How Hashimoto's differs:

- Thyroid antibodies are present (TPO and/or TG antibodies)
- Hormone levels may fluctuate (sometimes swing to hyperthyroid temporarily)
- Often involves additional autoimmune issues
- Gut health is particularly important
- Gluten sensitivity is common (some studies show 30-40% of Hashimoto's patients react to gluten)[17]

Additional hair loss factors in Hashimoto's:

- Inflammation from autoimmune activity directly affects follicles
- Nutrient malabsorption is common (especially iron, B12, vitamin D)
- Increased risk of other autoimmune conditions (like alopecia areata)

HIGH THYROID

Hyperthyroidism and Hair Loss
Hyperthyroidism (overactive thyroid) is less common but also causes hair loss. It affects about 1% of the population.[18]
How Hyperthyroidism Causes Hair Loss
When thyroid hormone levels are too high:

- Hair growth cycle accelerates abnormally
- Hair moves too quickly through the growth phase
- More hair enters the shedding phase simultaneously
- Hair becomes fine and silky but weak

The hair loss is typically:

- Diffuse across the scalp
- More rapid onset than hypothyroidism
- Fine, soft hair texture (opposite of hypothyroid)
- Often accompanied by dramatic symptoms

Signs of Hyperthyroidism

- Unexplained weight loss despite good appetite
- Rapid or irregular heartbeat (palpitations)
- Heat intolerance and excessive sweating
- Anxiety, nervousness, irritability
- Tremor in hands
- Frequent bowel movements or diarrhea
- Fatigue and muscle weakness
- Difficulty sleeping
- Light or absent menstrual periods
- Bulging eyes (in Graves' disease)

How Graves differs:

- Thyroid antibodies are present (TRAb and/or TSI antibodies)
- Hormone levels may fluctuate (sometimes swing to hypothyroid eventually due to thyroid damage)
- It is also an autoimmune condition, and can often involve additional autoimmune issues
- Gut health is also important
- Gluten reactivity and other food sensitivities are also common, and can be a consequence of too much iodine.

THE COMPLETE THYROID PANEL: WHAT YOU ACTUALLY NEED

Most doctors only test TSH. This is honestly so old school, it was the gold standard over 50 years ago, but so much has evolved in how we treat the thyroid. Going by TSH is truly inadequate for understanding thyroid function and diagnosing the potential cause of hair loss.

TSH (Thyroid Stimulating Hormone)
What it is: A pituitary hormone that signals the thyroid to produce more hormone when levels are low.
The problem with TSH-only testing:

- TSH can be "normal" while you're symptomatic
- Doesn't tell you T4 to T3 conversion status
- Doesn't reveal antibodies or autoimmune involvement
- Range is too broad (0.5-5.0 in many labs)

Functional optimal range: 0.5-2.0 mIU/L
Standard range: 0.4-4.5 mIU/L (some labs use 0.5-5.0)
Interpretation:

- High TSH = hypothyroidism (thyroid struggling, pituitary compensating)
- Low TSH = hyperthyroidism (or over-medicated hypothyroidism)
- "Normal" TSH doesn't mean optimal thyroid function

Free T4 (Free Thyroxine)
What it is: The storage form of thyroid hormone. It's produced by your thyroid and must be converted to T3 (the active form) to be used by cells.
Functional optimal range: Mid to upper half of reference range
Standard range: Varies by lab, typically 0.8-1.8 ng/dL
Why it matters:

- Shows how much hormone your thyroid is actually producing
- Can be low even with "normal" TSH in early hypothyroidism
- Important for medication dosing

Free T3 (Free Triiodothyronine)
What it is: The active thyroid hormone that your cells actually use. This is what hair follicles need.
Functional optimal range: Upper half to upper third of reference range
Standard range: Varies by lab, typically 2.3-4.2 pg/mL
Why it matters:

- Most important thyroid hormone for symptoms and hair growth
- Many people have "normal" T4 but low T3 (conversion problem)
- This is what makes you feel good or bad
- Hair follicles need adequate T3 to function

Conversion problems occur when:

- Nutrient deficiencies exist (selenium, zinc, iron)
- Inflammation is high
- Stress is chronic (high cortisol)
- Gut health is poor
- Certain medications are taken (beta blockers, oral contraceptives)

THE COMPLETE THYROID PANEL

Reverse T3 (rT3)
What it is: An inactive form of T3. Your body makes it from T4 when under stress or inflammation. It blocks the action of active T3.
Functional optimal range: <15 ng/dL (some practitioners prefer <12)
Standard range: Varies by lab, typically 8-25 ng/dL
Why it matters:

- High rT3 means your body is converting T4 to the inactive form instead of active T3
- Creates "cellular hypothyroidism" even with normal blood levels
- Common with chronic stress, inflammation, or caloric restriction

T3/rT3 ratio: Many functional medicine practitioners calculate this ratio. Optimal ratio: >20 (using Free T3 in pg/mL and rT3 in ng/dL) Indicates problem: <10

Thyroid Antibodies

- **TPO (Thyroid Peroxidase Antibodies):**
  - Functional optimal: <9 IU/mL (or negative)
  - Standard range: <35 IU/mL
- **TG (Thyroglobulin Antibodies):**
  - Functional optimal: <4 IU/mL (or negative)
  - Standard range: <40 IU/mL

Why they matter:

- Presence indicates Hashimoto's thyroiditis (autoimmune hypothyroidism)
- You can have elevated antibodies with "normal" TSH (early stage)
- Elevated levels can appear years before TSH abnormalities
- Important for tracking disease progression
- Useful for guiding immune-modulating and gut-focused protocols

Graves' Disease Antibodies

- **TSI (Thyroid Stimulating Immunoglobulin)**
  - Functional optimal: Negative or as low as possible
  - Standard range: <140% (lab dependent)
- **TRAb (Thyrotropin Receptor Antibodies)**
  - Functional optimal: Negative
  - Standard range: <2.0 IU/L (varies by lab)

Why they matter:

- These antibodies stimulate the thyroid, driving excess hormone production
- Primary markers used to diagnose and monitor Graves' disease
- Levels often correlate with symptom severity and flare activity, but not always perfectly
- Can remain elevated even when TSH, Free T3, and Free T4 appear "normal"

Why Graves' Antibodies Matter for *Hair Loss*

- Chronic immune activation diverts nutrients away from hair growth
- Inflammatory signaling can prematurely push hair into the shedding phase (telogen effluvium)
- Autoimmune activity increases oxidative stress at the hair follicle level
- Hair loss may persist even after thyroid hormones normalize if antibodies remain elevated

CONVENTIONAL THYROID TREATMENT

Medication Options

Levothyroxine (Synthroid, Levoxyl, Unithroid, Tirosint, etc):

- T4 only medication
- Most commonly prescribed
- Requires conversion to T3
- Works well for many, but not all

NDT (Natural Desiccated Thyroid - Armour, Nature-Throid, WP Thyroid):

- Contains both T4 and T3 (plus T2, T1, calcitonin)
- From porcine (pig) thyroid
- More closely mimics human thyroid secretion
- Some people feel better on NDT than synthetic

T3 Medication (Cytomel, liothyronine):

- Active thyroid hormone
- Can be added to T4 for conversion issues
- Some people need T3-only or combination T4/T3
- Particularly helpful if you have high rT3

Compounded T4/T3:

- Customized ratios of T4 and T3
- Can be slow-release
- Allows personalization

Getting Your Dose Right for Hair Regrowth
The goal: Optimal levels, not just "in range"

Optimal ranges for hair regrowth:

- TSH: **0.5-2.0 mIU/L** (some do best at 1.0 or below)
- Free T4: **Mid to upper range**
- Free T3: **Upper half to upper third of range**
- Reverse T3: **<15 ng/dL**

Dosing tips:

- Start low and go slow to avoid symptoms
- Retest labs 6-8 weeks after any dose change
- Dose based on symptoms AND labs, not just labs
- If T3 is low despite good T4, consider adding T3 medication
- Hair improvement lags behind symptom improvement by 3-6 months

Taking medication correctly:

- First thing in the morning on empty stomach
- Wait 30-60 minutes before eating or drinking (water is ok)
- Wait 4 hours before iron, calcium, or antioxidants
- Be consistent with timing
- Don't take with coffee (can reduce absorption)

NATURAL THYROID SUPPORT

Selenium:
Critical for T4 to T3 conversion and reducing thyroid antibodies in Hashimoto's.
Dose: 200 mcg daily Warning: Don't exceed 400 mcg daily. Toxic at high doses.
Food sources: 2-3 Brazil nuts daily provides adequate selenium Evidence: Studies show selenium reduces TPO antibodies in Hashimoto's by up to 40%.[19]

Zinc:
Required for thyroid hormone production and conversion.
Dose: 15-30 mg daily Warning: High doses deplete copper. Don't exceed 40 mg without testing. Take with food to avoid nausea.

Iodine:
Use with caution. While iodine is necessary for thyroid hormone production, excess iodine can worsen Hashimoto's or Graves.
Recommendation:

- Get tested before supplementing
- Most people get enough from diet (iodized salt, seafood, dairy)
- High-dose iodine (>1,000 mcg) can trigger or worsen Hashimoto's[20]
- If supplementing, stay around no more than 150 mcg daily

Vitamin D:
Low vitamin D is associated with Hashimoto's and autoimmune conditions.
Dose: 2,000-5,000 IU daily (adjust based on testing) Goal: 50-80 ng/mL

Iron:
Required for thyroid hormone production. Low iron reduces T4 to T3 conversion.
Dose: 25-50 mg daily if deficient Take with vitamin C, away from thyroid medication.
ONLY take if deficient/anemic, test levels first, don’t forget to look at ferritin levels.

Adaptogenic Herbs:
Can support thyroid function and reduce stress.

- Ashwagandha: May increase T3 and T4 in subclinical hypothyroidism (300-600 mg daily)[21] Warning: May worsen hyperthyroidism. Use with practitioner guidance ONLY, as it can tank your adrenals.
- Rhodiola: Supports stress response and energy
- Holy basil: Reduces cortisol and stress

A HASHIMOTO'S & GRAVES SPECIFIC PROTOCOL

1. Eliminate gluten (at least 3-6 months): Molecular mimicry between gluten and thyroid tissue can trigger immune attacks.[22]

2. Heal the gut:

- Autoimmune Protocol or Anti-inflammatory diet 3-6 months
- Leaky gut contributes to autoimmunity
- Address dysbiosis and inflammation
- Support with probiotics, L-glutamine, bone broth
- Comprehensive stool test *neccessary step to find pathogens, gut will struggle to heal with active infection*

3. Reduce thyroid antibodies:

- Selenium: 200 mcg daily + myoinositol
- Vitamin D optimization
- Omega-3s for inflammation
- Stress management

4. Identify and remove triggers:

- Food sensitivities (gluten, dairy, soy, corn are common)
- Toxins (especially endocrine disruptors)
- Chronic infections
- Heavy metals

5. Support immune regulation & liver support:

- Low-dose naltrexone (LDN) - discuss with doctor
- Vitamin D
- Curcumin
- NAC, Glutathione, Milk Thistle - can all support the liver & detox
- Manage stress aggressively

<u>When Hair Should Start Improving</u>

Timeline after optimizing thyroid levels:

- Weeks 1-4: TSH, T3, T4 levels normalize on labs
- Weeks 4-12: Energy, mood, and other symptoms improve
- Months 3-4: Shedding begins to slow
- Months 4-6: Baby hairs appear (new growth)
- Months 6-12: Noticeable improvement in density
- Months 12-18: Continued filling in and strengthening

Important: If your thyroid is optimized but hair isn't improving by 6 months, look for other root causes (nutrient deficiencies, inflammation, other hormones).

THYROID + OTHER HORMONES

Your thyroid doesn't operate in isolation, it's deeply connected to your entire endocrine system. Disruptions in estrogen, cortisol, insulin, or other hormones can interfere with thyroid function and hair health. If you're experiencing hair loss and thyroid symptoms, zoom out. Full recovery often requires addressing multiple hormone systems together, not just TSH or T3. Functional testing and a root-cause approach can reveal the interconnections that labs alone might miss.

Estrogen & Progesterone

- Estrogen increases thyroid binding globulin (TBG), which can reduce free (active) thyroid hormone.
- Progesterone supports TPO activity and helps regulate T4 to T3 conversion.
- Low progesterone (common in stress, perimenopause, and post-birth control) may worsen symptoms.
- Hormonal birth control can lower free thyroid hormone and contribute to nutrient depletions (like zinc, B6, and magnesium).

Cortisol (Stress Hormone)

- Chronic stress and high cortisol slow T4-to-T3 conversion.
- Cortisol increases reverse T3, which blocks thyroid hormone at the receptor level.
- Adrenal dysregulation can suppress TSH, making labs look "normal" even when symptoms persist.
- Cortisol also increases nutrient demand and inflammatory signaling, both of which affect the scalp.

Insulin (Blood Sugar Regulation)

- Insulin resistance interferes with thyroid hormone conversion.
- Blood sugar swings can trigger cortisol spikes and impact hormonal balance.
- PCOS and metabolic syndrome often co-exist with thyroid dysfunction and contribute to hair thinning.

Other hormones

- DHEA & Testosterone: High androgens can trigger androgenic hair loss, even if thyroid is stable.
- Melatonin: Low levels may disrupt circadian rhythms and TSH signaling.
- Leptin: Impaired leptin signaling (common in under-eating or inflammation) can suppress the hypothalamic-pituitary-thyroid (HPT) axis.

CHAPTER 4: YOUR ROOT CAUSE INVESTIGATION

Don't accept "everything's normal." Get copies of your results and compare to optimal functional ranges, not just standard ranges. Here is a list of essential labs to keep an eye on.

Complete Thyroid Panel:

- TSH: 0.5-2.0 mIU/L (optimal)
- Free T4: mid to upper range
- Free T3: upper half to upper third of range
- Reverse T3: <15 ng/dL
- TPO antibodies: <9 IU/mL
- TG antibodies: <4 IU/mL

Iron Status:

- Ferritin: 70-100 ng/mL (optimal for hair)
- Serum iron: 90-110 mcg/dL
- TIBC: 250-350 mcg/dL
- Transferrin saturation: 25-35%

Hormones:

For menstruating women (test day 19-21 of cycle):

- Estradiol: 50-150 pg/mL (luteal phase)
- Progesterone: 10-25 ng/mL (luteal phase)
- Testosterone (total): 15-70 ng/dL
- Testosterone (free): 0.3-1.9 ng/dL
- DHEA-S: 35-430 mcg/dL
- Sex Hormone Binding Globulin (SHBG): 25-90 nmol/L

For perimenopausal/menopausal women:

- FSH: >25 mIU/mL suggests menopause
- Estradiol: <30 pg/mL suggests menopause
- Consider DUTCH test for comprehensive hormone metabolites

Cortisol:

- 4-point salivary cortisol (ideal):
  - Morning (8 AM): 13-24 nM
  - Noon: 5-10 nM
  - Evening (4 PM): 3-8 nM
  - Night (midnight): 1-3 nM
- Serum cortisol (morning): 10-20 mcg/dL (not a very accurate marker)

CHAPTER 4: YOUR ROOT CAUSE INVESTIGATION

Metabolic Markers:

- Fasting insulin: <5 mIU/L (optimal)
- Fasting glucose: 70-85 mg/dL (optimal)
- Hemoglobin A1c: <5.3% (optimal)
- HOMA-IR: <1.0 (optimal)

Nutrients:

- Vitamin D: 50-80 ng/mL
- B12: >500 pg/mL (optimal >600)
- Folate (serum): >20 ng/mL
- Zinc: 90-110 mcg/dL
- RBC Magnesium: 5.0-6.5 mg/dL (more accurate than serum)
- Copper: 70-140 mcg/dL (check if supplementing zinc)

Inflammation:

- hsCRP (high-sensitivity C-reactive protein): <1.0 mg/L (optimal <0.5)
- Homocysteine: <8 µmol/L (optimal <7)
- ESR (erythrocyte sedimentation rate): <20 mm/hr

Additional Tests to Consider:

If suspected autoimmune issues:

- ANA (antinuclear antibodies)
- Celiac panel (especially if Hashimoto's/Graves)
- Rheumatoid factor

Advanced Functional Medicine Lab Testing

While standard labs are important, functional medicine testing gives you a much deeper understanding of what's happening in your body. These tests often reveal hidden imbalances that conventional testing misses, and these hidden issues are frequently the reason your hair isn't recovering despite "normal" labs.

Important note: I can help you navigate which functional tests are right for your situation, how to order them (many can be ordered directly without a doctor), and how to interpret your results. You don't have to figure this out alone.

FUNCTIONAL LABS: STOOL

Comprehensive Stool Testing
Standard stool tests only look for parasites and blood. Comprehensive functional stool testing analyzes your entire gut ecosystem and digestive function.

In my experience and that of many clients I've worked with, sometimes they don't even have symptoms that they are aware of, but gut imbalances can be present which prevent them from absorbing nutrients from their food, and this causes nutrient deficiencies which cause hair loss, and many other issues in the body, like autoimmune flares.

My recommended tests:

- **GI Advanced Profile** (US BioTek): Comprehensive analysis of gut microbiome, digestion, inflammation, and immune function
- **Gut Zoomer** (Vibrant Wellness): Advanced microarray technology detecting bacteria, parasites, viruses, fungi, and intestinal health markers
- **GI-MAP + Zonulin** (Diagnostic Solutions): DNA-based analysis plus zonulin for leaky gut assessment

<u>What these tests reveal:</u>

- Beneficial bacteria levels (are you lacking key species like Lactobacillus, Bifidobacterium, Akkermansia?)
- Pathogenic bacteria, parasites, and yeast overgrowth (H. pylori, Blastocystis, Candida, etc.)
- Digestive enzyme function and pancreatic elastase (are you digesting fats, proteins?)
- Inflammation markers (calprotectin, lactoferrin, eosinophil protein X)
- Intestinal permeability markers (zonulin is the "gatekeeper" of your gut lining, and secretory IgA can give us hints too)
- Short-chain fatty acid production (butyrate, acetate, propionate)
- Immune function markers (secretory IgA)
- Fat malabsorption (which affects hormone production)
- Occult blood

FUNCTIONAL LABS: STOOL

Why does this matter for hair loss?
If you can't digest and absorb nutrients properly, no amount of supplementation will fully help. Gut infections and dysbiosis create systemic inflammation that directly impacts hair follicles. In my own journey, I discovered H. pylori, bacterial overgrowth, dysbiosis, parasites, Candida, and leaky gut, all of which were preventing me from absorbing the nutrients my hair desperately needed, and it was causing my thyroid and eyes to flare significantly.

Studies show that people with alopecia areata have significantly altered gut microbiomes, with reduced beneficial bacteria and increased pathogenic species.[23]

When to test:

- You have digestive symptoms (bloating, gas, constipation, diarrhea, reflux)
- You've been on multiple rounds of antibiotics
- You have nutrient deficiencies that aren't responding to supplementation (this was me!)
- You have autoimmune conditions (including Hashimoto's or Graves')
- You suspect food sensitivities
- Hair loss despite optimized thyroid and nutrients
- History of food poisoning or travel to areas with parasites

Cost: $350-500

How to order: Many can be ordered directly through Vibrant Wellness (often has discounts), Rupa Health, or through practitioners like myself.

My experience: Finding and treating my gut infections was the turning point in my healing journey. Once I addressed H. pylori, parasites, dysbiosis, Candida, and healed my leaky gut, my nutrient levels finally stabilized, my energy returned, and my hair started growing back.

FUNCTIONAL LABS: HORMONES

DUTCH Test (Dried Urine Test for Comprehensive Hormones)
This is the gold standard for comprehensive hormone testing. Unlike blood tests that give you a single snapshot, DUTCH testing shows the complete picture.

What it measures:

- Complete estrogen metabolism pathways (not just total estrogen)
- Progesterone and its metabolites
- Testosterone and DHEA pathways
- Free cortisol throughout the day (4-5 points)
- Cortisol awakening response
- Melatonin (sleep hormone)
- Organic acid markers for nutritional needs (B vitamins, glutathione, dopamine, etc.)
- Neurotransmitter metabolites

Why this is superior to blood testing:

- Shows how you're metabolizing hormones (are you making protective or harmful estrogen metabolites?)
- Reveals patterns blood tests miss
- Shows free (active) hormone levels, not just total
- Captures cortisol rhythm throughout the day (crucial for understanding stress response)
- Can identify detoxification problems
- Non-invasive (urine collection at home)

Specific insights for hair loss:

Estrogen metabolism pathways:

- 2-OH estrogen: protective pathway (anti-inflammatory)
- 4-OH estrogen: inflammatory, potentially harmful, oxidative damage
- 16-OH estrogen: proliferative pathway
- If you're shunting to harmful pathways (4-OH, 16-OH dominant), it increases inflammation and can increase DHT production

FUNCTIONAL LABS: HORMONES

Progesterone/Estrogen balance:

- Low progesterone relative to estrogen causes hair loss
- Common in perimenopause and PCOS
- Progesterone is protective and supports hair growth

Androgen metabolism:

- Shows if you're converting testosterone to DHT (the most potent androgen that shrinks follicles)
- 5-alpha reductase activity (the enzyme that makes DHT)
- If DHT is elevated, this is a direct cause of androgenic hair loss

Cortisol patterns:

- High cortisol throughout the day (wired and stressed)
- Low cortisol throughout the day (exhausted/burned out—adrenal dysfunction)
- Reversed pattern (low morning, high evening—circadian disruption)
- Any dysregulation disrupts hair growth cycle

When to test:

- Hair loss with hormonal symptoms
- Perimenopause or menopause
- PCOS
- Post-birth control pill hair loss
- History of chronic stress
- Sleep problems
- Unexplained fatigue despite normal thyroid

Cost: $300-400

How to order: Through Precision Analytical (DUTCH), Rupa Health, or functional practitioners like myself

Alternative: Hormone Zoomer (Vibrant Wellness): Comprehensive hormone panel using blood spot technology. Often more affordable with Vibrant's discounts. Measures sex hormones, cortisol, and metabolites.

I can help you interpret: Which pathways are problematic, what supplements support better metabolism, when hormones need medical intervention, and how your cortisol patterns are affecting your hair.

FUNCTIONAL LABS: NUTRIENTS

Micronutrient Testing
Goes beyond standard nutrient tests to measure intracellular (inside the cell) levels and functional status.
My recommended tests:

- Metabolomix+ (Genova Diagnostics): Combines organic acids with nutrient analysis for comprehensive metabolic and nutritional assessment
- NutrEval (Genova Diagnostics): In-depth evaluation of nutritional status, including vitamins, minerals, amino acids, fatty acids, oxidative stress markers, and metabolic function
- Micronutrient Panel (Vibrant Wellness): Comprehensive intracellular and extracellular nutrient analysis (often has discounts available)

What these tests reveal:

- Functional nutrient status (not just blood levels, but what's actually inside your cells)
- Intracellular levels of vitamins, minerals, antioxidants, amino acids
- Metabolic dysfunction (mitochondrial issues, methylation problems)
- Oxidative stress and antioxidant capacity
- Essential fatty acid balance
- Specific nutrient needs based on YOUR body's metabolism

Why serum tests can be misleading: You can have "normal" serum B12 but be functionally deficient at the cellular level where it matters. This is exactly what happened to me—my B12 looked "fine" on standard tests, but I was deficient where it counted.

When to test:

- Hair loss despite "normal" standard nutrient labs
- History of poor diet or malabsorption
- Want to personalize supplementation (no guessing)
- Multiple deficiency symptoms
- Fatigue that doesn't improve despite interventions
- After treating gut infections (to see what you're actually absorbing now)

Cost: $300-450

My experience: After healing my gut, I used comprehensive micronutrient testing to fine-tune my supplementation. It showed me exactly which nutrients I needed and in what amounts, no more guessing or wasting money on supplements I didn't need.

FOOD SENSITIVITIES

Food Sensitivity Testing
Important distinction: This is NOT the same as allergy testing (IgE). Food sensitivities create delayed immune reactions (IgG, IgA) that cause inflammation.

Recommended options:

- Food Sensitivity Panel (Vibrant Wellness): Tests IgG and IgA reactions to 90+ foods. Often has discounts. Includes gut barrier assessment (zonulin, lipopolysaccharides, occludin).
- MRT (Mediator Release Test): Measures inflammatory response to 170+ foods and chemicals
- Cyrex Array 3 & 4: Gluten reactivity and cross-reactivity (foods that mimic gluten)

What it shows:

- Which foods trigger your immune system and create inflammation
- Hidden inflammatory triggers you eat daily
- Cross-reactive foods (foods that your body confuses with gluten)
- Gut barrier function (Vibrant's panel includes this)

Why this matters: Chronic food-triggered inflammation keeps your body in a state that prevents healing. Many people have sensitivities to "healthy" foods they eat daily, like eggs, almonds, or even kale. You may be reacting to foods you thought were helping you heal.

When to test:

- Gut symptoms despite dietary changes
- Autoimmune conditions (especially Hashimoto's or Graves')
- Elevated inflammatory markers (hsCRP)
- Suspected leaky gut
- Not responding to anti-inflammatory protocols
- Want to eliminate guesswork

Cost: $300-500

Note: Elimination diets can be as effective as testing and are free. I can guide you through a proper elimination protocol. But testing takes the guesswork out and saves time. Sometimes the reactions may not be so obvious.

TOXIN TESTING

Toxin Testing
Environmental toxins disrupt thyroid function, hormone balance, and create oxidative stress that damages hair follicles.

My recommended tests:

- Total Tox Burden (Vibrant Wellness): Comprehensive assessment of environmental toxins including heavy metals, mycotoxins, and environmental pollutants. Often has discounts.
- MycoTOX Profile (Vibrant Wellness or Great Plains Lab): Urine test for mold toxicity (mycotoxins from water damage, moldy environments)
- Heavy Metals Panel (Doctor's Data or Vibrant): Urine test for mercury, lead, arsenic, cadmium, aluminum, etc.

What these tests reveal:

- Heavy metal burden (mercury from amalgams or fish, lead from old homes, arsenic from water/rice)
- Mycotoxin exposure (from mold in home or workplace)
- Environmental chemical exposure (pesticides, plastics, BPA, phthalates)
- Your body's toxic load and detoxification capacity

When to test:

- History of dental amalgams (mercury)
- Eat large fish regularly (mercury, PCBs)
- Old home with lead paint or pipes
- Water damage or mold exposure in home/workplace
- Unexplained neurological symptoms
- Multiple chemical sensitivities
- Not responding to other treatments despite doing everything right

Cost: $300-600 depending on test

I also usually choose vibrant for these, they offer bundled panels that test multiple toxin categories at once, often with discounted pricing, making comprehensive testing more accessible. Metabolomix is a good one too.

HOW I CAN HELP YOU NAVIGATE TESTING

The challenge: Functional testing can be expensive and overwhelming. You don't want to waste money on tests you don't need, and you need help understanding what results mean and what to do about them. I've been where you are. I know the frustration of being told "everything's normal" when you're clearly not okay. I felt the overwhelm of trying to interpret complex lab results. I know the fear of wasting money on the wrong tests or supplements.

How I support you:

- Determine which tests are right for YOU:Based on your symptoms, history, and budget
- Create a testing priority list (start here, add these later if needed)
- Avoid unnecessary or redundant testing
- Help you choose between similar tests (which stool test is best for your situation?)
-

Help you order tests:

- Functional tests can be ordered through a functional provider
- Guide you to most affordable, high-quality options
- Connect you with Vibrant Wellness discount options
- Explain how to collect samples properly (and troubleshoot if issues arise)

Interpret your results:Translate medical jargon into plain language you can understand

- Show you which findings are most significant for YOUR hair loss
- Compare to optimal functional ranges, not just "normal"
- Explain the "why" behind abnormal findings
- Connect the dots between different test results

Create your personalized protocol:

- Based on your specific test results and unique situation
- Prioritize interventions (tackle this first, then this, then this)
- Recommend specific supplements, dosages, brands, and timing
- Suggest dietary and lifestyle changes specific to your results
- Adjust protocol as you retest and progress

Empower you to work with your doctor:

- Provide research and studies to support your discussions
- Help you advocate for appropriate treatment
- Suggest questions to ask
- Bridge the gap between conventional and functional medicine
- Teach you how to speak up when being dismissed

Ongoing support:

- Answer questions as they come up
- Help you troubleshoot when something isn't working
- Celebrate wins with you
- Adjust protocols based on how you're feeling
- Be your partner in this journey

Lets work together: apply.thyroidloveclub.com

CHAPTER 5: YOUR PERSONALIZED RECOVERY PROTOCOL

Here's how to address each root cause.

Address Hormone Balance
If Thyroid Issues are Identified (See Chapter 3 for complete details)
Work with a knowledgeable provider:

- Functional medicine doctor, integrative endocrinologist, or naturopath
- Medication may be needed (don't fear it, embrace it as a tool)
- Optimize to functional ranges, not just "normal"
- Consider T3 if conversion is impaired (low Free T3, high Reverse T3)

Support thyroid function naturally:
Selenium:
Dose: 200 mcg daily
Best form: Selenomethionine or 2-3 Brazil nuts daily
Warning: Don't exceed 400 mcg daily. Toxic at high doses (>900 mcg). Can cause hair loss, brittle nails, garlic breath odor, nausea.
Evidence: Reduces TPO antibodies by up to 40% in Hashimoto's patients over 6 months. [19]

Zinc:
Dose: 15-30 mg daily (as zinc picolinate, citrate, or glycinate)
Warning: Don't exceed 40 mg daily without testing. High doses deplete copper and can impair immune function. Take with food to prevent nausea. Monitor: Check zinc and copper levels if supplementing long-term.

Vitamin D:
Dose: 2,000-5,000 IU daily (adjust based on testing)
Best form: Vitamin D3 (cholecalciferol) with K2 for better absorption
Retest: Every 3 months until optimal (50-80 ng/mL), then every 6 months
Warning: Can be toxic at very high doses (>10,000 IU daily long-term).
Always test and dose accordingly.

Iron (if deficient ONLY):
Dose: 25-50 mg elemental iron daily
Best forms: Iron bisglycinate (gentle on stomach), ferrous sulfate (more potent but can cause constipation)
Take with: 500-1000 mg vitamin C for better absorption
Avoid taking with: Thyroid medication (wait 4 hours), calcium, coffee, tea
Warning: Can cause constipation, nausea, dark stools (normal).
Don't supplement without testing (excess iron is harmful).
Retest: Ferritin every 8-12 weeks

IF PERIMENOPAUSE/MENOPAUSE IS THE ISSUE

Hormone Replacement Therapy (HRT):
Consider bioidentical hormones with a knowledgeable provider:

- Estradiol (patch, cream, or pill)
- Progesterone (oral micronized)
- Testosterone (cream or pellet) if deficient

Recent studies show HRT is safe and beneficial for most women, especially started before age 60 or within 10 years of menopause.[24]

Natural support:
DIM (Diindolylmethane):
Dose: 100-200 mg daily
Purpose: Supports healthy estrogen metabolism (shifts to 2-OH pathway)
Source: Derived from cruciferous vegetables
Best taken with food

Vitamin E:
Dose: 400-800 IU daily (mixed tocopherols)
Evidence: May reduce hot flashes and support skin and hair health[25]
Warning: High doses can increase bleeding risk. Avoid if on blood thinners.

Black Cohosh:
Dose: 20-40 mg twice daily (standardized extract)
Purpose: May reduce menopausal symptoms including hot flashes
Warning: Not for people with liver disease. Use under practitioner guidance.

Maca root:
Dose: 1,500-3,000 mg daily
Evidence: May support hormone balance and libido in perimenopausal women[26]
Start low: Can be energizing; may affect sleep if taken too late in day. Can cause increase in androgenic symptoms.

Adaptogenic herbs:

- Shatavari: Women's reproductive tonic (500-1,000 mg twice daily)
- Rhodiola: Energy and stress support (200-400 mg morning)

IF PCOS/ANDROGEN EXCESS

Balance blood sugar (critical):
See section below for complete protocol

Inositol:
Dose: 2,000-4,000 mg myo-inositol + 50-100 mg D-chiro-inositol daily (40:1 ratio)
Evidence: Improves insulin sensitivity, reduces androgens, improves ovulation in PCOS[27]
Best taken: Divided doses with meals
Can take weeks to several months to see full effects

Spearmint tea:
Dose: 2 cups daily (brewed from 1 tsp dried spearmint per cup)
Evidence: Reduces free testosterone and increases LH/FSH in women with PCOS after 30 days[28]
Side effects: Generally very safe

Saw Palmetto:
Dose: 160 mg twice daily (standardized extract with 85-95% fatty acids)
Purpose: Blocks 5-alpha reductase (enzyme that converts testosterone to DHT)
Evidence: Used for androgenic hair loss with some success[29]
Warning: May affect hormones; use under practitioner guidance.
Not for use during pregnancy.

Berberine:
Dose: 500 mg three times daily with meals (1,500 mg total)
Purpose: Improves insulin sensitivity, reduces androgens, supports weight loss
Evidence: As effective as metformin for PCOS in some studies[30]
Warning: Can cause digestive upset.
Start with one dose daily and increase gradually.
May lower blood sugar (monitor if diabetic).

N-Acetyl Cysteine (NAC):
Dose: 600 mg twice daily (1,200 mg total)
Purpose: Improves insulin sensitivity, reduces androgens, antioxidant
Evidence: Shown to improve PCOS symptoms and insulin resistance[31]

IF CORTISOL/STRESS ISSUES

Lifestyle (non-negotiable):

- Daily stress management practice (meditation, breathwork, gentle yoga)
- 7-9 hours sleep nightly
- Gentle exercise (not HIIT or excessive cardio, which raises cortisol)
- Time in nature
- Boundaries and saying no

Adaptogenic herbs (choose 1-2):

Ashwagandha:
Dose: 300-600 mg daily (standardized to 5% withanolides)
Best form: KSM-66 or Sensoril (studied forms)
Purpose: Reduces cortisol, improves stress resilience, may increase thyroid hormones
Evidence: Reduces cortisol by up to 30% in chronically stressed adults[32]
Warning: May increase thyroid hormone (good for hypothyroid, avoid in hyperthyroid). Caution if sensitivity to nightshades. Caution if LOW cortisol, this can tank your adrenals. Can be sedating (take at night if this occurs). Take for: 8-12 weeks minimum.

Rhodiola rosea:
Dose: 200-400 mg daily (3% rosavins, 1% salidroside)
Best taken: Morning (can be energizing)
Purpose: Reduces fatigue, improves mental performance, modulates stress response
Evidence: Reduces stress symptoms and cortisol in burnout patients[33]
Start low if sensitive to stimulation

Holy Basil (Tulsi):
Dose: 300-600 mg twice daily (or 2-3 cups tea daily)
Purpose: Reduces cortisol, calming, reduces anxiety
Generally very safe and well-tolerated

Phosphatidylserine:
Dose: 300-400 mg daily
Best taken: Evening
Purpose: Blunts cortisol response, especially elevated nighttime cortisol
Evidence: Reduces cortisol response to stress[34]

Magnesium:
Dose: 300-500 mg daily (glycinate, threonate, or citrate forms)
Best taken: Evening (promotes sleep)
Purpose: Calms nervous system, improves sleep, depleted by stress
Warning: Citrate form can cause loose stools (use as natural laxative if constipated).
Start with 150-200 mg and increase up to 400-600mg.

OPTIMIZE NUTRITION

Protein at every meal:
Target: 25-40g per meal (100-150g total daily for most women)
Why: Hair is 95% protein. Inadequate protein puts body in conservation mode.
Sources: Eggs, fish, poultry, grass-fed meat, legumes, Greek yogurt, collagen

Healthy fats:
Why: Hormone production, cell membrane health, nutrient absorption, inflammation reduction
Sources: Avocado, olive oil, nuts, seeds, fatty fish, coconut oil, grass-fed butter
Target: 20-30% of daily calories

Vegetables (especially cruciferous and leafy greens):
Target: 5-9 servings daily, wide variety of colors
Focus on: Leafy greens, cruciferous vegetables (broccoli, cauliflower, Brussels sprouts), colorful vegetables
Why: Fiber, vitamins, minerals, antioxidants, supports detoxification

Complex carbs over refined:
Choose: Sweet potatoes, quinoa, oats, wild rice, legumes
Avoid: White flour, white rice, sugar, processed foods
Pair carbs with protein and fat to stabilize blood sugar

Hydration:
Target: Half your body weight in ounces daily (150 lb person = 75 oz water)
Add: Pinch of sea salt to water for electrolytes

Elimination Diet Protocol (if suspected food sensitivities)
Remove common inflammatory foods for 30 days minimum (60-90 days is better):

- Gluten (wheat, barley, rye, and all products containing them)
- Dairy (milk, cheese, yogurt, butter; ghee is often tolerated)
- Soy (tofu, soy milk, soy sauce, processed foods with soy)
- Corn (corn, corn oil, high fructose corn syrup)
- Eggs (sometimes, if suspected)
- Nightshades (tomatoes, peppers, eggplant, potatoes; if autoimmune)
- Sugar and artificial sweeteners
- Alcohol

Reintroduction protocol: Add one food back every 3 days. Eat it 2-3 times in one day, then remove it and watch for reactions for 2 days.
Track: Energy, digestion, skin, hair shedding, mood, sleep, inflammation, any symptoms
Note for Hashimoto's: Gluten elimination is particularly important. Studies show molecular mimicry between gluten proteins and thyroid tissue.[22]

Get more information about the AIP (Autoimmune Protocol/Anti-inflammatory Protocol) by downloading my free guide here: diet.thyroidloveclub.com

STRATEGIC SUPPLEMENTATION

Always test before supplementing when possible, and work with a practitioner for personalized dosing.

Multivitamin (foundation):
Choose: High-quality, methylated B vitamins, whole food-based
Brands: Thorne Basic Nutrients 2/Day, Pure Encapsulations O.N.E. Multivitamin, Seeking Health Optimal Multivitamin
Take with food

Omega-3 fatty acids:
Dose: 2-3g combined EPA/DHA daily
Best forms: Molecularly distilled fish oil, cod liver oil, algae-based (vegan)
Look for: Third-party tested for purity (heavy metals, PCBs)
Take with meals for better absorption
Evidence: Reduces inflammation, improves hair density[10]

Collagen peptides:
Dose: 10-20g daily
Best types: Grass-fed bovine collagen or marine collagen
How: Mix in coffee, smoothies, water
Evidence: Improves hair thickness and growth in women with thinning hair[35] A
dd vitamin C for better collagen synthesis

Biotin:
Dose: 2,500-10,000 mcg daily
Evidence: Improves hair strength when deficient; mixed evidence for supplementation when not deficient[8]
Warning: Must stop 72 hours before lab work (interferes with test results, especially thyroid)
Best combined with zinc and other B vitamins

B-Complex (methylated):
Why: B vitamins are depleted by stress and needed for cell division, energy production
Look for: Methylated forms (methylcobalamin, methylfolate) for better absorption, especially if MTHFR gene variants
Typical dose: One capsule daily with food
Can cause nausea if taken on empty stomach

Vitamin C:
Dose: 1,000-2,000 mg daily (divided doses)
Purpose: Iron absorption, collagen synthesis, antioxidant, stress support
Best forms: Buffered vitamin C, liposomal, or whole food vitamin C
Warning: Can cause loose stools at high doses; reduce if this occurs

HEAL YOUR GUT: SUPPORT DIGESTION

Gut health is fundamental to nutrient absorption, immune function, and reducing inflammation.

Hydrochloric Acid (HCl) and Digestive Enzymes:
When: If you have low stomach acid (bloating, feeling full quickly, undigested food in stool) Dose: Start with 1 capsule of betaine HCl with pepsin at the beginning of protein-containing meals
Gradually increase: Until you feel warmth in stomach, then reduce by one capsule (that's your dose)
Brands: Thorne Betaine HCl & Pepsin, Pure Encapsulations Betaine HCl
Warning: Don't use if you have ulcers or take NSAIDs regularly

Digestive enzymes:
Dose: 1-2 capsules with each meal Look for:
Broad-spectrum including protease, lipase, amylase
Particularly helpful if: History of gallbladder removal, pancreatic insufficiency, or bloating after meals

Apple cider vinegar or Digestive Bitters:
Dose: 1-2 tablespoons in water before meals
Purpose: Stimulates stomach acid production naturally
Dilute well to protect tooth enamel

Quick 3-Minute Stomach Acid Test
Wondering if low stomach acid is part of the problem? Try this at-home test:
The Baking Soda Test

1. Mix ¼ tsp of baking soda in 4–6 oz of cold water.
2. Drink first thing in the morning before food or drink.
3. Start timing immediately.

What to expect:

- You should burp within 2–3 minutes if stomach acid is sufficient.
- If it takes longer than 5 minutes (or not at all), it may suggest low stomach acid.

Note: This is a simple, non-diagnostic tool, best used alongside symptoms and clinical testing. If in doubt, consider working with a practitioner or trying the Betaine HCl challenge with caution.

HEAL YOUR GUT: GUT LINING

L-Glutamine
Dose: 5–10 g daily (powder form)
Best taken: On an empty stomach—first thing in the morning and/or before bed
Purpose: Primary fuel source for intestinal cells; supports repair of leaky gut and gut lining integrity
Evidence: Shown to reduce intestinal permeability and support recovery in inflammatory and autoimmune conditions
Duration: 4–12 weeks minimum; longer if dealing with chronic inflammation or autoimmune activity

Zinc-Carnosine
Dose: 75–150 mg daily
Purpose: Heals gut lining, calms inflammation, and strengthens tight junctions between gut cells
Evidence: Clinical studies show improvements in gastric mucosa and intestinal barrier repair
Best taken: On an empty stomach for enhanced absorption

Bone Broth
Amount: 1–2 cups daily
Why: Rich in collagen, gelatin, glutamine, and trace minerals to support gut repair and connective tissue health
Make or buy: Choose high-quality, organic, grass-fed or pasture-raised sources
Tips: Sip it warm with sea salt, use as a soup base, or blend into savory smoothies

Aloe Vera Juice
Dose: 1–2 oz twice daily
Purpose: Soothes and heals the gut lining, reduces inflammation, and supports mucosal regeneration
Choose: Inner leaf only (avoid whole leaf), preservative-free formulas
Best taken: On an empty stomach for maximum benefit

Deglycyrrhizinated Licorice (DGL)
Dose: 500–1,000 mg before meals
Purpose: Protects and supports the mucosal lining of the digestive tract
Form: Chewable tablets preferred for direct action on esophageal and stomach tissue
Note: Deglycyrrhizinated means it's safe for long-term use without affecting blood pressure

Slippery Elm
Dose: 400–500 mg, 3–4x daily or as a tea
Purpose: Coats and soothes irritated digestive tissue; helps calm inflammation and reduce discomfort
Best taken: Between meals or before bed to avoid interfering with nutrient absorption

Pro Tip: These gut-repair nutrients work best when combined with proper stress management, blood sugar balance, and removal of triggers (like food sensitivities, toxins, or pathogens). Think of this as rebuilding your foundation from the inside out :)

HEAL YOUR GUT: MICROBIOME

A balanced, diverse microbiome supports digestion, hormone metabolism, inflammation regulation, and even hair growth. But microbiome support should be personalized, especially when symptoms like bloating, fatigue, or loose stools are present.

Probiotics

- Dose: 25–100 billion CFUs daily (multi-strain formula)
- Best strains for hair/hormones: Lactobacillus and Bifidobacterium species
- Brands: Visbiome, Seed, Megasporebiotic, Klaire Labs Ther-Biotic Complete
- Timing: Take on an empty stomach or with meals depending on brand instructions
- Tip: Rotate strains every 2–3 months to promote microbial diversity

⚠️ Probiotic Caution:
If you have bloating, IBS symptoms, brain fog, or frequent flares, consider testing for SIBO (Small Intestinal Bacterial Overgrowth) before starting probiotics.

- Some traditional strains (Lactobacillus, Bifidobacterium) may exacerbate symptoms in SIBO cases.
- Spore-based probiotics (like Bacillus subtilis) are often better tolerated with SIBO or histamine intolerance, and may support microbial balance without feeding overgrowth.
- Functional stool tests (GI-MAP, Gut Zoomer) or SIBO breath tests can guide your protocol.

Probiotic-Rich Foods

Start small and monitor how you feel—especially if you have histamine intolerance or active gut issues.

- Sauerkraut: 2–4 tablespoons daily
- Kimchi
- Kefir (coconut or dairy, if tolerated)
- Kombucha (choose low-sugar varieties)
- Raw fermented vegetables

Prebiotics (Feed Good Bacteria)

- Dose: 5–10 g daily (build up slowly)
- Food sources: Garlic, onions, leeks, asparagus, apples, green bananas, Jerusalem artichoke
- Supplements: Inulin, PHGG (partially hydrolyzed guar gum), or acacia fiber
- Tip: Start low and increase gradually, may cause gas or bloating at first

Avoid Microbiome Disruptors

- Excess sugar (feeds pathogenic bacteria and yeast)
- Artificial sweeteners (can alter gut flora)
- Frequent or unnecessary antibiotics
- Chronic stress (impairs vagus nerve signaling and gut motility)

BALANCE BLOOD SUGAR

Dietary Strategies:

- Never skip breakfast (eat within 1 hour of waking)
- Eat protein and fat with every meal and snack
- Avoid "naked carbs" (always pair with protein/fat)
- Eat every 3-4 hours to prevent blood sugar crashes
- Reduce/eliminate refined sugars and flours
- Choose low-glycemic carbs (sweet potato, quinoa, berries)
- Walk 10-15 minutes after meals (improves insulin sensitivity)

Meal structure example:

- Breakfast: 3 eggs + avocado + berries
- Snack: Apple with almond butter
- Lunch: Salmon salad with olive oil dressing + quinoa
- Snack: Hummus with vegetables
- Dinner: Grass-fed beef + roasted vegetables + small sweet potato

Supportive Supplements:

Berberine (covered above in PCOS):
Dose: 500 mg three times daily with meals
Evidence: Improves insulin sensitivity as effectively as metformin in some studies[30]

Chromium:
Dose: 200-1,000 mcg daily (chromium picolinate)
Purpose: Improves insulin function and glucose metabolism
Evidence: May improve insulin sensitivity and reduce cravings[38]
Best taken with meals

Alpha-Lipoic Acid (ALA):
Dose: 300-600 mg daily
Purpose: Improves insulin sensitivity, powerful antioxidant
Evidence: Reduces blood sugar and improves nerve function[39]
Best taken on empty stomach

Cinnamon:
Dose: 1-6g daily (1/2 to 1 teaspoon)
Purpose: Improves insulin sensitivity
Can add to food or take as supplement (Ceylon cinnamon preferred)

Magnesium:
Dose: 300-500 mg daily
Purpose: Required for insulin function; deficiency common in insulin resistance
Best forms for blood sugar: Magnesium glycinate or threonate

REDUCE INFLAMMATION

Chronic inflammation is a big driver of hair loss, autoimmune activity, and impaired nutrient delivery to hair follicles. These evidence-backed tools help calm the immune response and create a healthier internal environment for healing and regrowth.

Omega-3s (covered above)
EPA/DHA are potent anti-inflammatory fatty acids
Help reduce prostaglandins, calm immune activation, and support cellular membranes
Especially helpful for autoimmune thyroid conditions, skin, and scalp health

Curcumin
Dose: 500–1,000 mg twice daily
Form: Take with black pepper (piperine) or in a phytosome form (like Meriva) for enhanced absorption
Purpose: Potent anti-inflammatory and antioxidant; supports liver detox pathways and gut lining integrity
Evidence: Shown to reduce CRP, NF-kB, and other inflammatory cytokines [40]
Tips: Take with fat-containing meals for best absorption
Best brands: Meriva (phytosome), BCM-95, Thorne, Integrative Therapeutics

Quercetin
Dose: 500–1,000 mg daily
Purpose: Natural anti-inflammatory, mast cell stabilizer, and histamine regulator
Synergy: Combine with vitamin C for enhanced antioxidant and immune-modulating effects
May support gut integrity, immune tolerance, and reduce post-flare sensitivity

Resveratrol
Dose: 150–500 mg daily
Purpose: Antioxidant polyphenol that reduces inflammation, supports mitochondrial function, and promotes longevity signaling
Tips: Take with healthy fat for better absorption; look for trans-resveratrol form
Often combined with quercetin or curcumin in advanced protocols

SPM (Specialized Pro-Resolving Mediators)
Dose: Per product label (typically 1–2 capsules daily)
Purpose: Not just anti-inflammatory—SPMs actively resolve inflammation and restore tissue balance
Use for: Lingering or chronic inflammation that hasn't responded to conventional anti-inflammatories
Brand: Metagenics SPM Active (clinically studied, high-quality formulation)

Boswellia (Frankincense Extract)
Dose: 300–500 mg, 3x daily (standardized to 60–65% boswellic acids)
Purpose: Blocks 5-lipoxygenase (5-LOX), reducing inflammation in joints, gut, and respiratory system
Effect: Can take 2–4 weeks to see full benefits
Best for: Autoimmune pain, gut inflammation, and when NSAIDs aren't tolerated

Pro Tip: For best results, pair anti-inflammatory supplements with blood sugar balance, adequate sleep, and nervous system regulation—chronic stress is one of the biggest drivers of unresolved inflammation.

TOPICAL SUPPORT FOR HAIR

Topical therapies can enhance circulation, reduce inflammation, and support the hair growth cycle, especially when used alongside internal root cause work. Here are evidence-informed tools to support your scalp directly.

Rosemary Oil

- How to use: Mix 5–10 drops of rosemary essential oil with 1 tablespoon carrier oil (jojoba, coconut, or argan)
- Application: Massage into scalp, leave for at least 30 minutes (or overnight), wash out
- Frequency: 2–3 times weekly
- Evidence: As effective as 2% minoxidil for hair regrowth in one human study [41]

Peppermint Oil

- How to use: Mix 2–3 drops with 1 tablespoon carrier oil (highly concentrated)
- Application: Massage into scalp, leave 20–30 minutes, wash out
- Frequency: 1–2 times weekly
- Evidence: Promoted better hair growth than minoxidil in animal studies [42]
- Warning: Very stimulating—can cause tingling or irritation in sensitive scalps

Castor Oil

- How to use: Apply directly to scalp or mix with other oils
- Application: Massage in, leave overnight, wash out in the morning
- Frequency: 1–2 times weekly
- Why it helps: Rich in ricinoleic acid with anti-inflammatory and antimicrobial benefits; may support follicle integrity

Caffeine-Based Topicals

- Purpose: May increase circulation and reduce DHT impact at the follicle level
- How to use: Look for caffeine-containing shampoos or serums (e.g., Alpecin, Plantur 39)
- Evidence: Some studies show improved anagen duration and follicle stimulation

Scalp Massage

- Duration: 5–10 minutes daily
- Technique: Use fingertips (not nails) in slow, circular motions
- Evidence: One study showed increased thickness after 6 months of consistent 4-minute massages [43]
- Benefit: Enhances blood flow, reduces tension, supports lymphatic drainage

TOPICAL SUPPORT FOR HAIR

Topical Peptides

- What they are: Bioactive signaling molecules that promote hair follicle regeneration and growth
- Best-known peptide: Copper peptides (GHK-Cu)
  - Stimulate stem cells, collagen, and angiogenesis (blood vessel growth)
  - May reduce inflammation and prolong the anagen (growth) phase
- Other peptides: PTD-DBM, Valproic acid, CPT (copper tripeptide-1)
- How to use: Apply to clean, dry scalp 1–2 times daily; do not rinse
- Brands to look for: OS-1, iRestore Anti-Hair Loss Serum, The Ordinary Multi-Peptide Serum for Hair Density, or professional formulations (e.g., AnteAGE, HairStim, or compounded by dermatologist)
- Note: Often used alongside microneedling for enhanced penetration and results

Microneedling / Dermarolling

- Tool: 0.25–0.5 mm dermaroller or derma stamp
- Use: 1–2 times per week on clean scalp
- Why it helps: Promotes collagen, increases product absorption, and stimulates follicle repair
- Tip: Use in conjunction with rosemary oil, peptides, or growth factor serums
- Caution: Sanitize thoroughly and avoid use over active breakouts or infections

Red Light Therapy (LLLT)

- Devices: Laser caps, combs, or red/NIR LED panels
- Use: 3x/week for 15–30 minutes per session (per device instructions)
- Benefits: Stimulates mitochondria, increases ATP, and supports longer anagen phase
- Evidence: FDA-cleared for androgenic alopecia; emerging support for general thinning

Hair Care Practices

- Minimize heat styling (air dry when possible)
- Avoid tight hairstyles (buns, braids, ponytails)
- Use gentle, sulfate-free shampoos
- Don't overwash (2–3x/week is often enough)
- Pat hair dry, don't rub
- Use wide-tooth comb on wet hair, only with conditioner in
- Sleep on silk/satin pillowcases
- Avoid chemical treatments (bleach, perms, relaxers)
- Limit dry shampoo: it can clog follicles and trap sebum

IMPORTANT NOTE: Rule Out Seborrheic Dermatitis

If you're experiencing flaking, itching, oiliness, or inflammation at the scalp, make sure to rule out seborrheic dermatitis, a common inflammatory skin condition that can contribute to hair loss and worsen with the wrong products.

Avoid oils, shampoos, and serums unless they're labeled or verified as seb derm-safe, especially if you're flaring. Some natural ingredients (like coconut oil or certain essential oils) can make symptoms worse.

You can check product ingredients for safety using: sezia.co

MIND-BODY CONNECTION

Hair loss doesn't just affect how you look, it affects how you feel. And often, it reflects how you're already feeling inside. Hair is deeply tied to identity, safety, stress, and self-worth. And while lab testing, nutrients, and protocols are vital, so is the emotional terrain they're built upon.

Stress & the Hair Growth Cycle

- Stress pushes hair prematurely into the telogen (shedding) phase
- Chronic cortisol output can reduce scalp circulation and shut down follicle energy production
- Autoimmune flares are often triggered or worsened by emotional or physiological stressors
- Unprocessed trauma and grief may physically show up at the hair root

This isn't just "in your head." It's neuroendocrine. It's real. And it matters.

Mindfulness & Nervous System Support

Functional healing means working with your body, not against it. This includes regulating your nervous system, reducing cortisol spikes, and reconnecting with safety in your own skin.

Supportive Mind-Body Tools:

- Meditation (5–10 min daily or guided apps like Insight Timer, Calm)
- Breathwork (Box breathing, 4-7-8 technique, alternate nostril breathing)
- Gentle movement (walking, yoga, stretching, dancing)
- EFT tapping (emotional freedom technique)
- Somatic practices (body scans, grounding, vagus nerve stimulation)
- Journaling prompts: "What is my body trying to tell me?" "What would feel nourishing right now?"
- Therapy or coaching: Especially helpful if hair loss has triggered anxiety, grief, or avoidance

Self-Compassion in the Mirror

Hair loss can feel destabilizing. It can bring up shame, frustration, or grief—especially if others don't understand. But your worth was never tied to your hair. You are still whole, still powerful, still you.

You're allowed to feel it all:

→ The sadness. The fear. The hope.

→ The desire to understand and heal.

→ The part of you that still wants to be seen and feel beautiful.

Be kind to her.

You can't out-supplement a dysregulated nervous system. Healing hair means healing the whole person: mind, body, and spirit. When your inner self feels safe, your body can finally shift out of survival and into growth.

CHAPTER 6: TIMELINE AND EXPECTATIONS

What to Expect Month by Month

Months 1-3: Foundation Phase
What's happening:

- You're getting labs, identifying root causes
- Starting supplements and dietary changes
- Addressing deficiencies
- Optimizing thyroid medication if needed
- Healing gut and reducing inflammation

Hair-wise:

- Shedding may continue or even increase initially (this is NORMAL)
- Don't panic, this is often old, weak hair making way for healthy regrowth
- Or, your body is shifting hair from resting to growth phase
- No visible improvement yet (this is expected)

Other improvements you may notice:

- Energy levels improving
- Sleep quality better
- Digestion improving
- Mood stabilizing
- Brain fog lifting
- Skin improving

Action items:

- Stay consistent with protocol
- Track symptoms and shedding
- Retest key labs at 8-12 weeks (thyroid, ferritin, vitamin D)
- Adjust supplementation based on results
- Don't give up, healing takes time
- Celebrate small wins!

CHAPTER 6: TIMELINE AND EXPECTATIONS

Months 3-6: Stabilization Phase

What's happening:

- Hormones and nutrients reaching optimal levels
- Inflammation decreasing
- Body shifting into healing mode
- Hair follicles responding to improved conditions

Hair-wise:

- Shedding begins to slow (noticeable around month 4)
- You may notice "baby hairs" along hairline (new growth)
- Texture may start improving
- Existing hair may feel stronger, less brittle

Other improvements:

- Energy continues improving
- Weight may start normalizing
- Menstrual cycles regulating (if applicable)
- Less anxiety, better stress resilience
- Digestive symptoms resolving

Action items:

- Continue protocol (don't abandon what's working)
- Take progress photos monthly
- Celebrate small improvements
- Fine-tune supplements based on how you feel
- Continue stress management practices

CHAPTER 6: TIMELINE AND EXPECTATIONS

Months 6-12: Visible Improvement Phase

What's happening:

- Consistent nutrient status
- Hormones balanced
- Reduced inflammation
- Hair growth cycle normalized

Hair-wise:

- Noticeable increase in thickness and coverage
- New growth becoming more substantial
- Part line may appear narrower
- Overall volume improving
- Hair quality improving (shinier, stronger, healthier)

Other improvements:

- Feeling like yourself again
- Sustained energy
- Stable moods
- Good digestion
- Healthy weight
- Confidence returning

Action items:

- Maintain healthy habits
- Retest labs every 3-6 months
- Adjust protocol as needed
- Help others on their journey
- Document your transformation

CHAPTER 6: TIMELINE AND EXPECTATIONS

Months 12-18+: Continued Recovery

What's happening:

- Hair continues filling in and strengthening
- Your new normal is established
- Focus shifts to maintenance

Hair-wise:

- Continued improvement in density
- Full, healthy hair growth
- Texture and quality optimal
- Minimal shedding (50-100 hairs daily is normal)

Action items:

- Continue foundational practices
- Get labs annually or as needed
- Watch for early warning signs of imbalance
- Adjust for life changes (stress, transitions)

Important Reminders

Hair recovery is not linear: You may have setbacks. Stress, illness, or hormonal fluctuations can cause temporary increased shedding. This doesn't mean you're back to square one, your foundation is strong now.

Initial shedding is normal and even expected: When you optimize hormones (especially thyroid) or start certain treatments, you may shed more at first. This is old, weak hair in the resting phase being pushed out to make room for healthy regrowth. It typically lasts 2-4 weeks.

Every body is different: Your timeline may be faster or slower depending on:

- How long you've had hair loss
- How severe the deficiencies/imbalances
- How many root causes you have
- Your age and overall health
- Your consistency with the protocol
- Genetic factors

Celebrate non-hair wins: Better energy, clearer skin, improved mood, better sleep, stable weight, good digestion, these all indicate your body is healing. Hair improvement will follow.

The 6-month rule: If you've been fully consistent for 6 months with optimized labs and you're seeing NO improvement in shedding or regrowth, it's time to investigate further. Consider:

- Are labs truly optimal, not just "normal"?
- Are there other root causes not yet addressed?
- Could this be genetic hair loss requiring different treatment?
- Working with a dermatologist for scalp biopsy
- Considering medications like spironolactone or minoxidil

CHAPTER 7: TROUBLESHOOTING AND ADVANCED CONSIDERATIONS

"I've tried everything and nothing works"
If you've been consistent for 6+ months without improvement, consider these possibilities:

Undiagnosed Conditions
Autoimmune conditions:

- Alopecia areata (patchy hair loss, autoimmune attack on follicles)
- Lupus (can cause scarring alopecia)
- Lichen planopilaris (inflammatory, scarring alopecia)
- Frontal fibrosing alopecia

Testing: Dermatologist evaluation, possible scalp biopsy

Celiac disease: Can cause hair loss through malabsorption and inflammation
Testing: Celiac panel (tTG-IgA, total IgA)

Androgenic alopecia (genetic pattern baldness): Follicle sensitivity to DHT, may require different approach
Testing: Clinical diagnosis, scalp examination

Hidden Factors
Heavy metal toxicity:
Mercury, lead, arsenic, cadmium disrupt thyroid, hormones, and create oxidative stress Testing: Urine metals test (provoked or unprovoked), hair analysis Treatment: Chelation therapy under practitioner supervision, sauna, binders

Chronic infections:

- Lyme disease and co-infections
- Chronic Epstein-Barr virus (EBV)
- Cytomegalovirus (CMV)
- Parasites

Testing: Specialty labs, often requires functional medicine testing
Treatment: Depends on infection, requires practitioner

CHAPTER 7: TROUBLESHOOTING AND ADVANCED CONSIDERATIONS

Medication side effects:
Many medications cause hair loss:

- Beta blockers
- ACE inhibitors
- Antidepressants (some)
- Hormonal birth control
- Accutane
- Chemotherapy drugs
- Anti-seizure medications

Review all medications with your doctor and pharmacist!!

Severe nutrient malabsorption:
Even with supplementation, you may not be absorbing
Causes: SIBO, celiac, Crohn's, pancreatic insufficiency
Testing: Comprehensive stool test, SIBO breath test, celiac panel
Treatment: Address underlying digestive issue

Genetic factors:

- MTHFR variants (impaired methylation)
- Other SNPs affecting nutrient metabolism
- Genetic predisposition to certain conditions

Testing: Genetic testing (23andMe + interpretation)
Treatment: Personalized nutrition and supplementation

Psychological Factors
Trichotillomania: Compulsive hair pulling disorder Treatment: Cognitive behavioral therapy, habit reversal training
Body dysmorphic disorder: Perception of hair loss worse than reality
Treatment: Therapy, psychiatric evaluation if needed

WHEN TO SEEK PROFESSIONAL HELP

See a doctor immediately if:

- Sudden, severe hair loss (large clumps)
- Bald patches appearing
- Scalp pain, burning, itching, or redness
- Scalp lesions or scaling
- Hair loss accompanied by fever, fatigue, or other systemic symptoms
- Suspicion of scarring alopecia

See a dermatologist if:

- No improvement after 6 months of comprehensive approach
- Need scalp biopsy for diagnosis
- Considering medical treatments (minoxidil, spironolactone)
- Patchy hair loss (possible alopecia areata)

Work with a functional medicine practitioner if:

- You need help interpreting labs and creating protocol
- You have complex health history (multiple conditions)
- You want personalized supplement protocols
- You're not seeing improvement on your own
- You need accountability and support
- You want guidance on advanced testing

I'm here to help: Visit thyroidloveclub.com for personalized guidance on testing, protocols, and navigating your hair loss journey.

MEDICATIONS AND MEDICAL TREATMENTS TO CONSIDER

Minoxidil (Rogaine):
How it works: Widens blood vessels, prolongs growth phase
Dose: 2% or 5% topical solution or foam, applied twice daily
Pros: FDA-approved, evidence-based, available over-the-counter
Cons: Requires lifelong use (hair loss returns when stopped), initial shedding phase, scalp irritation possible
Evidence: Can increase hair count by 10-20% in responders[44]
Consider if: Androgenic pattern loss, other treatments not enough

Spironolactone:
How it works: Anti-androgen, blocks DHT receptors
Dose: 50-200 mg daily (prescription)
Pros: Effective for androgen-related hair loss, also helps hormonal acne
Cons: Requires prescription, must use with birth control (teratogenic), can cause irregular periods, increased urination, breast tenderness
Evidence: Improves hair density in women with androgenic hair loss[45]
Consider if: PCOS, high androgens, androgenic pattern loss

Finasteride:
How it works: Blocks 5-alpha reductase (enzyme that makes DHT)
Dose: 1 mg daily (prescription, primarily for men)
Pros: Very effective for androgenic hair loss
Cons: Primarily for men, significant side effects possible, sexual dysfunction
Not typically used in women (except sometimes postmenopausal)

Low-Dose Naltrexone (LDN):
How it works: Modulates immune system, reduces inflammation
Dose: 1.5-4.5 mg nightly (prescription, compounded)
Pros: May help autoimmune hair loss, few side effects, helps multiple conditions
Cons: Requires prescription, must be compounded, vivid dreams initially
Consider if: Autoimmune conditions, Hashimoto's, alopecia areata

Platelet-Rich Plasma (PRP):
How it works: Your own concentrated platelets injected into scalp, releases growth factors Protocol: 3-4 treatments, 4-6 weeks apart, then maintenance
Pros: Natural (your own blood), growing evidence for effectiveness
Cons: Expensive ($500-1,500 per session), not covered by insurance, requires needles Evidence: Increases hair density and thickness in androgenic alopecia[46]
Consider if: Significant loss, budget allows, want to avoid medications

Low-Level Laser Therapy (LLLT):
How it works: Red light stimulates follicles, increases blood flow
Devices: Caps, helmets, combs (at-home use)
Protocol: 15-30 minutes several times weekly Pros: FDA-cleared, non-invasive, at-home use
Cons: Expensive ($200-1,000), time commitment, results variable
Evidence: Modest improvements in hair count and thickness[47]
Consider if: Want non-medication option, willing to invest time

Topical Finasteride:
Newer option: Topical application instead of oral
Pros: Less systemic absorption, fewer side effects
Cons: Still requires prescription

CHAPTER 8: MAINTENANCE AND LONG-TERM SUCCESS

Once Your Hair Recovers, Don't Stop
The habits and protocols that healed you need to continue, though you may be able to reduce intensity.

Continue:

- Nutrient-dense diet (foundation of health)
- Adequate protein daily
- Healthy lifestyle practices (sleep, stress management, movement)
- Core supplements (based on your needs)
- Regular labs to monitor levels (every 6-12 months)

You can potentially reduce:

- Specific therapeutic supplements once levels are stable
- Frequency of advanced testing
- Strictness of elimination diet (if you've identified your triggers)

Never abandon:

- Thyroid medication (if needed)
- Stress management practices
- Sleep hygiene
- Anti-inflammatory lifestyle

Building Resilience
Your body is always communicating: Hair loss taught you to listen. Continue checking in:

- How's your energy?
- How's your stress level?
- Are you nourishing yourself?
- What needs attention?
- Are you honoring your body's needs?

Regular self-assessment:

- Monthly: Check in with symptoms, hair shedding
- Quarterly: Assess whether protocols need adjustment
- Biannually: Comprehensive labs
- Annually: Full health review, update goals

CHAPTER 9: LAB INTERPRETATION CHEAT SHEETS

Use this quick reference to understand your lab results. Always compare to functional optimal ranges, not just standard "normal" ranges. Here is how to interpret the patterns:

Thyroid:
- High TSH + Low Free T4 = Primary hypothyroidism
- Normal TSH + Low Free T3 = Conversion problem
- High TSH + High antibodies = Hashimoto's
- Low TSH + High Free T4/T3 = Hyperthyroidism
- Normal TSH but symptomatic = Look at Free T3, rT3, antibodies

Iron:
- Low ferritin + Normal serum iron = Early iron deficiency (most common in hair loss)
- Low ferritin + Low serum iron = Iron deficiency anemia
- High TIBC + Low transferrin sat = Iron deficiency

Hormones:
- High testosterone + High DHEA + Low SHBG = PCOS, androgen excess
- Low progesterone + Normal/high estrogen = Estrogen dominance
- Low estradiol + High FSH = Perimenopause/menopause
- High SHBG = Less free hormones available (can be from high estrogen or thyroid meds)

Cortisol:
Healthy pattern: High in morning, gradually declining throughout day, low at night
Dysfunctional patterns:
- Flat line (low all day) = Adrenal exhaustion, burnout
- Elevated all day = Chronic stress response
- Reversed pattern (low morning, high night) = Circadian rhythm disruption
- Elevated night cortisol = Sleep problems, can't fall asleep or wake at 2-3 AM

Blood sugar:
- Normal glucose + High insulin = Early insulin resistance (body compensating)
- High glucose + High insulin = Progressing insulin resistance
- High A1c = Chronically elevated blood sugar for months

Inflammation:
- Elevated hsCRP = Active inflammation (infection, autoimmune, chronic disease)
- Elevated homocysteine = Methylation problems, B vitamin deficiency (B6, B12, folate), MTHFR

HORMONES (WOMEN)

Test	Standard Range	Functional Optimal	When to Test
Estradiol (E2)	30-400 pg/mL (varies by cycle)	50-150 pg/mL (luteal), 100-200	Day 19-21 of cycle (menstruating
Progesterone	2-25 ng/mL	10-25 ng/mL (luteal phase)	Day 19-21 of cycle
Testosterone (Total)	15-70 ng/dL	30-50 ng/dL	Day 19-21 or anytime if not
Testosterone (Free)	0.3-1.9 ng/dL	0.5-1.5 ng/dL	Same as total testosterone
DHEA-S	35-430 mcg/dL	150-350 mcg/dL	Anytime
FSH (follicular)	3-10 mIU/mL	4-8 mIU/mL	Day 3 of cycle
FSH (menopausal)	>25 mIU/mL	>30 mIU/mL suggests	Anytime if not cycling
SHBG	18-144 nmol/L	25-90 nmol/L	Anytime

CORTISOL

Time	Optimal Range
Morning (8 AM)	13-24 nM
Noon	5-10 nM
Evening (4 PM)	3-8 nM
Night (midnight)	1-3 nM

IRON DECODER CHART

Test	Standard Range	Functional Optimal	What It Means
Ferritin	15-150 ng/mL (women)	70-100 ng/mL	Stored iron. Critical for hair growth. Below 70 often causes hair loss even if "normal."
Serum Iron	60-170 mcg/dL	90-110 mcg/dL	Iron in blood. Can be normal with low ferritin.
TIBC	250-450 mcg/dL	250-350 mcg/dL	Total iron binding capacity. High = iron deficiency.
Transferrin Sat	20-50%	25-35%	Percentage of transferrin saturated with iron.

NUTRIENTS

Test	Standard Range	Functional Optimal	What It Means
Vitamin D	30-100 ng/mL	50-80 ng/mL	Fat-soluble vitamin, immune function. <30 = deficient, 30-50 = insufficient.
Vitamin B12	200-900 pg/mL	>500 pg/mL (prefer >600)	Energy, nerve function, cell division. <200 = deficient but symptoms can occur <500.
Folate	>5.4 ng/mL	>20 ng/mL	Cell division, methylation. Critical if MTHFR variants.
Zinc (serum)	60-130 mcg/dL	90-110 mcg/dL	Immune function, protein synthesis, hormone balance.
RBC Magnesium	4.2-6.8 mg/dL	5.0-6.5 mg/dL	Better than serum. Nerve/muscle function, energy, hundreds of enzyme reactions.
Copper	70-140 mcg/dL	80-120 mcg/dL	Balance with zinc. Check if supplementing zinc long-term.

BLOOD SUGAR & INSULIN

Test	Standard Range	Functional Optimal	What It Means
Fasting Glucose	<100 mg/dL	70-85 mg/dL	Blood sugar after 8-12 hour fast. >85 indicates developing insulin resistance.
Fasting Insulin	<25 mIU/L	<5 mIU/L	Insulin after fasting. >5-7 indicates insulin resistance. Most important marker.
Hemoglobin A1c	<5.7%	<5.3%	3-month average blood sugar. 5.7-6.4% = prediabetes.
HOMA-IR	N/A	<1.0	Calculated: (fasting glucose x fasting insulin) / 405. >1.9 = insulin resistance.

INFLAMMATION

Test	Standard Range	Functional Optimal	What It Means
hsCRP	<3.0 mg/L	<1.0 mg/L (prefer <0.5)	High-sensitivity C-reactive protein. Marker of systemic inflammation.
Homocysteine	<15 µmol/L	<8 µmol/L (prefer <7)	Inflammation, methylation status, B vitamin function, cardiovascular risk.
ESR	<20 mm/hr	<10 mm/hr	Erythrocyte sedimentation rate. Non-specific inflammation marker.

QUICK THYROID DECODER CHART

Marker	Conventional Range	Functional Range	What It Means When Low	What It Means When High	Why It Matters
TSH	0.5–5.0	0.5–2.0	Brain not signaling enough; thyroid	Graves' disease, overmedicated, or adrenal	Brain's message to thyroid; slower or overactive
Free T4	0.8–1.8	1.2–1.6	Low thyroid hormone output	Graves', over-replacement	Raw thyroid hormone before conversion to T3
Free T3	2.3–4.2	3.2–3.8	Poor conversion, sluggish metabolism,	Overconversion, overstimulation	Active hormone that affects mood,
Reverse T3	8–25	10–18	Low metabolism or adrenal burnout	High stress, inflammation, infection	Inactive mirror form of T3; "brakes" on
TPO Antibodies	<35	<15	—	Autoimmune thyroid attack (Hashimoto's/Gra	Enzyme antibody that marks thyroid
Tg Antibodies	<1	<1	—	Autoimmune inflammation targeting stored	Complements TPO Ab in detecting
TRAb	<1.75 IU/L	<1.0 IU/L	—	Graves' activity — thyroid overstimulated	Autoantibody binding to TSH receptors; signals
TSI	<0.55 IU/L or <140% baseline	Within range	—	Graves' and TED activity; may rise before flare	Subtype of TRAb that directly stimulates
Vitamin D (25-OH)	30–100	60–80	Immune dysfunction, fatigue	—	Low D = higher antibody activity
Ferritin	15–150	70–120	Low iron storage → fatigue	Inflammation, overload	Iron is essential for T4 → T3 conversion
Selenium & Zinc	varies	optimal mid-upper range	Deficiency slows conversion	Excess can imbalance copper	Cofactors that reduce oxidative stress +
Magnesium (RBC)	1.7–2.2	2.0–2.2	Muscle cramps, anxiety, poor sleep	Rare	Needed for calm nerves + enzyme activation

Note: "Normal" does not always mean "optimal." Functional ranges reflect where the body often performs best.

Note: Many patients feel best within functional ranges. A Free T3:Reverse T3 ratio near 2:1 can suggest more balanced conversion and cellular use of thyroid hormone.

DETAILED THYROID LAB MARKER DESCRIPTIONS

5) TPO Antibodies (TPO Ab)

- What it is: Antibodies against thyroid peroxidase enzyme; hallmark of autoimmunity.
- Elevated (>35 IU/mL): Active thyroid autoimmunity; flares.
- Functional Goal: <15 IU/mL.
- Support: Gut repair, Vitamin D, Selenium, antioxidants, stress care.

6) Tg Antibodies (Thyroglobulin Ab)

- What it is: Antibodies against thyroglobulin (hormone storage protein).
- Why it matters: May be elevated even if TPO Ab is normal; complements autoimmune assessment.
- Functional Goal: <1 IU/mL.

7) TRAb = Thyrotropin Receptor Antibodies

- What it is: Antibodies that bind to TSH receptors; can stimulate, block, or neutralize.
- High (>1.75 IU/L): Graves' activity or flare risk; hyperthyroid symptoms.
- Functional Goal: <1.0 IU/L.
- Support: Inflammation calming, Selenium, Vitamin D, gut/liver support.

8) TSI = Thyroid Stimulating Immunoglobulins

- What it is: A stimulatory subset of TRAb that drives thyroid hormone output and can activate orbital tissues (TED).
- High (>0.55 IU/L or >140% baseline): Graves' + TED activity; useful for tracking remission/relapse.
- Goal: Fall and remain within reference for 6–12 months.

DETAILED THYROID LAB MARKER DESCRIPTIONS

9) Vitamin D (25-OH)

- Why it matters: Immune modulator; low D correlates with higher antibodies and fatigue.
- Functional Range: 60–80 ng/mL.

10) Ferritin (Iron Storage)

- Why it matters: Required for T4→T3 conversion and oxygen delivery.
- Low (<70 ng/mL): Fatigue, hair loss, poor conversion.
- Functional Range: 70–120 ng/mL.

11) Selenium & Zinc

- Selenium: Supports T4→T3 conversion; may reduce antibodies (~200 mcg/day commonly used, must personalize).
- Zinc: Supports receptor sensitivity and immune balance.

12) Magnesium (RBC or Serum)

- Why it matters: Calms the nervous system; supports hundreds of enzymatic reactions and medication responsiveness.
- Goal: Upper half of normal (serum ~2.0–2.2 mg/dL).

Root Area	Key Labs	What to Explore
Brain ↔ Thyroid	TSH, TRAb	Stress & pituitary feedback
Hormone Production	Free T4	Nutrients & thyroid integrity
Conversion & Metabolism	Free T3, Reverse T3, Ferritin	Gut / liver / adrenal balance
Autoimmunity	TPO, Tg, TRAb, TSI	Immune calming + anti-inflammatory focus
Eye Inflammation	TSI	Antioxidants + selenium + stress care

COMMON THYROID LAB UNIT CONVERSIONS

Marker	U.S. Unit	SI Unit	Conversion Formula	Example
TSH (Thyroid Stimulating	µIU/mL	mIU/L	1 µIU/mL = 1 mIU/L	No conversion needed
Free T4 (Thyroxine)	ng/dL	pmol/L	× 12.87	1.2 ng/dL × 12.87 = 15.4 pmol/L
Total T4	µg/dL	nmol/L	× 12.87	8.0 µg/dL × 12.87 = 103 nmol/L
Free T3 (Triiodothyronin	pg/mL	pmol/L	× 1.536	3.5 pg/mL × 1.536 = 5.38 pmol/L
Total T3	ng/dL	nmol/L	× 0.01536	120 ng/dL × 0.01536 = 1.84
Reverse T3	ng/dL	pmol/L	× 15.377	15 ng/dL × 15.377 = 230.7 pmol/L
Thyroglobulin (Tg)	ng/mL	µg/L	× 1	No conversion needed
Thyroid Antibodies (TPO,	IU/mL	kIU/L	× 1	No conversion needed

If you've ever compared your thyroid results online or to your friends, and felt confused because the numbers didn't match, you're not alone. Different labs use different measurement systems, most commonly U.S. conventional units and SI (International System) units. When you understand how to convert your results, you can compare labs more accurately, use international research, and interpret your progress over time.

Quick Conversion Tips

- If you're converting U.S. to SI, multiply by the number in the table.
- To convert SI to U.S., divide by the same number.
- Write both results in your tracker for future reference.

Example:

Your Free T4 is 16 pmol/L from an international lab.

To convert to U.S. units: 16 ÷ 12.87 = 1.24 ng/dL

THYROID LAB TRACKER

Date	TSH	F T4	F T3	rT3	TPO	Tg	TRAb	TSI	Supplements	Symptoms	Notes
sample	1.8	1.4	3.1	14	28	<1	1.2	120%	Se, Vit D	tired AM,	less bloatin

SYMPTOM CHECK-IN

Energy + Metabolism:
- □ Low energy
- □ Afternoon crash
- □ Wired but tired
- □ Difficulty waking
- □ Feeling cold often
- □ Heat intolerance

Mood + Mental Health:
- □ Anxiety
- □ Depression
- □ Mood swings
- □ Brain fog
- □ Irritability
- □ Overwhelm
- □ Panic episodes

Sleep:
- □ Trouble falling asleep
- □ Waking at 2–3 AM
- □ Restless or light sleep
- □ Feeling unrefreshed
- □ Night sweats

Eyes + Face (TED-related):
- □ Dryness
- □ Grittiness
- □ Pressure behind eyes
- □ Puffiness or swelling
- □ Light sensitivity
- □ Double vision
- □ Changes in appearance

Digestive Function:
- □ Bloating
- □ Constipation
- □ Loose stools
- □ Heartburn or reflux
- □ Nausea
- □ Food sensitivities

Hormonal / Reproductive:
- □ PMS or irregular cycles
- □ Low libido
- □ Hot flashes or night sweats
- □ Acne or oily skin
- □ Hair loss or thinning

Musculoskeletal:
- □ Joint pain or stiffness
- □ Muscle weakness
- □ Tremors or shaking
- □ Restless legs

Skin + Hair:
- □ Dry skin
- □ Itchy skin
- □ Brittle nails
- □ Hair loss or shedding

General Wellbeing:
- □ Feeling “off”
- □ Easily overwhelmed
- □ Frequent illness or low immunity
- □ Slow recovery after stress
- □ Other:

Your symptoms are data too… track them alongside your labs for real clarity.

TRAB VS. TSI: UNDERSTANDING YOUR GRAVES' ANTIBODIES

One of the most confusing parts of a Graves' disease diagnosis is understanding the antibody tests. You may see both TRAb and TSI on your lab report, and while they're related, they measure different aspects of your autoimmune activity. Learning to read both helps you understand how active your Graves' disease or Thyroid Eye Disease (TED) truly is.

Think of TRAb as the total immune "noise," and TSI as the "volume knob" that controls how loud that noise is in your thyroid and eyes. Both tell you something valuable. TRAb reveals that autoimmune activity is present, while TSI shows how strong that activity currently is.

What TRAb Really Means

TRAb stands for Thyrotropin Receptor Antibody and measures the total amount of antibodies that attach to the thyroid's TSH receptor. It's like a broad snapshot of your immune system's activity against your thyroid. What makes TRAb unique is that it captures *all* types of TSH receptor antibodies: **stimulating, blocking, and neutral.**

This means your TRAb level can be elevated whether your thyroid is being pushed into overdrive or not. Even if your thyroid hormones are in the "normal" range or you're in a hypothyroid phase after treatment, TRAb can remain high because the immune system continues to make antibodies for some time.

A high TRAb result confirms that your body is still producing immune activity against the thyroid and its receptors. It can also cross-react with tissues behind the eyes, which is why it's relevant for Thyroid Eye Disease as well. If your TRAb levels are trending down, that's a great sign your immune system is calming down, even if they're not completely gone.

TRAB VS. TSI: UNDERSTANDING YOUR GRAVES' ANTIBODIES

What TSI Really Means

TSI stands for Thyroid-Stimulating Immunoglobulin and represents only one type of antibody: the **stimulating** kind that tells your thyroid to produce more hormones than it should. Think of it as the "on switch" that drives hyperthyroidism.

While TRAb captures the total number of antibodies, TSI focuses specifically on those that are actively causing stimulation. When your TSI is high, it means your immune system is still sending strong "make more hormone" signals, which often correlates with **hyperthyroid** symptoms like anxiety, palpitations, heat intolerance, and insomnia.

TSI is especially helpful for understanding disease activity and for monitoring progress over time. As your TSI level drops, it's often a sign that your Graves' disease is improving or entering remission. Persistent elevation, on the other hand, can suggest that stimulation is still active, especially if stress, gut imbalances, or inflammation haven't been fully addressed.

The Difference Between TRAb and TSI

The simplest way to think of it is that TRAb measures all thyroid antibodies that bind to the TSH receptor, while TSI measures only the stimulating ones. TRAb tells you there's immune activity, it's the presence of antibodies, while TSI tells you how active/hyper that immune stimulation is.

Both are important for different reasons. TRAb helps confirm an autoimmune thyroid condition and is often used to track overall immune activity. TSI, on the other hand, reflects the real-time intensity of Graves' stimulation and can be a more direct indicator of hyperthyroidism.

When you're newly diagnosed, both TRAb and TSI are usually high. As you begin treatment and your thyroid calms down, TSI tends to drop first, while TRAb may stay mildly elevated for months or even years before normalizing. For those with Thyroid Eye Disease, both antibodies matter: TRAb reflects ongoing immune signaling that can influence inflammation behind the eyes, while TSI can correlate with flare severity and progression.

TRAB VS. TSI: UNDERSTANDING YOUR GRAVES' ANTIBODIES

Typical Ranges and What They Mean
Labs vary slightly, but conventionally TRAb is considered normal below about 1.75 IU/L, while TSI is considered normal below about 1.3 IU/L. Functionally, the goal is to see both trending downward over time, ideally below 1.0 or at least steadily decreasing with each check.

Remember that numbers alone don't define your healing. Some people feel well long before their antibodies normalize, and others still experience symptoms even when their levels are technically "in range." Focus on the overall trends and how you're feeling, not just the individual data points.

How to Support Antibody Reduction Naturally
Reducing TRAb and TSI is about calming the immune system rather than just suppressing symptoms. Addressing gut health, nutrient deficiencies, and chronic inflammation are all key.

- Support gut balance: Rule out infections or dysbiosis with stool testing like GI-MAP or Gut Zoomer and prioritize nutrition.
- Optimize nutrients: Selenium (100–200 mcg/day), vitamin D, zinc, and omega-3s help lower antibodies and regulate immunity.
- Reduce inflammation: Eat an anti-inflammatory diet rich in colorful vegetables and antioxidants.
- Lower stress: Use daily tools like meditation, yoga, and breathwork to regulate your cortisol rhythm.
- Avoid excess iodine and toxins: Over-supplementing with iodine or exposure to mold, smoke, or heavy metals can trigger flares.

FREE T3 : REVERSE T3 RATIO
HOW TO CALCULATE AND CONVERT UNITS

The Free T3 : Reverse T3 (FT3:RT3) ratio gives valuable insight into how well your body is converting thyroid hormone into its active form versus its inactive form. A low ratio can indicate poor conversion, chronic stress, inflammation, or slowed metabolism, even when your thyroid hormones look "normal." The goal is to see whether your body is using thyroid hormones effectively, not just producing them.

Step 1 — Check Your Units

Labs report Free T3 and Reverse T3 in different systems.

To calculate your ratio correctly, both must be in the same unit (either pg/mL and ng/dL, or both pmol/L and pg/mL).

Here's how to align them:

- Free T3 conversion:
  - 1 pg/mL = 1.536 pmol/L
- Reverse T3 conversion:
  - 1 ng/dL = 15.377 pmol/L

If your lab reports:

- Free T3 in pg/mL and Reverse T3 in ng/dL, you can use this simplified formula:
- (Free T3 ÷ Reverse T3) × 100 = FT3:RT3 ratio

If your lab reports both in SI units (pmol/L), no conversion is needed — simply divide Free T3 by Reverse T3.

Step 2 — Calculate the Ratio

Use your actual numbers:

- Example: Free T3 = 3.5 pg/mL
- Reverse T3 = 15 ng/dL
- 3.5 ÷ 15 × 100 = 23.3

Your FT3:RT3 ratio = 23.3

Step 3 — Interpret the Ratio

There's no universal "normal," but most functional practitioners look for:

- **Above 20**: Generally good conversion and utilization
- **16–20**: May indicate mild sluggish conversion or adrenal stress
- **Below 15**: Often suggests poor conversion, inflammation, or cortisol imbalance

A low ratio means that even if your Free T3 appears fine, much of it may be getting diverted into Reverse T3 (the inactive form), especially during chronic stress, infection, or inflammation.

ASK YOUR DOCTOR THIS

Questions to Ask at Your Next Appointment

For Testing & Monitoring:

□ “Can we review my full thyroid panel, including Free T3, Free T4, Reverse T3, antibodies, TRAb, and TSI?”

□ “Would you be willing to check Vitamin D, Ferritin, Selenium, Zinc, and Magnesium?”

□ “Could we evaluate my liver function, lipid panel, and glucose/insulin for deeper insight?”

□ “If my Free T3 is low but TSH is normal, could we discuss conversion issues or adrenal factors?”

□ “Are there functional ranges you consider optimal for thyroid patients—or just the lab reference?”

□ “Would a stool test or GI-MAP be appropriate if I suspect gut triggers?”

□ “Could we screen for autoimmune comorbidities like celiac or type 1 diabetes (TPO, Tg, GAD, etc.)?”

For Medication Review:

□ “Can we talk about how my symptoms align with my medication dose?”

□ “If I switch from methimazole or levothyroxine, how should I monitor side effects or changes?”

□ “Can we taper carefully based on labs and how I feel, not just TSH alone?”

□ “Can you educate me about the Block & Replace Method?”

Functional Pharmacist Tip: Bring a printed or screenshot copy of your last two lab reports, highlight key markers (especially Free T3, TPO, TRAb, and TSI), and note how your symptoms match or differ. It helps the conversation stay clear, collaborative, and empowering.

ASK YOUR DOCTOR THIS

Questions to Ask at Your Next Appointment

For Thyroid Eye Disease Support:
□ "Do you collaborate with ophthalmologists familiar with functional or anti-inflammatory support for TED?"

□ "Can we check my Selenium levels, since research shows it may help eye inflammation?"

□ "Would antioxidant or omega-3 supplementation be appropriate?"

For Lifestyle and Root-Cause Exploration:

□ "Can we talk about stress, sleep, and blood sugar regulation in my thyroid plan?"

□ "What small daily changes could help reduce antibody activity or inflammation?"

□ "Can we review potential environmental triggers (mold, infections, toxins) if antibodies remain high?"

For Functional or Advanced Testing (if appropriate):
□ DUTCH test - to assess adrenal and hormonal balance
□ GI-MAP or Gut Zoomer or any other stool analysis - to identify gut infections and inflammation
□ OAT or Metabolomix+ - to evaluate nutrients, detox markers, and oxidative stress

If You Don't Feel Heard
If your doctor won't address nutrition, root causes, or functional testing, please know that you're not alone, and that there are other options.
You can work with me and our functional health team to look deeper and get the whole picture addressed. We combine clinical medicine with an integrative and functional, holistic lens to uncover what's driving your thyroid and immune imbalance, so you can finally move from surviving to thriving.
Learn more about working together at [functionalthyroid.com]

NEXT STEPS & CONCLUSION

If you've made it this far, take a moment to acknowledge yourself. You've just done something that most people never do, you took the time to understand your own body. That's powerful.

You've learned that lab results don't define you, but they can guide you. You've seen how "normal" ranges can still leave you feeling unwell, and that functional, optimal ranges often tell a more accurate story. Most importantly, you've started building the confidence to ask better questions and recognize that your symptoms are valid.

This workbook was designed to give you a taste of what's possible when you step into your own healing journey with knowledge, curiosity, and compassion. The next step is to deepen that awareness, to learn how to track your labs over time, connect them with your symptoms, and identify the root causes driving your thyroid imbalance.

If you're ready to continue, the Thyroid Healing Bundle will take you further. It's a deeper dive into understanding your autoimmune triggers, calming inflammation, protecting your eyes, and finding clarity in your Graves', Hashi, and Thyroid Eye Disease journey. It's everything I wish I had when I was first diagnosed, an empowering resource created to help you turn confusion into confidence and healing.

And if you're at the point where you want guidance that's completely personalized, someone to look at your labs, symptoms, lifestyle, and supplements as one cohesive story, I'd be honored to support you through 1:1 functional thyroid care.

Working together, we'll uncover the "why" behind your symptoms, address underlying imbalances, and create a plan that feels realistic, gentle, and effective. Whether you're managing Graves', Hashimoto's, or Thyroid Eye Disease, you don't have to do this alone. You are not too complex, too sensitive, or too much. You are simply a person whose body is asking to be understood, and now you have the tools to start listening.

Explore 1:1 functional medicine thyroid coaching or book a consultation → [functionalthyroid.com]



NEED MORE INSIGHT & SUPPORT?

THE THYROID CLARITY KIT

The strong, vibrant woman you remember being? She's still in there.
She's just buried under the racing heart, the 3am wake-ups, the exhaustion, the hair in the drain, and the eyes you don't recognize. And under every appointment that ended with "your labs look fine" and no real answers.

Your body is capable of so much more than you've been told. When you uncover what's driving your immune system, you can start getting back to her.

The Thyroid Clarity Kit finally makes Graves' and TED make sense. In The Graves + TED Functional Master Guide, you'll learn the root causes that can keep your immune system dysregulated, the functional medicine tests that uncover them, how every treatment option works, and the nutrition, gut, supplement, and lifestyle strategies to support your body and your eyes.
Also inside: the Complete Thyroid Lab Interpretation Guide + Tracker, Top Supplements for Graves + TED, The Hair Love Handbook, and 3 bonus guides.

Everything I wish I'd had, in one place, so you can stop guessing and start feeling like yourself again.

INSTANT DOWNLOAD



NEED PERSONALIZED RECOMMENDATIONS & SUPPORT?

THE FUNCTIONAL MEDICINE THYROID CARE PROGRAM

Your labs look “fine,” but you know your body. The exhaustion coffee can’t touch, the brain fog, the anxiety humming under everything, the hair in the drain, the weight that won’t budge. You’re not imagining it. You’re just missing the right team. If you’re tired of hearing “everything looks normal” when you still feel anything but, the Functional Thyroid Care Program is your next step. This exclusive, state-specific program brings together a functional medicine pharmacist, a thyroid health coach (hi its me) who has personally navigated Graves and Thyroid Eye Disease, and an optional integrative physician to create a truly collaborative care plan designed around you. Together, we look at your labs through the lens of optimal ranges, uncover what’s really keeping you stuck, from hidden gut imbalances and nutrient deficiencies to chronic stress and inflammation, and build a personalized protocol to guide you on your path toward remission.

Most people never get access to this level of personalized, root-cause care. If you’re ready to stop guessing and start healing with a team that actually listens, this is your moment. Imagine waking up with energy, thinking clearly, and recognizing yourself again. That woman isn’t gone, and you are more capable of healing than anyone has told you.
Spots are limited and state-specific. You’ve waited long enough to feel like you again.

JOIN YOUR CARE TEAM



References

1. Sinclair RD, Jolley D, Mallari R, Magee J. The reliability of horizontally sectioned scalp biopsies in the diagnosis of chronic diffuse telogen hair loss in women. J Am Acad Dermatol. 2004;51(2):189-199.
2. Bozdag G, Mumusoglu S, Zengin D, Karabulut E, Yildiz BO. The prevalence and phenotypic features of polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod. 2016;31(12):2841-2855.
3. Glueck CJ, Goldenberg N. Characteristics of obesity in polycystic ovary syndrome: Etiology, treatment, and genetics. Metabolism. 2019;92:108-120.
4. Hadshiew IM, Foitzik K, Arck PC, Paus R. Burden of hair loss: stress and the underestimated psychosocial impact of telogen effluvium and androgenetic alopecia. J Invest Dermatol. 2004;123(3):455-457.
5. Rushton DH. Nutritional factors and hair loss. Clin Exp Dermatol. 2002;27(5):396-404.
6. Holick MF. Vitamin D deficiency. N Engl J Med. 2007;357(3):266-281.
7. Amor KT, Rashid RM, Mirmirani P. Does D matter? The role of vitamin D in hair disorders and hair follicle cycling. Dermatol Online J. 2010;16(2):3.
8. Patel DP, Swink SM, Castelo-Soccio L. A review of the use of biotin for hair loss. Skin Appendage Disord. 2017;3(3):166-169.
9. Karashima T, Tsuruta D, Hamada T, et al. Oral zinc therapy for zinc deficiency-related telogen effluvium. Dermatol Ther. 2012;2(1):14.
10. Le Floc'h C, Cheniti A, Connétable S, Piccardi N, Vincenzi C, Tosti A. Effect of a nutritional supplement on hair loss in women. J Cosmet Dermatol. 2015;14(1):76-82.
11. Moreno-Arrones OM, Serrano-Villar S, Perez-Brocal V, et al. Analysis of the gut microbiota in alopecia areata: identification of bacterial biomarkers. J Eur Acad Dermatol Venereol. 2020;34(2):400-405.
12. Escobar-Morreale HF, Luque-Ramírez M, González F. Circulating inflammatory markers in polycystic ovary syndrome: a systematic review and metaanalysis. Fertil Steril. 2011;95(3):1048-1058.
13. Futterweit W, Dunaif A, Yeh HC, Kingsley P. The prevalence of hyperandrogenism in 109 consecutive female patients with diffuse alopecia. J Am Acad Dermatol. 1988;19(5 Pt 1):831-836.
14. van Beek N, Bodo E, Kromminga A, et al. Thyroid hormones directly alter human hair follicle functions: anagen prolongation and stimulation of both hair matrix keratinocyte proliferation and hair pigmentation. J Clin Endocrinol Metab. 2008;93(11):4381-4388.
15. Chaker L, Bianco AC, Jonklaas J, Peeters RP. Hypothyroidism. Lancet. 2017;390(10101):1550-1562.
16. Antonelli A, Ferrari SM, Corrado A, Di Domenicantonio A, Fallahi P. Autoimmune thyroid disorders. Autoimmun Rev. 2015;14(2):174-180.
17. Krysiak R, Szkróbka W, Okopień B. The effect of gluten-free diet on thyroid autoimmunity in drug-naïve women with Hashimoto's thyroiditis: a pilot study. Exp Clin Endocrinol Diabetes. 2019;127(7):417-422.
18. De Leo S, Lee SY, Braverman LE. Hyperthyroidism. Lancet. 2016;388(10047):906-918.
19. Toulis KA, Anastasilakis AD, Tzellos TG, Goulis DG, Kouvelas D. Selenium supplementation in the treatment of Hashimoto's thyroiditis: a systematic review and a meta-analysis. Thyroid. 2010;20(10):1163-1173.
20. Leung AM, Braverman LE. Consequences of excess iodine. Nat Rev Endocrinol. 2014;10(3):136-142.
21. Sharma AK, Basu I, Singh S. Efficacy and safety of ashwagandha root extract in subclinical hypothyroid patients: a double-blind, randomized placebo-controlled trial. J Altern Complement Med. 2018;24(3):243-248.
22. Vojdani A, Tarash I. Cross-reaction between gliadin and different food and tissue antigens. Food Nutr Sci. 2013;4:20-32.
23. Moreno-Arrones OM, Serrano-Villar S, Perez-Brocal V, et al. Analysis of the gut microbiota in alopecia areata: identification of bacterial biomarkers. J Eur Acad Dermatol Venereol. 2020;34(2):400-405.
24. Manson JE, Chlebowski RT, Stefanick ML, et al. Menopausal hormone therapy and health outcomes during the intervention and extended poststopping phases of the Women's Health Initiative randomized trials. JAMA. 2013;310(13):1353-1368.
25. Ziaei S, Kazemnejad A, Zareai M. The effect of vitamin E on hot flashes in menopausal women. Gynecol Obstet Invest. 2007;64(4):204-207.
26. Meissner HO, Mscisz A, Reich-Bilinska H, et al. Hormone-balancing effect of pre-gelatinized organic maca (Lepidium peruvianum Chacon): (III) Clinical responses of early-postmenopausal women to maca in double blind, randomized, placebo-controlled, crossover configuration, outpatient study. Int J Biomed Sci. 2006;2(4):375-394.
27. Unfer V, Carlomagno G, Dante G, Facchinetti F. Effects of myo-inositol in women with PCOS: a systematic review of randomized controlled trials. Gynecol Endocrinol. 2012;28(7):509-515.
28. Grant P. Spearmint herbal tea has significant anti-androgen effects in polycystic ovarian syndrome. A randomized controlled trial. Phytother Res. 2010;24(2):186-188.
29. Prager N, Bickett K, French N, Marcovici G. A randomized, double-blind, placebo-controlled trial to determine the effectiveness of botanically derived inhibitors of 5-alpha-reductase in the treatment of androgenetic alopecia. J Altern Complement Med. 2002;8(2):143-152.
30. Yin J, Xing H, Ye J. Efficacy of berberine in patients with type 2 diabetes mellitus. Metabolism. 2008;57(5):712-717.
31. Thakker D, Raval A, Patel I, Walia R. N-acetylcysteine for polycystic ovary syndrome: a systematic review and meta-analysis of randomized controlled clinical trials. Obstet Gynecol Int. 2015;2015:817849.
32. Chandrasekhar K, Kapoor J, Anishetty S. A prospective, randomized double-blind, placebo-controlled study of safety and efficacy of a high-concentration full-spectrum extract of ashwagandha root in reducing stress and anxiety in adults. Indian J Psychol Med. 2012;34(3):255-262.
33. Olsson EM, von Schéele B, Panossian AG. A randomised, double-blind, placebo-controlled, parallel-group study of the standardised extract shr-5 of the roots of Rhodiola rosea in the treatment of subjects with stress-related fatigue. Planta Med. 2009;75(2):105-112.
34. Hellhammer J, Fries E, Buss C, et al. Effects of soy lecithin phosphatidic acid and phosphatidylserine complex (PAS) on the endocrine and psychological responses to mental stress. Stress. 2004;7(2):119-126.
35. Hexsel D, Zague V, Schunck M, Siega C, Camozzato FO, Oesser S. Oral supplementation with specific bioactive collagen peptides improves nail growth and reduces symptoms of brittle nails. J Cosmet Dermatol. 2017;16(4):520-526.
36. Zhou Q, Verne ML, Fields JZ, et al. Randomised placebo-controlled trial of dietary glutamine supplements for postinfectious irritable bowel syndrome. Gut. 2019;68(6):996-1002.
37. Mahmood A, FitzGerald AJ, Marchbank T, et al. Zinc carnosine, a health food supplement that stabilises small bowel integrity and stimulates gut repair processes. Gut. 2007;56(2):168-175.
38. Anderson RA. Chromium and polyphenols from cinnamon improve insulin sensitivity. Proc Nutr Soc. 2008;67(1):48-53.
39. Ziegler D, Ametov A, Barinov A, et al. Oral treatment with alpha-lipoic acid improves symptomatic diabetic polyneuropathy: the SYDNEY 2 trial. Diabetes Care. 2006;29(11):2365-2370.
40. Hewlings SJ, Kalman DS. Curcumin: a review of its effects on human health. Foods. 2017;6(10):92.
41. Panahi Y, Taghizadeh M, Marzony ET, Sahebkar A. Rosemary oil vs minoxidil 2% for the treatment of androgenetic alopecia: a randomized comparative trial. Skinmed. 2015;13(1):15-21.
42. Oh JY, Park MA, Kim YC. Peppermint oil promotes hair growth without toxic signs. Toxicol Res. 2014;30(4):297-304.
43. Koyama T, Kobayashi K, Hama T, Murakami K, Ogawa R. Standardized scalp massage results in increased hair thickness by inducing stretching forces to dermal papilla cells in the subcutaneous tissue. Eplasty. 2016;16:e8.
44. Suchonwanit P, Thammarucha S, Leerunyakul K. Minoxidil and its use in hair disorders: a review. Drug Des Devel Ther. 2019;13:2777-2786.
45. Sinclair R, Wewerinke M, Jolley D. Treatment of female pattern hair loss with oral antiandrogens. Br J Dermatol. 2005;152(3):466-473.
46. Gupta AK, Carviel J. A mechanistic model of platelet-rich plasma treatment for androgenetic alopecia. Dermatol Surg. 2016;42(12):1335-1339.
47. Avci P, Gupta GK, Clark J, Wikonkal N, Hamblin MR. Low-level laser (light) therapy (LLLT) for treatment of hair loss. Lasers Surg Med. 2014;46(2):144-151.

Questions?

ELENA.GENIK@GMAIL.COM

WWW.THYROIDLOVECLUB.COM

@THYROIDLOVECLUB (INSTAGRAM)

@THYROIDLOVECLUB (TIKTOK)

SUPPLEMENT STORE

MONTHLY SUPPORT GROUP

BOOK 1:1

For educational purposes only. This guide is not intended to diagnose or treat medical conditions. Always consult your healthcare provider before making changes to your medications, supplements, or treatment plan. Affiliate links may be included at no cost to you.