

# Balance Your Blood Sugar, Balance Your Life



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A foundation for hormonal health,  
taming inflammation, sleeping well,  
and losing weight

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## About Me



I've been interested in the healing power of whole foods for nearly half my life. While fumbling and stumbling through a short-lived career in architecture, I read nutrition books like they were mystery novels.

Friends and family started to see me change and began asking for nutrition advice. To fast forward through a few more years and a few other jobs, including owning a design and manufacturing business, I chose to make nutrition education my career.

I'm a 2006 graduate of the Institute for Integrative Nutrition (IIN). In 2008, I completed Dr. Janet Lang's Restorative Endocrinology course for healthcare practitioners and in the fall of 2013, participated in Dr. Sara Gottfried's year-long Professional Hormone Mastermind Group for healthcare practitioners. In early 2018, I graduated from the Functional Medicine Coaching Academy, in partnership with the prestigious Institute for Functional Medicine.

I've suffered from alopecia (autoimmune hair loss), off and on, since I was 13 and in 2008, was diagnosed with adrenal dysfunction and hypothyroidism/Hashimoto's thyroiditis. After refusing the recommended thyroid drugs, my then-doctor condescendingly stated with shock and raised eyebrows, "Well, you can do whatever your little heart desires."

And I did. My head and heart knew that being on thyroid drugs for the rest of my life was not the answer for my body and I immersed myself in learning the whys and wherefores of autoimmune conditions, hypothyroidism, and adrenal dysfunction and how to manage these conditions with whole foods nutrition, botanicals, and other natural therapies.

My Hashimoto's has been in unmedicated management since late 2008 and unlike many with alopecia, my now-infrequent bald spots always grow back. I'm thrilled to share what I've learned with my clients. As they say, "We teach what we most need to learn."

I founded Healthful Elements, where my team and I have specialized knowledge in whole foods nutrition for hormone and immune balancing, including Hashimoto's and other autoimmune conditions (especially alopecia and Graves'), adrenal dysfunction, perimenopause/menopause, digestive health, pre-diabetes/diabetes, and chronic illness. We teach women how to support and nourish their bodies with whole foods nutrition, lifestyle choices that promote balance, and other natural remedies and botanicals so they too can emerge from the fog while still enjoying the foods they love.

I'm the #1 best-selling author of [The Essential Thyroid Cookbook](#) and have written for various publications, blogs, and online magazines including Huffington Post, MindBodyGreen, Experience Life magazine, Dr. Frank Lipman's blog, and Dr. Susan Blum's blog. I've also been featured in Oprah's O Magazine and have contributed to articles in Self and Shape magazines.

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## Introduction

I have a long history of blood sugar imbalances.

As a kid, on the days that my wonderful mom (who cooked me breakfast *every day*) would prepare oatmeal or brown rice cereal for breakfast, I distinctly remember feeling awful at school. By mid-morning, I was shaky, nauseous, and had a difficult time focusing.

Lunch couldn't come fast enough. Food – any food – was the antidote to my misery.

I didn't have the wherewithal to understand what was happening from a blood sugar perspective – I just knew that a bowl of grains (what I now know to be a carbohydrate bomb) didn't hold me. I was hypoglycemic (low blood sugar).

And because I loved the taste of hot cereals (maple syrup, please!), they were always a welcome morning meal.

Thankfully, there were more mornings than not that we had pastured eggs, bacon, or sausage – the fat and protein that's so critical for keeping blood sugar stable and keeping me out of “the pit.”

And no, eggs, bacon, and sausage aren't the only sources of fat and protein (read on!), but I sure felt better when I ate them.

Fast forward to my mid-20s. I was eating what the media was telling us was healthful, but was fatigued, gaining weight, and having difficulty focusing at work. The mid-morning slump that was characteristic of my childhood became a mid-afternoon slump that was a killer.

I was otherwise healthy, so something was wrong.

I began working with a licensed herbalist/nutrition professional who said, “You're eating all the wrong things. And you're hypoglycemic. Bagels, pasta, and all these low fat, processed foods are putting you on the slippery slope to pre-diabetes. You have to stabilize your blood sugar and get more fat and protein into your diet.”

So I did. And within days, I felt *so much better*. The afternoon slump? Vanished. My fatigue and brain fog? Significantly better. It was like someone turned my brain on. In two weeks, I'd lost 5 lbs and kept losing.

I wasn't dieting. I wasn't counting calories or carbohydrate grams. I was eating foods I loved. I ate three meals, until full. It wasn't difficult.

These changes and the ensuing enthusiasm about herbs and nutrition changed my life and, after a few more years and many friends and family wanting advice about what to eat, facilitated a career change.

This guide is an amalgamation of what I learned during my journey as well as many things I've learned about balancing blood sugar since becoming an Integrative Nutrition Coach in 2006.

I'm transparent with all of my clients that blood sugar management is my Achilles heel. I guess it's why I geek out on it. I love educating people about how a few tweaks in what and how they're eating can dramatically change how they feel within the day.

You read that right – *within the day*.

I know what to do to keep myself out of “the pit,” but sometimes life happens and I find myself backed into a corner with low blood sugar. It's rare, but when it happens, it sucks.

Maybe you know the feeling? Impatience, irritability, and the feeling of, “Move over, I gotta eat NOW.” Some people get the shakes, get overly emotional, feel panicked, and can't continue standing. It's serious stuff.

Our clients are astounded at how quickly they begin to feel better, sleep better, and think better when we get their blood sugar managed.

When you're feeling better, sleeping better, and thinking better, any subsequent dietary and lifestyle changes that need to be implemented to support hormone and immune health or clear an infection are that much easier.

As one of my clients said, “As soon as I started managing my blood sugar, I no longer felt like I was pushing a rock uphill.”

Getting a handle on blood sugar is ground zero; teaching the principles of blood sugar management is our starting place with our clients. Without this foundation, you'll continue to spin your wheels on your journey to wellness.

And many doctors in the functional medicine community say that keeping blood sugar stable is one of the single most important factors in aging well.

All roads lead back to blood sugar.



## What is Blood Sugar?

Blood sugar is the sugar (glucose) in your blood. Glucose is the fundamental component of carbohydrates.

When you eat, your body converts food into energy. How easily and at what rate your body converts carbs into glucose impacts how quickly, how high, and for how long your blood sugar increases.

Ideally, you have a steady, gradual increase – with adequate amounts of protein, fat, and *the right* carbs (I'll explain later) – followed by a steady, slow decline that carries you gently to your next meal. You want to avoid an immediate, short-lived spike (hyperglycemia); the faster and steeper the climb, the more drastic and harder the fall (hypoglycemia).

These drastic declines (aka “crashing”) can cause hypoglycemic episodes with symptoms such as:

- Headaches
- Confusion
- Intense energy dips, especially in the afternoon
- Weakness
- Severe mood swings
- Uncontrollable sugar cravings
- Irritability
- Impatience
- Emotional overreaction
- Panic

“The pit.”

And what happens when you find yourself in the pit? According to Dr. Aviva Romm, “When you’re at the bottom of the blood sugar barrel, your body goes into survival mode – literally – and you will eat ANYTHING in front of you.”

*“When you’re at the bottom of the blood sugar barrel, your body goes into survival mode – literally – and you will eat ANYTHING in front of you.” – Dr. Aviva Romm*



It can take some people a full day to recover from this emergency state.

Think “emergency state” is an exaggeration? Not when you consider that severe hypoglycemia is a threat to survival – it can cause seizures and coma.

It’s rare to crash that hard, but this gives you some insight into why there can be such a physiological and emotional response to low blood sugar. Some people don’t experience extreme symptoms, but make no mistake, they can suffer the consequences (hormonal disruption, inflammation, sleep issues, mood instability, hair loss) all the same.

Long-term ramifications of hypoglycemia can cause:

- Weight gain
- Weight loss resistance
- Bingeing
- Sleep issues
- Insulin resistance
- Pre-diabetes and eventually Type 2 diabetes

Many in the functional medicine community claim that chronic hypoglycemia *is* pre-diabetes. Other experts claim that pre-diabetes *is* diabetes.

According to the CDC, a whopping 30% of people with diabetes are undiagnosed. An infinitely larger number have pre-diabetes, which again, many functional medicine experts consider *the same thing*.

Each meal counts. Each time you eat, you have an opportunity to either strap yourself into the blood sugar rollercoaster or take a gentle ride on calm waters.

Perhaps you’re a thrill seeker and a ride on a roller coaster sounds more appealing than a mellow raft ride. But trust me, when it comes to your health, you want to mitigate extremes – and dare I say, the *abuse* – that’s characteristic of repeated blood sugar crashes.

## The Blood Sugar Hormone

Insulin, generated by the pancreas, helps to regulate blood sugar. Many don't realize that insulin is a hormone. And it's a foundational hormone to boot. If you're on the blood sugar bungee cord due to imbalanced macronutrient (carb, fat, protein) intake and a diet high in sugars ([including artificial sweeteners](#)) and processed and refined foods, it will be difficult (some experts say *impossible*) to balance other hormones – and lose weight.

Given that the pancreas and insulin are part of our endocrine/hormonal system, blood sugar management has big implications for our [thyroid](#), [adrenal](#), and reproductive system.

As mentioned, it's also a significant factor in mood regulation, energy distribution, how hot our metabolism burns, and how we sleep.

Keeping blood sugar as stable as possible is *that* important. In my experience, it's one of the single most critical factors in losing weight and busting through weight loss resistance.

If you're already eating a primarily whole foods diet, balancing blood sugar isn't difficult to do. If you're eating a lot of processed/junk foods, [including sugar](#), things will take more time to level out as you commit to getting these troublemakers out of your diet.

According to Dr. Barry Sears, you're *one meal away* from right-sizing insulin output and blood sugar. I'm going to show you how.

## Insulin Resistance

It's been reported that one-third of the population has some level of insulin resistance. Some reports are as high as a whopping 50%. It occurs when your cells become unable to uptake insulin and it's a component of [metabolic syndrome](#), which can lead to Type 2 diabetes.

When the body is flooded with too much insulin, eventually, our cells stop paying attention. It's akin to the boy who cried "Fire!" Then, when there was an actual fire, the boy's neighbors ignored his pleas for help.

It's the same phenomenon with insulin resistance, where our cells start to resist insulin's important messages. It's one of the primary causes of weight loss resistance; it's also detrimental to thyroid and adrenal health.

It can also lead to muscle loss, the "spare tire" around the midsection, and chronic inflammation. In his book, *The Blood Sugar Solution*, Dr. Mark Hyman writes, "Insulin resistance is the single most important phenomenon that leads to rapid and premature aging and all its resultant diseases, including heart disease, stroke, dementia, and cancer."

## Dysglycemia: The Swinging Pendulum

Hypoglycemia is chronic low blood sugar; hyperglycemia is chronic high blood sugar. Many people on a standard America diet experience both, aka dysglycemia. The roller coaster.

In addition to the above-mentioned symptoms of low blood sugar, dysglycemia can:

- Compromise our body's pathways of detoxification
- Cause whole-body, systemic [inflammation](#)
- Exhaust the [adrenals](#) (See page 9 for more on adrenal health.)
- [Slow thyroid function](#)
- Weaken and inflame the intestinal wall
- Promote insulin resistance, which has particular implications for those with polycystic ovary syndrome ([PCOS](#))
- Cause hair loss (See page 30 for more on hair loss.)
- Contribute to additional hormonal imbalances
- Fan the flames of autoimmunity, including autoimmune hypothyroidism/[Hashimoto's](#) (many experts in the functional medicine community say that balancing blood sugar is the *first step* in reversing autoimmunity)

According to many in the functional medicine community, *all bets are off* in balancing our thyroid (our "master gland of metabolism") and getting Hashimoto's managed when we're dysglycemic.



## Characteristics of *Hyperglycemia*

Hyperglycemia (high blood sugar) is a result of high carbohydrate consumption.

(Know that I'm not anti-carb! Au contraire. This isn't about limiting healthful carbs from your diet. I'll talk more about this in the "Putting it all Together" section of this book.)

If chronic and long-term, hyperglycemia, primarily from processed, "junk" carbs often found in the standard American diet (SAD – and yes, it really is sad), can lead to [metabolic syndrome](#), which is expected to bankrupt our healthcare system.

Metabolic syndrome is characterized by:

- Obesity
- High cholesterol and triglycerides
- Insulin resistance (dysglycemia's diabolical cousin)
- Systemic inflammation
- High blood pressure

## Characteristics of *Hypoglycemia*

There are two types of hypoglycemia: chronic and reactive.

Chronic hypoglycemia is when there isn't enough cortisol production to help raise blood sugar. This is most often seen in people with more advanced adrenal dysfunction. We'll talk more about the blood sugar/adrenal relationship in the next section.

Reactive hypoglycemia is a response to a spike in blood sugar (hyperglycemia) from a high-carb meal.

Reactive hypoglycemia can also be chronic in nature, as a response to the spike in blood sugar (hyperglycemia) from repeated high carbohydrate/high sugar consumption. Remember, the faster and steeper the climb, the more drastic and harder the fall. "For every action, there is an equal and opposite reaction."

*"For every action, there is an equal and opposite reaction." (Newton's third law)*

In both cases, chronic or reactive, hypoglycemia is an emergency state that can increase thyroid antibodies and fan the flames of Hashimoto's.

It can also cause intense, uncontrollable cravings because the body knows that the "answer" to low blood sugar is anything that will raise blood sugar. What raises blood sugar quickly? Sugar. This includes refined foods made with processed flour, which the body treats like sugar.

And by the way, juice is a shot of sugar. Even vegetable juice.

If you find yourself hypoglycemic, you're much better off with some protein and fat – the macronutrients that won't throw you into the hyperglycemic stratosphere. If you continue to respond to "the pit" with the sugars and processed foods that are so characteristic of the types of foods people crave when they're dysglycemic, you'll never break this negative feedback loop – or manage your sugar cravings.

What happens when this negative feedback loop is broken? Your cravings for junk will be greatly reduced or diminished. I promise.

As I've said for years, uncontrollable cravings for sugar (and processed junk) are rarely about willpower. There are often other powerful factors at play, so let go of, "I'm a bad person. I have no control. I'm weak."

## The Blood Sugar/Adrenals Relationship

Some experts claim that all roads lead back to blood sugar. Others claim that all roads lead back to the adrenals. Both are accurate. (And, of course, the thyroid is never a silent bystander.)

Just as there is an interdependent, synergistic relationship between the adrenals and thyroid (I call them [Frick and Frack](#)), there is also an interdependent, synergistic relationship between the adrenals and the pancreas. Remember, the pancreas makes insulin, “the blood sugar hormone.”

Thus, one of the most effective strategies for balancing blood sugar is to nourish and support the adrenals. One of the most effective strategies for nourishing and supporting the adrenals is balancing blood sugar.

### The Adrenals' Role

Our adrenals perform the life-critical job of activating our stress (fight or flight) response, which diverts energy from restorative functions, such as digestion, and toward the systems that help us fight or flee (our skeletal muscles and heart). It's the surge of adrenal stress hormones (adrenaline and cortisol) that spring us into action.

Fighting or fleeing can save our lives. But threatening situations should be few and far between. Our ancestors had periods of stress from hunting, foraging, and fighting off predators, followed by long and welcome periods of respite.

Today, many of us aren't getting this much-needed respite. In our fast-paced culture that prizes doing over relaxing, we're subjected to 'round-the-clock stressors and thus, elevated stress hormones that can cause a cascade of other health and hormonal imbalances.

My friend and colleague, Jamie Greenwood, introduced me to the concept of “the cult of accomplishment.” (My reaction: I'm a card-carrying member!)

Sure, we all want to be accomplished, but there is such thing as too much of a good thing. Pushing and striving, without appropriate rest and respite, is antithetical to the healing that needs to take place when the adrenals are taxed.

[As a part of her “The Coming Home Project,” Jamie interviewed me about adrenal health and this cult that too many of us are members of – you can find the conversation [here](#). (22 minutes)]

## Adrenal Dysfunction: Root Causes

The causes of [adrenal dysfunction](#) are multi-factorial – including physical, mental, and emotional stressors, both ongoing as well as historic. Physical stressors can also include the drain of a [food sensitivity](#) or chronic infection, some of which can be stealth infections that are below the threshold of pain or overt symptomatology.

To the body, stress is stress. It matters not if your stress is from being chased by a mountain lion or pushing yourself beyond reasonable limits with work, caretaking others, [negative self-talk](#), an H. pylori infection, or an over-packed calendar.

According to Marcelle Pick, OB/GYN, NP, “We’re all familiar with stress – it’s a constant element in [our] busy lives. But what we aren’t so familiar with is the body’s response to stress and the ways in which the stress we face today goes far beyond the kind of stress we faced as we evolved – and ends up depleting our energy and health.”

*“In today’s society, [we] are inundated with stress – stress that doesn’t let up.” – Marcelle Pick, OB/GYN, NP*

She continues, “In today’s society, [we] are inundated with stress – stress that doesn’t let up. And when chronic stress repeatedly forces the adrenal glands to sustain high levels of cortisol, the adrenals can’t attend to their broader role in hormonal regulation. Eventually, adrenal [dysfunction] sets in and many ... experience symptoms such as weight gain, fatigue, insomnia, fuzzy thinking, depression, cravings, and mood swings.”

Adrenaline hyper-adrenalizes the brain and can cause symptoms of monkey mind, hypervigilance, overthinking, and “shoulding” on ourselves.

Even in the face of the fatigue that so often accompanies blood sugar imbalances and low thyroid function, there is a feeling of being wired – “tired and wired.”

Chronic cortisol overproduction can:

- Suppress pituitary gland function, which can slow the thyroid
- Block T3 production (T3 is “the big daddy” thyroid hormone)
- Increase RT3 (the “anti-T3” hormone)
- Cause chronic sugar cravings
- Irritate the intestinal lining



Cortisol is also nicknamed “the belly fat hormone.” Ouch.

This is why I so often hear, “I got this belly out of nowhere. And I can’t get rid of it. It’s like this tire around my middle. I’m at the gym five days a week, but my belly won’t budge.”

No matter what shape you’re in, exercise can be a stressor for the body. Your activity level and how fit you are will determine to what extent you’re stressed, but it’s a fact that a rigorous routine will make your body pump adrenal hormones.

I’m not saying do nothing, especially when exercise makes us more insulin-sensitive. But if you’re fatigued or have adrenal and thyroid imbalances, you’d do well to read my friend and colleague Jen Sinkler’s post for the Healthful Elements blog about [exercising when you have fatigue](#). If you’re also struggling with pain and inflammation, you can read my colleague Andrea Wool’s post, [Exercising Safely and Effectively with a Thyroid Disorder](#).

In addition to these lifestyle factors that contribute to stress, one of the most significant stressors for the body is...you guessed it, blood sugar imbalances. Any “emergency state” will flood the body with stress hormones.

Lest we think that cortisol is nothing but a troublemaker, it also tells the liver to make more glucose in an effort to stabilize blood sugar. The idea isn’t to thwart cortisol (or adrenaline) production; it’s to make the right amounts at the right times.

## Nourishing the Adrenals

To learn about some of the symptoms as well as the pillars of restoring the adrenals, read my [Restore Your Adrenals](#) guide.

To get you on the right track quick-like, I’ll share with you what I consider to be the four-legged stool of nourishing and supporting the adrenals in the short-term. Together, these aren’t a panacea, but they can jumpstart you on your journey to mitigating overproduction of the stress hormones adrenaline and cortisol:

- Balance your blood sugar (surprise!)
- Get into the habit of a regular [breath practice](#)
- Take an adaptogenic herb, like ashwagandha or holy basil \*
- Say “no” to as many things as you possibly can

This last one can be the most challenging. But try to get lean and mean about what you’re willing to say “yes” to. Get ruthless about swiping your calendar and your life of commitments that don’t serve you or that you feel obligated to do with little reward.

Say it with me, “No, no, no. My health is my priority.”

Nourishing and supporting the adrenals is all about radical self-care. *Slowing down.*

As Dr. Carolyn Dean said, “Please don’t think you can ‘tough it out’ and just ‘muscle your way through’ adrenal fatigue. That’s the worst thing you can do.”

*“Please don’t think you can ‘tough it out’ and just ‘muscle your way through’ adrenal fatigue. That’s the worst thing you can do.” – Dr. Carolyn Dean*



\* If you’re in the U.S., here are instructions for obtaining a Fullscript account, where you’ll receive 15% off the highest quality supplements. You can keep your account in perpetuity – you can get anything they offer, at any time, for 15% off and for as long as you have your account.

If you’re outside the U.S., you can view the Fullscript categories and products, but then find them elsewhere. If you live in Canada, please reach out, and I’ll hook you up with a Canadian colleague.

To view my suggestions, [create an account here](#).

Once you’re logged in, click on “Jill Grunewald’s dispensary.” You can see my categories by clicking on the box in the upper left that says, “Shop by Dispensary Categories” or you can use the Search field to find what you’re looking for.

Feel free to peruse my categories, but don’t be intimidated by all the different products within each category. *You do not need all of these supplements!*

## Food: The Best Strategy

The best strategy for keeping your blood sugar stable is with the right foods.

The right balance of macronutrients (carbs, fat, protein) is what helps to keep you Steady Betty – out of the hyperglycemic stratosphere and the hypoglycemic pit.

Too much or too little of any macronutrient can thwart your efforts to level the field. But this isn't about perfection – there's no need to carry a gram counter in your pocket. It's all about smart eyeballing.

Generally, I like Dr. Barry Sears' 40/30/30 principle/ratio. Keep in mind, this is a loose guideline, not a hard and fast rule.

The 40/30/30 principle is based on his research around insulin management whereby your macronutrient balance is roughly 40/30/30: carbs, protein, and fat respectively.

This concept changed my life and has changed the lives of countless clients. Dr. Sears' books are what the nutrition professional/herbalist suggested I read back in the mid-90s that moved me from a hot mess to a sharper, more energetic, and slimmer me.

I know a lot more about nutrition today than I did back then. I still hold Dr. Sears in high esteem, but I'm not a fan of some of the foods that he advocates, like soy. He got me on the right track, but I haven't kept my finger on the pulse of his more recent works.

What began as Dr. Sears' research and subsequent books about "insulin management as weight control" later became "insulin management as inflammation control." He's proven that managing insulin/blood sugar is one of the tenets of keeping cellular, systemic inflammation at bay.

[Taming inflammation](#) is one of the pillars of managing any autoimmune condition, as inflammation feeds autoimmunity and autoimmunity drives inflammation.

## Your Ratio

Each of us is bio-individually unique. Some people will need a 35/40/25 ratio. Or a 30/40/30 ratio. Don't obsess about the numbers. Your body will tell you what it needs.

Here's how you'll know:

Dr. Sears said (and I paraphrase), "If your meal doesn't hold you until your next reasonable meal time (4-5 hours) – if you get uncontrollably hungry and/or hypoglycemic, look back at your last meal and ask, 'Did I get enough fat and protein and/or did I get too many carbs?'"

That's it. Tweak 'til you get it right. Remember, you're *one meal away* from balancing your blood sugar. The key is to keep balancing with each meal. This is where the cumulative benefits of blood sugar stabilization will change your life.

In many cases, my clients are eating healthful, whole foods. But their macronutrient balance needs some adjusting. A few minor changes can make all the difference in the world.

Often, we're not making a lot of significant changes to their grocery list or favorite dishes. But we're altering their macronutrient profile of their meals.

And here's what happens:

- "After 10 years of dieting with no success, my clothes are getting loose."
- "I'm making it to lunch without getting hungry."
- "I no longer have a mid-morning slump."
- "I can walk past the donuts in the office and keep walking – they don't even look good."
- "I'm not crashing in the afternoons."
- "I'm sleeping through the night for the first time in years."
- "I have so much more energy."
- "I'm less inflamed – I can just feel it."
- "My knee/hip/back pain has disappeared."

## Macronutrients: A Balancing Act

The three macronutrients are: protein, fat, and carbohydrates. Understanding from where we get our macronutrients, including how they affect our blood sugar, is the most important factor in blood sugar management.

**Note:** The foods and meal suggestions mentioned in this book don't account for any individual's unique food sensitivities or allergies. Please make adjustments at necessary.

### Protein

Protein is required to transport thyroid hormone through the bloodstream to all your tissues and eating it at each meal will help improve and normalize metabolism.

Protein sources include meat and fish, eggs, dairy, nuts and nut butters, legumes (such as lentils and beans), soy products (which I'm not crazy about), quinoa (a seed, but often referred to as a grain), and powdered protein supplements.

When it comes to meat and fish, most people only need a serving of protein the size of the palm of their hand.

About vegetarianism. I'm not a vegetarian and I encourage my clients to incorporate animal protein into their diet. I get vegetarianism. If I could be a vegetarian and feel the way I want to feel, I would.

Adequate consumption of animal protein helps keep us sharp, energized, centered, satiated, and keeps metabolism burning and blood sugar stable.

Sure, there are plant-based sources of protein. I eat those too. I love beans and legumes and have been known to eat tempeh on occasion. (Tempeh is fermented soy in its whole state. Tofu, on the other hand, is a block of highly processed curd from coagulated soy milk.)

But many in the functional medicine community have said that vegetarian and vegans with thyroid and adrenal issues will be hard-pressed to find balance and heal without some animal protein consumption.

With my vegan/vegetarian clients, I ask if they're open to incorporating some animal proteins. Most are, because they're sick and tired of being sick and tired.

We start with [bone broth](#) and move to eggs and some fish. Sometimes, it stops there and that's enough. Others move on to eating the full spectrum of animal products and say that they've never felt better.

Again, everyone is bio-individually unique. There's no "one way."

I'm conscious and intentional about where my meat and dairy come from, and if you eat meat and dairy, I ask that you do the same. Remember, you are what you eat, and you are what you eat eats, so it's important that the animals we consume were fed their natural diet.

Most animals from small to mid-sized local farms are raised naturally and not force-fed grains and other feed that they have difficulty digesting and which can lead to acidosis.

The sub-therapeutic antibiotics and synthetic hormones that conventionally-raised animals are injected with have no place in their bodies or ours. These unnatural hormones can disrupt your own delicate endocrine balance, including your thyroid hormones, and should be avoided.

Sources for sustainably-raised meats and fish (and other whole foods):

- [US Wellness Meats](#) (free-range, grass-fed meat and dairy and wild-caught fish, shipped to all 50 states)
- [Eat Well Guide](#)
- [Local Harvest](#)
- [Eat Wild](#)
- [Seafood Watch](#)

**Note:** You don't want to overemphasize protein. In general, you're not likely to get too much protein when you eat balanced, whole food meals, but it can happen when first switching away from processed foods, especially if a person fears healthy fat.

We tend to emphasize protein-rich foods as a way to escape refined carbs and keep blood sugar stable (and to keep hunger at bay) and that's good. We need protein! But too much can backfire when it comes to blood sugar regulation because when faced with excess protein, the body will turn it into sugar to make it available to the cells to use for energy (a process called gluconeogenesis).

The only thing the body can't turn to sugar is fat. So the lesson here isn't to avoid healthy proteins. Instead, it's to embrace healthy fats.

## Fat

[Dietary fat won't make you fat](#). And cholesterol is a precursor to many of our hormones. If you're still not convinced, [watch this funny video](#). (And see chart below.)

Quality sources of fat include olives and olive oil, avocados, flax seeds, fish, nuts and nut butters, hormone- and antibiotic-free full fat dairy (yes, full fat, not skim), ghee (butter oil), coconut oil, and coconut milk products.

We're not talking about those nasty trans fats that you find in most cheap, processed foods. Please read food labels carefully and avoid these unstable, unhealthy fats that are often found in fast foods, French fries, fried desserts, donuts, margarine, muffins, crackers, cookies, cakes, and microwave popcorn, to name a few.

Food manufacturers are required by law to put the trans fat content on food labels and this is the first place your eyes should go on a label. Trans fat is man-made fat that comes from dubious preparation processes and has been strongly linked to degenerative disease.

In contrast, omega-3 fats, found in fish, [grassfed animal products](#), flaxseeds, and walnuts, are the building blocks for hormones that control immune function and cell growth and are critical to thyroid function because they're required for the integrity of cellular membrane structure and improve your ability to respond to thyroid hormones efficiently.

It's not necessary to understand each of the hormones below – the important take-away is that they're all made from [cholesterol](#), which has been villainized. No wonder we see so many hormonal imbalances in those who shy away from dietary fat, the criminalization of which has been a train wreck for many women and their hormonal health.

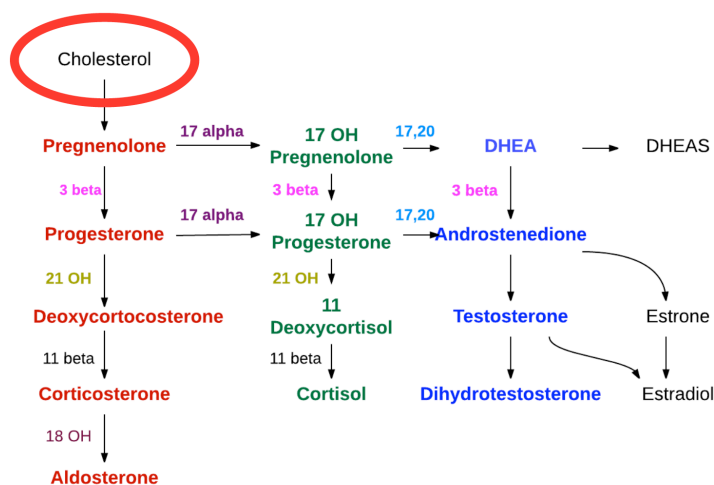


Chart by: Endocrine doctor (Own work) [CC BY-SA 4.0 (<http://creativecommons.org/licenses/by-sa/4.0>)], via Wikimedia Commons



## Carbohydrates

Again, I'm not anti-carb. I never have been. I've never jumped on the low-carb bandwagon.

Low-carb diets are particularly concerning for those with [hypothyroidism](#). I would even say disastrous.

- Our bodies don't like carb restriction. The body views caloric restriction as a stressful response and it gets doubly concerned when carb intake drops.
- A low-carb diet can lower T3 production, your active thyroid hormone, and can increase Reverse T3, the "anti-T3 hormone."
- Carbs help us thermo-regulate, something that many with hypothyroidism have difficulty with (they're frequently cold).
- The glucose in carbs is a primary fuel source for many of the body's vital organs, including the brain. The brain is a glucose hog, and this is why many low-carb dieters have complained of feeling tired, angry, depressed, spaced out, and tense.
- Research has shown that carb-restrictive dieters tend to become depressed about two weeks into their diet, about the time their serotonin levels (a neurotransmitter and feel-good brain chemical that elevates mood, suppresses appetite, and has a calming effect) have dropped due to decreased carb intake.
- A low-carb diet can cause [hair loss](#) and exacerbate [alopecia](#). Not great for people already losing hair due to low thyroid function. (See page 30 for more on hair loss.)

The critical thing to know is that carbs come in two forms: simple and complex. And they're not created equally.

Foods made with refined sugars and flour, like pastries, bagels, cookies, pasta, and cakes (even the gluten-free variety!) and many of today's processed, prepackaged foods are comprised of simple carbs.

The sugars from simple carbs break down rapidly and head straight to your bloodstream (like rocket fuel), causing blood sugar to spike (hyperglycemia) and then plummet (hypoglycemia) due to a surge in insulin.

With this blood sugar crash comes "the pit" – that severe hypoglycemic episode that makes you irritable, fatigued, impatient, and restless and that makes you reach for another donut before lunch.

Because the body is constantly in search of homeostasis, it wants the equivalent high to the low it was just subjected to, thus the craving for the spike-inducing donut. Your stress-sensitive thyroid and adrenals hate this bungee cord.

Dr. Aviva Romm states, “Since most Americans live in a sea of quick carbohydrate and sugar ‘fixes,’ we grab what is quick and right in front of us. Most often that is bread, chips, a cookie or brownie, a soda, juice, a candy bar, or some other quick-acting sugary food. But in the long run, this is not a fix at all.”

*“Since most Americans live in a sea of quick carbohydrate and sugar ‘fixes,’ we grab what is quick and right in front of us. But in the long run, this is not a fix at all.” – Dr. Aviva Romm*

Complex carbs, on the other hand, don’t rush to the bloodstream and save you from the blood sugar roller coaster.

*True* whole grains (where you can see the grain vs. pulverized powder (flour)), legumes, vegetables, and low-sugar/low glycemic (see next section) fruits (like berries) take longer to digest and dole out their energy-giving over a period of time.

Non-starchy vegetables can be eaten to your heart’s desire and your best choices for fruit are low-sugar, low-glycemic fruits (see next section for explanation of the glycemic index), not high-sugar, tropical fruits like bananas, pineapple, mango, etc.

I’m not necessarily against these fruits. It’s simply not a good idea to eat them as a stand-alone snack. They can make a lovely dessert.

Nor am I against starchy vegetables like sweet potatoes, yams, carrots, squash, etc. These nutrient-packed vegetables shouldn’t be cast aside; just know that they’re a dense form of glucose, so therefore should be eaten along with a healthful fat and protein.

Remember, fat and protein slow the release of sugar – any form of sugar, including the glucose from carbs – into the bloodstream.

## Glycemic Load/Glycemic Index

For the most part, choosing foods relatively low on the glycemic index (GI) or with a low glycemic load (GL) will help keep blood sugar from spiking.

Glycemic load and glycemic index measure how quickly a food is converted to usable energy (sugar) in the body. The higher the number, the quicker the rise in blood sugar.

Check out [Harvard's database for GI and GL listings for more than 100 foods](#). Keep in mind, we'd never recommend many of these high GI/GL foods, like cornflakes or Betty Crocker vanilla cake. Sheesh. Please direct your eyes to the *whole foods* on the list in this link.

This chart can also help:

	<b>Glycemic Index (GI)</b>	<b>Glycemic Load (GL)</b>
<b>Low</b>	0-55	0-10
<b>Moderate</b>	55-70	10-20
<b>High</b>	70-100	20+

To explain further, foods can have a high GI but a low GL. One example is watermelon, which has a GI of 72 (high), but a GL of 7.2 (low). The GI is based on 5 cups of watermelon (the amount required to reach 50 grams of carbohydrates); the GL is based on an actual serving size of 1 cup.

The GL thus takes into account that watermelon is mostly water, and therefore won't have much impact on your blood sugar. Other foods that have a high GI but a low GL include carrots, apples, peas, and parsnips.

With GI, you're simply assessing the sugar in the food, but GL considers the sugars in relation to the food's other attributes, the fiber and nutrients that help to slow the release of sugar into the bloodstream.

For example, beets are loaded with fiber and nutrients, which again, slow the release of sugar. If you juice your beets and toss all of that beautiful fiber that comes out the backside of your juicer, you're left with a blood-sugar spiking drink.

Bottom line: The higher the fiber, the less impact on blood sugar.

Similarly to the 40/30/30 principle, the concept of GI/GL is another guideline (vs. hard and fast rule) that everyone should understand the basics of but not obsess over.

## Spotlight: Breakfast

What you have for breakfast sets the tone for the next 24 hours. Your morning meal is that important.

Blood sugar management is *impossible* without the right morning fuel. And breakfast tends to be the meal that people struggle the most with in terms of planning and knowing what to eat.

If you don't "break the fast" responsibly (coffee and a muffin don't cut it, sorry), it can set you up for a day of misery, whereby you're crippled with fatigue and brain fog (and all of the other symptoms of dysglycemia) until bedtime, only to sleep poorly and then start the negative cycle all over again.

Carb bombs (heavy-carb meals) are never a good idea, but it's especially detrimental for breakfast.

That bowl of oatmeal? It's a carb bomb unless you load it up with good fats and protein – like nuts or nut butter, coconut oil/coconut milk – and/or have some healthful sides: a hard boiled egg, pastured animal protein, or some avocado. (And to the surprise of many, I'm not anti-grain or anti-legume, which I go into detail about in my [Essential Thyroid Cookbook](#). And you don't need to be hypothyroid or have Hashimoto's to enjoy the whole foods, nutrient-dense, artfully crafted, mouthwatering recipes in this cookbook!)

Better yet, trade out that oatmeal for hot quinoa cereal, which is higher in protein. And don't forget plenty of cinnamon, that wonderful, yummy blood sugar stabilizer.

Don't simply make a smoothie. Make a power smoothie with coconut oil, coconut milk, or coconut yogurt, avocado, nuts, flax, quality protein powder (I like hemp protein), and if you're brave, a raw, pastured egg.

Again, the foods and meal suggestions mentioned in this book don't account for any individual's unique food sensitivities or allergies. Please make adjustments at necessary.

Other ideas:

- Frittatas (egg casseroles, chock full of in-season vegetables) can be made for Sunday morning brunch and then re-heated for the next several mornings
- Breakfast burrito on sprouted or whole grain gluten-free tortilla with scrambled eggs and other healthful fillings of your choice, like onions, mushrooms, garlic, beans, peppers, and leafy greens (very easy to make ahead and freeze); add avocado before eating
- Fish and dark leafy greens
- Lox (smoked salmon) and organic cream cheese on whole grain gluten-free bread with red onion slices and capers
- Here's my [favorite breakfast bake](#)

Do breakfast right. You'll be amazed at how much better you feel *immediately*.

One of my favorite expert quotes about breakfast is from JJ Virgin, nutrition and fitness expert, who says, "No matter what you weigh, how busy you are, or how many times you've tried before this, do this with me. Just stand with me and do breakfast right. It will do more than give you the nutrition you need it will give you a strong start every single day."

*"No matter what you weigh, how busy you are, or how many times you've tried before this, do this with me. Just stand with me and do breakfast right. It will do more than give you the nutrition you need it will give you a strong start every single day." – JJ Virgin*



## Lunch and Dinner

Because each person's ideal macronutrient ratio is different, there is no perfect formula for what to eat at each meal.

Remember, don't obsess about the numbers. Experiment. If you pay attention, your body will tell you what it needs.

Keep Dr. Sears' mantra in mind: "If your meal doesn't hold you until your next reasonable meal time (4-5 hours) – if you get uncontrollably hungry and/or hypoglycemic, look back at your last meal and ask, 'Did I get enough fat and protein and/or did I get too many carbs?'"

I want to show you how to be a smart eyeballer, not a gram-counting number cruncher.

And if you're already eating a primarily whole foods diet, this is easy.

Look back at the Protein, Fat, and Carb sections of this book to find sources for all of the macronutrients and start playing.

Here are some guidelines and suggestions. Any of these can be used interchangeably for lunch or dinner. Most of my lunches are leftovers from the night before. (["Cook once, eat twice."](#))

### Easy lunches:

#### **Collard Greens Wrap**

Steam collard green leaves to use as wrap. Lay flat, overlapping, and fill center with organic ham or turkey, cucumber strips, a little hummus, avocado, and sprinkle with seaweed gomasio (This is my go-to lunch.)

#### **Shrimp, Grapefruit, and Avocado Salad**

Whisk 1 tsp dijon mustard, ½ tsp salt, 1 tsp lime juice, 3 tbsp olive oil, and any grapefruit juice (left over from the slicing/segmenting) together. Toss with greens of choice and top with cooked shrimp, grapefruit segments, and avocado. Drizzle with grapefruit vinaigrette.

#### **Salmon Salad Bento Lunch**

Combine salmon, olives, red onion, parsley, and capers with olive oil and lemon juice, to desired taste and consistency and place alongside watercress (or other leafy greens) and any other raw vegetable as desired.

## Dinner guidelines:

(Remember, double up your dinner ingredients so you have lunch for the next day.)

At my house, dinners are easy: primarily protein and vegetables with a side of healthful grains if the veggies aren't starchy. I use ghee or coconut or olive oil for cooking.

The possibilities are endless and relatively easy. Once you get good at a few easy sauces, dressings, and salsas, you won't get bored.

Examples:

- Pork chops with easy mustard rosemary sauce + roasted cauliflower + a salad with homemade vinaigrette
- Easy grassfed meatloaf (loaded with chopped dark leafy greens) + roasted broccoli + mashed yams with ghee
- Grilled chicken with avocado mango salsa + beans + cilantro lime brown rice
- Grilled salmon + roasted asparagus + garlic quinoa
- Sautéed chicken with mushroom sauce over brown rice + roasted Brussels sprouts

(You may have noticed that I'm a big fan of the so-called "goitrogenic" foods – those nutritional powerhouses and cancer-fighting superheroes (broccoli, cauliflower, Brussels sprouts, etc.) that are purported to slow thyroid function. You don't have to worry about these gems. Eat them. You can learn everything you need to know [here](#).)

You can take most of your favorite meals and adjust the macronutrient profile as needed. Perhaps you're carb heavy with little fat or protein. Maybe you're eating too much protein and not enough carbs.

I find that the macronutrient that needs the most attention is fat. Protein and carbs are easy to come by – and it's not that fat isn't easy to get. It's that aside from cooking oils, some meals can be a little fat-deficient.

You can somewhat remedy this by getting more cold water, fatty fish and grassfed beef into your diet. They're a two-fer: you're getting plenty of fat and protein with each.

I never tire of avocado. It's easy to get into salads, have as a side, or use as a spread.

I'm not against dairy, but many have a sensitivity to dairy foods, so getting your fat needs from milk products may not be a great idea. Even if you don't have a true sensitivity, too much dairy is mucous-forming and can cause congestion. That said, some organic, quality cheese is a-okay in my book.

Keep in mind that it's the processed and pulverized carbs/grains (flours) that you want to eat in moderation or eliminate. While not all bad, they shouldn't be a dietary staple.



## What About Grazing?

In recent years, we've been a little browbeaten into believing that smaller, more frequent meals are better than three substantive meals. Well over half of our clients come to us having implemented this "grazing" strategy.

Despite mainstream advice, smaller, more frequent meals is not a blood sugar (or weight loss) strategy. When we eat mini meals throughout the day, the body says, "Fine, I'm going to burn what you feed me vs. burning stored fat."

JJ Virgin, nutrition and fitness expert, states, "I don't recommend eating every 2-3 hours. This keeps blood sugar and insulin elevated above fasting levels, which blocks fat burning and makes your body better at burning sugar rather than fat."

Dr. John Douillard states, "Eat three – not six – meals, which gives the intestinal tract time in between meals to rest and heal. If you have erratic eating habits, such as 'grazing all day,' the digestive fire is always on and soon the incessant digestive process begins to irritate the intestinal wall.

"In the old days, a farmer could spend hours in the fields with no problem. Imagine if they had to come into the house every 2-3 hours for a snack. This kind of blood sugar instability is a modern day imbalance.

"Six meals a day is a medicinal diet for treating the symptoms of severe hypoglycemia. It was never intended to be a way of life. Nowhere else in the world have humans eaten constantly until this vain American experiment. We are told that eating six meals a day will help us lose weight by keeping the metabolism high and revved up and that it won't let the body store fat.

"We are not meant to have our metabolism revved up all day. It depletes and exhausts the adrenals (which ultimately causes fat storage) and never gives digestion a rest. While we won't store fat eating every 2-3 hours, we also will never burn any stored fat. Cancer-causing toxins are stored in our fat cells and the fat needs a reason to burn.

"With blood sugars artificially propped up from constant feeding, the ability to make energy last is replaced with fragile energy, constant hunger, mood instability and extreme cravings if a meal or snack is missed."

Learn more from Dr. Douillard's article: [To Graze or Not to Graze: It's Not Really a Question](#)

Healthful snacking is different from grazing. If you need a mid-afternoon snack to keep blood sugar stable until dinnertime, that's a-okay. You're better off eating something (remember: protein! fat! vs. cookies) than letting yourself slip into the pit. Let your snack work for you vs. against you.

## Additional Support

Food should be your first line of defense in balancing blood sugar. Supplements can help regulate blood sugar, but they can't fix a diet high in sugars and processed foods. Lower sugar and processed food intake first and be mindful of high glycemic foods, then consider supplementation if needed.

For those with more advanced dysglycemia or repeated hypoglycemic episodes who need some additional support in the short-term, here are some suggestions that can help:

- **Omega-3 fatty acids**  
Omega-3s, taken daily in the form of a high quality, molecularly-distilled fish oil, can improve insulin sensitivity and can significantly help tame the inflammation associated with dysglycemia. (I recommend everyone take a fish oil anyway – the benefits are so far-reaching.)
- **Lemon**  
The citric acid in lemon slows the release of glucose into the bloodstream. The antioxidants and minerals in lemon improve insulin signaling, boost liver function, and stabilize blood sugar. Use lemon in as many foods as possible and squeeze it into your water. Warm lemon water (with the juice of half a lemon) upon waking is a great habit to get into – very balancing and detoxifying. Lemon water is good to drink with a high-carb meal. (People with histamine/mast cell issues need to be careful with citrus water.)
- **Fermented foods**  
These foods slow the release of glucose and provide enzymes, probiotics, and bioactive nutrients that enhance blood sugar signaling. Fermented foods include kefir (including coconut kefir), kombucha, yogurt, raw cheese, sauerkraut, pickles, natto, and kimchi. Try to eat small amounts of fermented foods daily. (People with histamine/mast cell issues need to be careful with fermented foods.)
- **Cinnamon**  
Cinnamon has been shown to improve insulin receptor sensitivity and to slow the enzymes that make insulin receptors inactive. It's also a powerful antioxidant that reduces systemic inflammation. Cinnamon tea is a great blood sugar stabilizer and can slay an afternoon sweet tooth.

- **Apple cider vinegar**

Vinegar is high in acetic acid, which has been shown to reduce the glycemic response of a carbohydrate meal by 31%. Apple cider vinegar (ACV) in particular provides enzymes, probiotics, and trace minerals that enhance blood sugar signaling. Use ACV with as many foods as possible. One tablespoon of ACV in a glass of water is a great substitute for a glass of wine. (People with histamine/mast cell issues need to be careful with ACV.)

- **Chromium**

The primary function of chromium is to increase the action of insulin. It thus helps maintain balanced blood sugar and insulin levels. Concentrated food sources of chromium include oysters, whole grains, potatoes, onions, tomatoes, brewer's yeast, and bran cereals. It can be taken as a regular supplement, in the short-term, and also help mitigate an insulin surge with a high-carb meal.

- **Alpha lipoic acid**

Alpha lipoic acid (ALA) has been said to “smash” insulin resistance. It can also decrease the stress and anxiety associated with low blood sugar. A study published in the May 2010 issue of the "American Journal of Physiology. Regulatory, Integrative and Comparative Physiology" showed that ALA prevented diabetes in a study of laboratory animals fed a high-fructose diet. (Note: I'm not a fan of animal testing.) Organ meat, red meat, and brewer's yeast are the best sources of alpha lipoic acid. It can also be taken as a supplement. (See page 12 for getting high quality supplements at a discount.)

### Other Important Tips:

- Move your body. Exercise, even [restorative exercise](#) like walking, improves your body's ability to respond to insulin. Weight-bearing exercise is also beneficial since lean muscle correlates with better blood sugar regulation.
- Consume no hydrogenated fats or high-fructose corn syrup.
- Abstain from all juice and soda, including vegetable juices (which are sugar, too).
- Consume 30-50 grams of soluble fiber daily.
- Keep emergency foods on hand. While I'm not an advocate of grazing throughout the day, we all get backed into a corner from time to time. Have some nuts, grassfed beef sticks, healthful trail mix, a hard-boiled egg, or apple and small container of nut butter on hand.

- [Manage your stress](#). I know, easier said than done. But it helps mitigate the overproduction of adrenal hormones, which is one of the pillars in balancing blood sugar.



## Spotlight: Sleep

Why does blood sugar have such an impact on how we sleep?

When people are dysglycemic and prone to those hair-raising hypoglycemic episodes, blood sugar crashes can happen at night. Blood sugar drops, cortisol spikes, and we wake up.

It's a push/pull scenario that can happen a few times a night and – the longer cortisol stays high, the longer it can take to fall back asleep.

*Cortisol is the boss of our sleep cycle.*

Dysglycemia can cause cortisol to be high in the evening (the opposite of what cortisol should be doing) and give people a boost of energy before bed – the “second wind.”

I hear it all the time:

- I'm tired all day, only to get energized and productive in the evening. Then I can't go to bed at a reasonable time.
- I'm waking several times a night, like clockwork.
- I lie there awake, overthinking.
- I get my best sleep right before I need to get up.
- I feel like hell in the morning.

To all of this, I say, “Let's get your blood sugar balanced.”

For those with more severe blood sugar issues, it's highly recommended to eat a macronutrient-balanced snack before bed, in the short-term. Don't worry, it's not going to make you gain weight. In fact, the opposite may be true – the ways in which this helps to balance blood sugar can help make you a hotter metabolic burner.

Remember how I said that one of the most effective strategies for balancing blood sugar is to nourish and support the adrenals (and thus support the cortisol cycle) and that one of the most effective strategies for supporting the adrenals is to balance blood sugar?

And remember how I said that you're *one meal away* from balancing your blood sugar and that meal after meal, if you're mindful about your macronutrient intake, the cumulative effect of keeping yourself off of the blood sugar roller coaster can turn things around quickly?

This is specifically why most of our clients say, “I'm now [sleeping better](#) than I have in years.”

## Spotlight: Hair Loss

While I've been a hypothyroidism/Hashimoto's coach for many years (since 2008), starting in 2014, I also began working with the alopecia community during an intense and troubling two-year period of being half bald with the ophiasis pattern – no hair above my ears, with the band of baldness wrapping around the back of my head.

I turned things around and subsequently developed a signature mastercourse, [Reversing Alopecia](#), that's a one-of-a-kind program for helping to reduce inordinate loss and signal follicles for new growth.

No matter if someone is a private coaching client or a course participant, we start with the two critical foundational pieces of adrenal health and...blood sugar management.

Everything – and I mean *everything* – starts here. Fortunately, how we manage our adrenal health directly impacts how we manage blood sugar and vice versa. It's a true positive feed-forward cycle.

Hair loss is multifactorial. While inflammation isn't the only cause of hair loss, it's a big one and I teach several ways to tame inflammation in the follicles that will subsequently reduce shedding and foster new growth (fire up the anagen phase).

Remember, dysglycemia is one of the primary drivers of inflammation. And an excess of cortisol can also be inflammatory. [As this article states](#), “Recently, a fully functional peripheral equivalent of the [adrenal] axis could be demonstrated in microdissected, organ-cultured human scalp hair follicles, which were capable of synthesizing cortisol and showing fully functional feedback controls.”

My article, [Is Alopecia “Just Stress?”](#) addresses what I coined as the “shock and shed” phenomenon. Keep in mind, low blood sugar is an emergency state for the body – and any emergency is going to shock our system.

Additionally, insulin resistance (which again, up to 50% of us have), is a known driver of hair loss and it also encourages the conversion of T3 thyroid hormone to Reverse T3.

T3 is “the big daddy” of thyroid hormones and the most metabolically active, affecting almost every physiological process. The “free” in front of T3 (and T4) tells you what's available and unbound and therefore usable by the body.

Reverse T3 is just that – the “reverse” of T3. It blocks thyroid receptors and can cause people to be unresponsive or resistant to T3. You want RT3 low; high RT3 is often brought about by intense or prolonged periods of stress and it's typically high in people with more advanced adrenal dysfunction.

Low thyroid function can be a *major* contributor to hair loss.

[Go here for a functional thyroid panel >](#)

Chronic high insulin can also cause high testosterone for some and elevated testosterone is largely implicated with hair loss, primarily the [androgenic pattern](#). (But you can also have low testosterone and see a similar pattern of loss. I know, a true cosmic joke.)

Finally, let's talk about those blood sugar-balancing macronutrients once again and how they affect how we keep a healthy mane:

Our hair is 90% **protein**. ([Go here](#) for my post on maximizing absorption of the amino acids in protein.)

**Fat** nourishes our follicles and helps maintain follicle structure.

A low **carbohydrate** (and low calorie) diet can make your hypothalamus think you're starving, which can shut down hormone production and result in hair loss in women.

## Blood Sugar Testing

Some have milder dysglycemia – they don't necessarily have any of the “emergency” symptoms of hypoglycemia. Or perhaps they do, but it's infrequent.

Most people who slip into hypoglycemic episodes *feel* it, whereas they may not have an immediate symptomatic response to being *hyperglycemic*.

Nonetheless, it's not a bad idea to test. Consider:

1. Home glucose monitoring
2. Fasting glucose
3. HbA1c (hemoglobin A1c)
4. Fasting insulin

Blood sugar levels vary throughout the day and are impacted by a variety of factors, including menstrual cycles, illness, time since your last meal, stress, and physical activity.

The most common measurement of blood sugar, fasting glucose, is taken first thing in the morning, at least eight hours after eating or drinking, and before any exercise. A non-fasting glucose measurement is relatively worthless, in my opinion.

When measuring at home with a glucose monitor, the key is to identify trends and consider averages.

To test your blood sugar:

- Follow the manufacturer's instructions for your glucometer. Test first thing in the morning, before you eat or drink anything (other than water).
- Keep a record of the result.
- Test again for the next two consecutive mornings and calculate the average.
- Take three daily consecutive tests monthly (at approximately the same time if your cycle, if you menstruate).

With home glucose monitors, there isn't a substantial distinction among the over-the-counter brands. They all have a 10-20% margin of error, so it's important to not worry about any individual number.

As someone becomes pre-diabetic or diabetic, they're likely adding #2-4 (from the above list) to the mix. It becomes an “all of the above” thing. (Many people don't do home glucose monitoring until fasting glucose results from their doctor's office prompts the provider to suggest home testing.)



Ideal fasting blood glucose levels are not generally higher than 85 mg/dL. Someone is considered “pre-diabetic” if their level is higher than 100 mg/dL and diabetic if it’s higher than 125 mg/dL.

An increasing number of functional medicine practitioners advise folks to stay as close to 85 mg/dL as possible, and to take steps to reduce blood sugar levels if measurements are consistently higher than 85-90 mg/dL.

While fasting glucose is the most common test, HbA1c is often considered the most reliable measure of blood sugar. Our body’s supply of red blood cells regenerates every three months – three months from now, you’ll have a completely new set of red blood cells. Because excess sugar in the blood “attaches” to our red blood cells, every three months you can get an average (from an A1c) of how much excess sugar was circulating in your body during that time.

There’s a fourth type of testing called fasting *insulin*. This test, which isn’t often measured outside of the functional medicine realm but that’s becoming more common, tells you how much insulin your pancreas needed to produce to generate that blood glucose level. In other words, you could have a fasting glucose of 85 mg/dL, but you don’t know how much insulin it took to bring your body to that level.

If it required too much insulin, this suggests insulin resistance/pre-diabetes, even though the fasting glucose was normal. (Note that this test is generally not relevant for those with Type 1 diabetes since their bodies aren’t producing any insulin to begin with.)

For a full assessment of blood sugar status, I recommend all three tests:

	<b>Ideal reference range:</b>
Fasting glucose	70 – 85 mg/dL
Fasting insulin	2 – 5 $\mu$ IU/mL
HbA1c (hemoglobin A1c)	$\leq$ 5.2%
	5.3-6.4 is considered pre-diabetic
	6.5+ is considered diabetic

## Ordering Your Own Labs

Some clinics won't order a fasting insulin test and many of our clients have opted to get it on their own. We offer a direct-to-consumer lab option – for lots of things, not just fasting insulin.

[Go here to order your own labs >](#)

With the link above, you'll find some panels we've set up, including:

- Comprehensive Panel
- Full Thyroid Panel
- Inflammatory Panel
- Standard Add-On Panel

You can order any of the panels above and also use the Search function for any other individual testing you'd like. **Not available in NJ, NY, and RI.**

## Conclusion

Many doctors in the functional medicine community have stated that keeping blood sugar as stable as possible is one of the single best strategies in weight management, keeping inflammation at bay, keeping our hormones in check, and living a long, healthy life.

They've even coined a new word, *diabesity*, to describe the close connection between mismanaged blood sugar, high levels of insulin and weight loss resistance.

I do believe that all roads lead back to blood sugar.

If you take the principles outlined in this book, it will change our life. You will likely:

- Lose weight without deprivation or [dieting](#)
- Tame systemic/cellular inflammation
- Sleep better
- See significant improvement in your cravings
- Improve digestive function
- See your energy skyrocket
- Eliminate brain fog
- See a healthier overall hormonal profile

I can't repeat it enough. You're *one meal away* from balancing your blood sugar. What if you balanced your blood sugar three times today?

As they say, "One day can change everything."

*"One day can change everything."*

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