



BODY COMPOSITION GUIDE

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METABOLISM, MOVEMENT, AND MORE

A recent study found that only 7% of Americans are metabolically healthy. Metabolic health plays a crucial role in every other aspect of well-being, impacting immune function, heart health, and hormones.

At ChiRho, we are dedicated to empowering our practice members to achieve their healthiest selves. While health is multifaceted, metabolic health is key. It means having stable glucose and insulin levels, the ability to enter ketosis, build and maintain muscle and bone, regulate blood pressure, and recover from physical activity. Achieving these standards holistically is a sign of optimal metabolic health.

We take a practical approach to metabolic health with tools like heart rate variability, nutrition, blood glucose stabilization, fasting, hormone regulation, fitness, and recovery strategies. Our practice also includes two models for health: C.A.M.P. (Courage, Autonomic Nervous System, Mitochondria, Purpose) and the Four-Legged Stool approach, which incorporates chiropractic adjustments, health education, lifestyle upgrades, and functional medicine testing to support a healthy metabolic state.

The Four-Legged Stool Approach

1. Chiropractic adjustments aligned with personalized measurements.
2. Tailored body and home care plans.
3. Continuous education that encourages learning and unlearning.
4. Vitalistic functional medicine assessments.



C.A.M.P.

We encourage our audience to embrace life through the lens of C.A.M.P.! C.A.M.P. stands for Courage, Autonomic Nervous System, Mitochondria, and Purpose(s). Whether it's optimizing hormones, improving body composition, preventing cancer, achieving peak performance, or boosting immune function, C.A.M.P. is the foundation. Every day, whether with patients, family, or loved ones, we witness the growth that comes from living a life grounded in C.A.M.P. When any aspect of C.A.M.P. is neglected, we often find ourselves feeling stuck, drained, and stressed. Don't underestimate the power of living with C.A.M.P. consistently implemented and optimized in your life!

Courage



Achieving exceptional health and healing takes courage, as it often means going against the grain. The brain has a region known as the "courage center," called the nucleus reuniens. When we act with courage, this area of the brain grows stronger. Conversely, living in fear or timidity causes the nucleus reuniens to weaken.

Autonomic Nervous System



The autonomic nervous system (ANS) is the foundation that regulates all other systems in the body. The healthier your ANS, the healthier you will be overall.

Mitochondria



The health of our mitochondria directly impacts our immune system, metabolism, hormones, and neurotransmitters. Additionally, our mitochondria are connected to our autonomic nervous system (ANS), and vice versa. At ChiRho, one of our goals is to help millions of people understand how to support and build healthier mitochondria.

Purpose(s)



Each person reading this has been uniquely created for specific purposes that only they can fulfill, and the world is waiting for them to do so. Our health is closely tied to how we live out these purposes.

Introduction to Metabolic Health

VISION AND GOAL SETTING

The first step in optimizing your metabolic health is to establish a clear vision of what that means for you—whether it's running with your kids, picking up your grandkids, or maintaining independence as you age. Once you have a vision, set specific goals to make it a reality.

Our guide will help you define goals such as:

- Target body fat percentage
- Target total muscle mass
- Target mile time
- Target deadlift max (one rep)
- Target back squat max (one rep)
- Pull-up repetition goal
- Push-up repetition goal

These goals improve physical performance and metabolic health. Whether they seem challenging or simple, vision and goal setting are the foundation for achieving your personal health and fitness standards.



CAMP

Autonomic Nervous System

The "A" in C.A.M.P. stands for the autonomic nervous system (ANS), which plays a key role in metabolic health. Research shows that higher heart rate variability (HRV) supports muscle building and fat burning, while low HRV can hinder these processes. Chronic activation of the sympathetic nervous system makes it difficult for the body to release excess fat, sabotaging weight loss, muscle, and bone-building efforts. We recommend using an Oura ring to track HRV, sleep, and exercise data.

For more on improving HRV, check out our [HRV Guide here](#).

MITOCHONDRIA

Many people know that mitochondria are the powerhouse of the cell, but their relevance to daily life is less understood.

Mitochondria are crucial to your metabolic health, and improving them directly enhances your metabolic state. To support mitochondrial health, we recommend adequate sleep (track with your Oura ring), spending time in ketosis, optimizing exercise, getting sun exposure, daily heat and cold exposure, and using supplements.

For mitochondrial support, consider [Mito-Fusion](#), [Mito CoQ](#), [Mito Multi](#), [Creatine](#), various Magnesium types, and [L-Carnitine](#). For better sleep, try [Melatonin Supreme](#) (or Melatonin Max/Ultra), [Daily Mag](#), and high-quality CBD oil. Scan the QR code to visit shopchirho.com.



NUTRITIONAL FOUNDATIONS FOR METABOLIC HEALTH

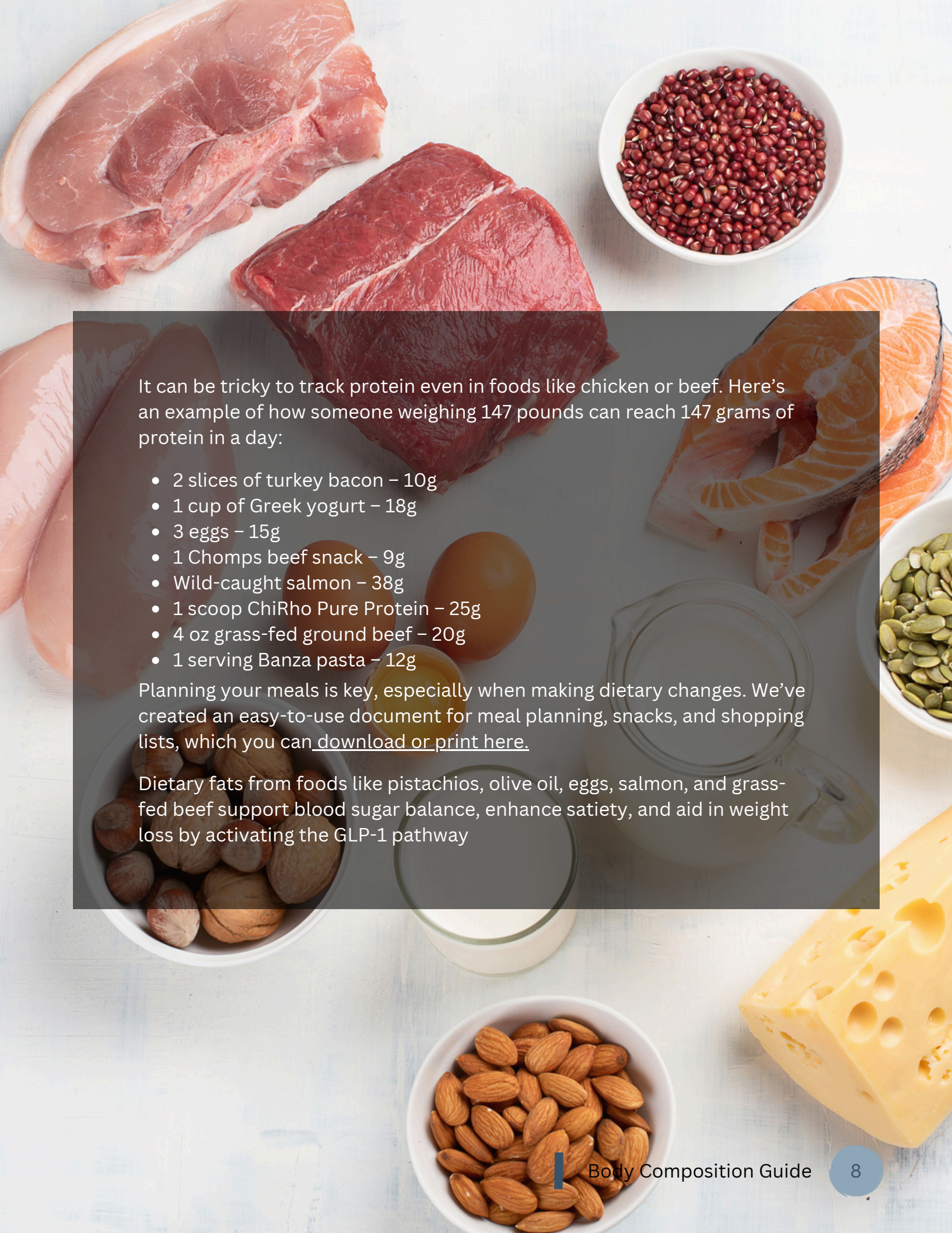
NUTRITION

For optimal nutrition, we recommend following the C.A.M.P. nutrition guide, which you can [download here](#). The guide covers key points for metabolic health, including carbohydrate intake, avoiding refined sugars (especially fructose), and reducing toxins and fasting.

We support lower-carb eating, with a target of 30-100 grams of carbohydrates per day, depending on your individual needs—feel free to experiment to find what works best for you. Keep in mind that women tend to be more sensitive to carbohydrate restriction, so it's especially important to find the right balance to support optimal hormones and sleep.

A common mistake is not consuming enough protein, which is essential for metabolic health. We recommend at least 0.75 grams of protein per pound of your ideal body weight daily up to 1 gram per pound of body weight. For example, if your ideal weight is 160 pounds, aim for 120 - 160 grams of protein. Distribute this evenly throughout your meals. A convenient way to meet your protein needs is by using a smoothie with our [Pure Protein](#) powder or any of the other options available at [shopchirho.com](#). Smoothies are also a great way to boost your nutrient intake without feeling sluggish—see the C.A.M.P. guide for more ideas.





It can be tricky to track protein even in foods like chicken or beef. Here's an example of how someone weighing 147 pounds can reach 147 grams of protein in a day:

- 2 slices of turkey bacon – 10g
- 1 cup of Greek yogurt – 18g
- 3 eggs – 15g
- 1 Chomps beef snack – 9g
- Wild-caught salmon – 38g
- 1 scoop ChiRho Pure Protein – 25g
- 4 oz grass-fed ground beef – 20g
- 1 serving Banza pasta – 12g

Planning your meals is key, especially when making dietary changes. We've created an easy-to-use document for meal planning, snacks, and shopping lists, which you can [download](#) or [print](#) here.

Dietary fats from foods like pistachios, olive oil, eggs, salmon, and grass-fed beef support blood sugar balance, enhance satiety, and aid in weight loss by activating the GLP-1 pathway

FASTING AND FEASTING

Incorporating fasting and feasting days into your routine can benefit metabolic health. Fasting involves abstaining from food for a set period, and we recommend it for most people, except during pregnancy or for those with a history of eating disorders. ChiRho practices a 72-hour corporate fast six times a year, and we encourage you to join! The dates are in our fasting guide, which you can download [here](#).

There are many fasting methods, and our guide covers these along with important nuances.

Feasting days are when you intentionally eat more, including higher-carb, nutrient-dense foods that align with the C.A.M.P. nutrition principles. Feasting doesn't mean eating junk—it's about enjoying more food while staying within healthy guidelines.

FASTING FOR WOMEN: CONSIDERATIONS AND RISKS

Fasting can be a powerful tool for improving metabolic health, promoting fat loss, and enhancing cellular repair, but women's bodies respond to fasting differently than men's. While intermittent fasting (IF) and extended fasting can offer health benefits, it's important for women to approach fasting with caution. Women are more sensitive to stressors due to hormonal fluctuations that occur throughout their menstrual cycle. Fasting, especially when done too frequently or for extended periods, can trigger a stress response in the body, leading to hormonal imbalances, menstrual irregularities, and even adrenal fatigue.

Extended or excessive fasting can disrupt the body's natural rhythm, particularly in women of reproductive age. The body may interpret long periods of fasting as a survival mechanism, signaling to the brain that it's not in an optimal state to support fertility or hormone production. This can result in disruptions to the menstrual cycle, lower thyroid function, and compromised metabolism. In some cases, it can lead to a condition known as hypothalamic amenorrhea, where menstruation stops due to chronic stress. For women, the key is balance—while short periods of intermittent fasting may offer health benefits, overdoing it or fasting too frequently can lead to negative consequences. Women should listen to their bodies and consider working with a healthcare provider to find a fasting protocol that supports their individual health needs without compromising hormonal balance.

AVOIDING REFINED SUGAR AND HIGH FRUCTOSE CORN SYRUP

High Fructose Corn Syrup (HFCS) is a common sweetener in processed foods and disrupts metabolic health. It's linked to issues like diabetes, weight gain, fatty liver disease, and insulin resistance. HFCS is made from genetically modified corn treated with glyphosate, a chemical we recommend avoiding. In our C.A.M.P. Nutrition Guide, we encourage becoming a "food label detective" to identify hidden sources of HFCS, like salad dressings, sauces, and sodas.

We also advise avoiding refined sugar, which is processed and stripped of its natural form. Sugar often appears under various names on food labels, so it's important to check the sugar content. Excessive sugar intake is associated with metabolic disorders and harms overall health.

CLEAN CART PRINCIPLE

The Clean Cart Principle means committing to filling your shopping cart with only healthy, non-toxic foods. While it's easy to make unhealthy choices when dining out or at someone else's home, what you bring into your own home is within your control. We encourage you to work with your household to adopt this principle and prioritize health in your home.



DRINK YOUR WATER

We recommend drinking an amount of water equal to half your body weight in ounces each day. Water quality matters, as it affects hydration. To enhance your water, try adding chia seeds, lemon or lime, a pinch of salt or electrolytes, and letting it sit in the sun briefly. This practice, known as "structuring" water, is based on research by Dr. Gerald Pollock in *The Fourth Phase of Water*.

We also suggest filtering your water with a Berkey or reverse osmosis system. We recommend the system from **FrizzLife**. If using reverse osmosis, consider adding back minerals or electrolytes to replenish essential nutrients. Another option is adding hydrogen to your water, and avoid plastic bottles or containers, as microplastics have been linked to heart attacks and strokes. Our office has had positive results with hydrogen water bottles and recommends them to clients.

KETONES VERSUS GLUCOSE

Understanding how ketones (from healthy fats) and glucose (from sugar) impact metabolic health is key. These are the body's two primary fuel sources. While the body doesn't rely exclusively on one, it typically favors either ketones or glucose for energy, depending on the situation.

For optimal health, we should aim to spend most of our time in a ketotic state (not to be confused with ketoacidosis). In this state, ketones are used for energy, promoting benefits like increased fat burning and improved brain function. We recommend cyclical ketosis rather than strict ketosis for long-term health. This approach includes occasionally incorporating more carbohydrates on "feast days."

For detailed guidance on maintaining a cyclical ketotic state, download our [C.A.M.P. Nutrition Guide here](#).



OPTIMIZE BLOOD SUGAR

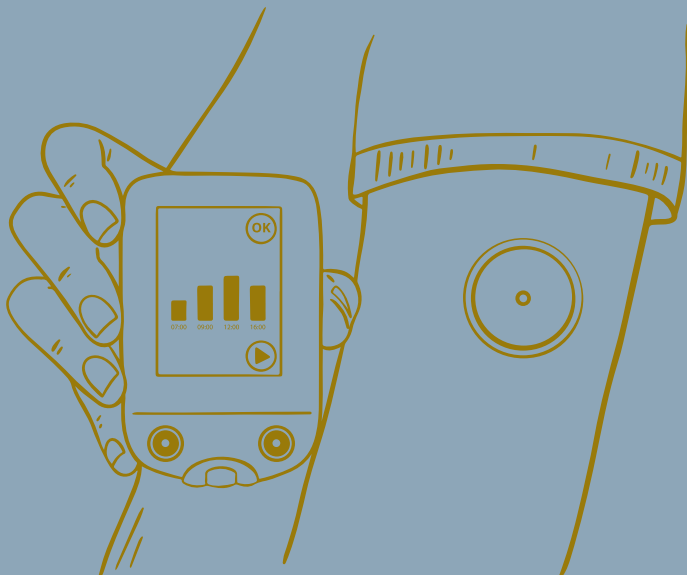
Blood sugar optimization is foundational to metabolic health. While glucose serves as a fuel source, too much or frequent fluctuations can harm your metabolism. You can track blood sugar using a continuous glucose monitor or through lab tests like HbA1c (average blood sugar), Glycated Serum Protein, Insulin, and C-peptide. Insulin is particularly important—high levels drive glucose into storage areas like muscles, mitochondria, and fat. Elevated insulin not only promotes fat storage but also hinders fat burning.

For optimal blood sugar management, we recommend fasting blood sugar levels under 100 mg/dL but in the range of 75-90 for optimal health as well as HbA1c range of 5.0–5.4%.

Key strategies to optimize blood sugar include:

- **Diet:** Focus on protein and healthy fats to keep blood sugar stable. Avoid refined carbs and sugar, which cause spikes.
- **Exercise:** Strength and resistance training help burn excess sugar and improve insulin sensitivity, aiding blood sugar regulation. Prioritize building muscle for long-term benefits.
- **Supplements:** Opti Metabolic is one of the most researched supplements for improving blood sugar control and regulation.

By combining diet, exercise, and supplementation, you can effectively manage and optimize your blood sugar levels.



TRACKING KETONES AND GLUCOSE

We recommend tracking both ketones and glucose using devices like the Keto Mojo and a continuous glucose monitor. The Keto Mojo measures both ketones and blood glucose with a finger prick device that syncs to an app on your phone. [Click here to shop for the Keto Mojo.](#)

Another option is a continuous glucose monitor, which tracks glucose levels in real-time throughout the day, providing more comprehensive data than a finger prick test. We recommend the continuous glucose monitor sold by DexCom.

[Click here to shop.](#)



HORMONAL BALANCE AND RESISTANCE

TESTOSTERONE

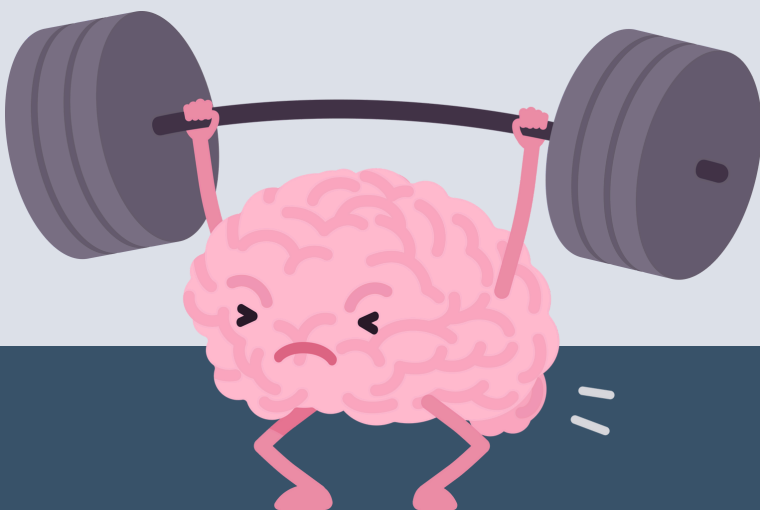
Optimizing testosterone is key to strength, energy, fat burning, and overall metabolic health—benefits that are crucial for both men and women.

Testosterone is an essential hormone produced in the sex organs of both sexes, though women have about one-tenth the amount of testosterone as men. Despite the difference, it remains vital for health. Testosterone plays a key role in increasing muscle mass, bone density, and libido, while boosting strength and reducing body fat. It also supports heart health by protecting against heart disease and heart attacks.

Additionally, testosterone protects the brain from neurodegeneration and enhances dopamine, which regulates energy, motivation, and mood. It also helps prevent insulin resistance, which is critical for reducing belly fat.

Testosterone is a versatile hormone, converting into estrogen or dihydrotestosterone (DHT). Beyond its physical benefits, it fosters a sense of well-being that keeps you feeling vital and alive, regardless of age.

When combined with the other aspects of metabolic health in this guide, optimized testosterone supports a lean body, a strong abdomen, and sustained high energy.



TESTOSTERONE REGRESSION

In our clinic, we're seeing a growing epidemic of low testosterone in both men and women across all age groups. This issue is not just age-related—testosterone levels are declining across generations. Studies show that, on average, testosterone levels in men and women decline by nearly 1% per year. This means a 40-year-old today has about 10% less testosterone than a 40-year-old just a decade ago.

Several factors contribute to this decline, including toxins, nutrient deficiencies, aging, compromised mitochondria, and stress (evidenced by low heart rate variability and poor autonomic nervous system health). Low testosterone can lead to serious conditions such as depression, reduced libido, obesity, and osteoporosis. It can also cause milder issues like fatigue, mood swings, and irritability. All of these factors contribute to increased stress and inflammation, which in turn promote fat accumulation. No amount of exercise or dieting can improve body composition without addressing low testosterone.

In addition, many common medications negatively impact testosterone levels. Antidepressants, NSAIDs (non-steroidal anti-inflammatory drugs), cholesterol-lowering medications, and birth control pills are among the worst offenders.

Without adequate testosterone, it becomes much harder to control weight. As testosterone declines, the aging process accelerates, leading to weight gain and decreased activity levels. For women, low testosterone often results in fatigue, difficulty losing weight, and increased risk of heart disease and memory loss compared to those with normal levels. Restoring testosterone is essential for reversing these effects and maintaining metabolic health.



TESTOSTERONE IN WOMEN

Testosterone plays a crucial role for both men and women, though its effects are often more understood in men. For women, however, the hormone has a unique impact, especially when it comes to weight regulation. As women age, fluctuations in estrogen and progesterone levels are common, with estrogen often becoming dominant. This imbalance can lead to weight gain, which makes regulating estrogen levels important—but it must be considered in tandem with testosterone regulation.

Excess testosterone in women can be converted into estrogen, which may further contribute to weight gain due to elevated estrogen levels. Women are more prone to weight gain than men because of these hormonal shifts. However, a decrease in testosterone can also lead to weight gain. Low testosterone results in a loss of muscle mass, and since muscle burns more calories than fat, this loss can slow metabolism, making it easier to gain weight.

To prevent this, increasing testosterone and reducing excess estrogen can help reverse muscle loss and boost metabolism. There is a clear link between elevated estrogen levels and obesity-related disorders, while testosterone plays a key role in fat metabolism. These factors explain why women with fluctuating or low testosterone levels are more predisposed to being overweight. Regulating both testosterone and estrogen is essential for optimal health and weight management.



TESTOSTERONE REGULATION

1 Implement Testing – The first step in testosterone regulation is to get your levels tested. Ideally, this includes both bloodwork (total and free testosterone along with Sex Hormone Binding Globulin) and a urine hormone test via the DUTCH test. Many patients, starting as young as 20, are living with alarmingly low testosterone, which can sabotage body composition, energy, and mood. [Click here to schedule your test.](#) For more insight on this topic, we recommend *Count Down* by Shanna Swan, PhD.

2 Practice Regular Exercise – Strength training is essential for boosting testosterone. Aim for 1–2 days of soreness per week, targeting both upper and lower body muscles, and track measurable gains in performance over time, such as more repetitions or heavier weights. This process involves stressing the muscle tissue, facilitating an adaptive response, supporting recovery with proper nutrition and rest, and then increasing strength. This cycle not only builds muscle but also raises testosterone and improves metabolic health. (Note: Work with a doctor to ensure you're choosing the right exercises and avoiding injury. Our office offers this guidance.)

3 Regulate Sleep – Sleep is essential for testosterone and overall metabolic health. Aim for at least 1.5 hours of deep and REM sleep each night. We recommend using an Oura Ring for accurate sleep tracking. For sleep support, we suggest taking 1 mg of melatonin per year of age (e.g., 40 mg for a 40-year-old) and 1 tsp of Daily Mag at 8:00 pm to improve sleep quality.



To support optimal testosterone levels, consider adding the following supplements to your routine:

- **Opti-T** – Our flagship product for optimizing testosterone in men.
- **Zinc 30, Pure D3, and Daily Mag** – These three are essential for testosterone regulation. Deficiencies in zinc, vitamin D3, magnesium, vitamin K2, boron, or chromium can negatively affect testosterone. A pure multivitamin is highly recommended for nearly everyone, and we recommend ChiRho Multi or Mito Multi.
- **Melatonin Supreme, Melatonin SRT, Melatonin Max, or Melatonin Ultra** – Studies show that Melatonin SRT not only improves sleep quality but also supports the body's natural melatonin production.
- **DHEA** – A precursor to testosterone that naturally declines with age. Supporting DHEA can help maintain healthy testosterone production. Dosages will vary based on age and gender and can be personalized through blood testing or a DUTCH urine hormone test.

Lower Stress Levels

Chronic stress depletes testosterone and elevates cortisol, negatively impacting health. It's crucial to carve out time each day for stress-reducing practices such as prayer, meditation, gratitude, journaling, or spending time in nature. While these won't eliminate life's stresses, they will help cultivate peace and strengthen the nervous system. Our Heart Rate Variability Guide offers valuable tips for improving HRV and overall metabolic health.

Follow the CAMP Nutrition Guide

Our [nutrition guide](#) provides essential principles for maintaining metabolic health and optimizing testosterone. Key recommendations include:

- Avoid alcohol, sugar, sweets, soy, grain-fed animal products, and toxins.
- Avoid eating late at night before bed.
- Test for and avoid foods that trigger sensitivities, as they can negatively impact hormone levels.

Following these guidelines, alongside supplement support and stress management, can significantly improve testosterone regulation and overall metabolic health.



Protein

Protein is vital for building and maintaining muscle, especially as we age. It also plays a crucial role in fat-burning, nutrient transport, immune function, and structural support. Research shows that consuming more than 25g of protein is necessary to maximally stimulate muscle fiber synthesis after resistance training.

Daily Protein Recommendations:

- We recommend 0.75 to 1 gram of protein per pound of body weight per day.
- If you're engaging in moderate exercise, you may want to aim for the higher end of this range.
- Divide your protein intake into 2–3 meals throughout the day (excluding intermittent fasting or time-restricted eating periods).

If you have trouble digesting proteins, fats, or carbohydrates, we suggest using Digest Support digestive enzymes to assist with digestion.

Creatine

Creatine plays a vital role in energy production, metabolism, reducing oxidative stress, and improving exercise performance. It also supports healthy hormone levels and can help alleviate mood disorders. We recommend supplementing with 5 grams of Creatine daily, specifically from Thorne, for optimal effectiveness.

- Research Reference: *J Reprod Med* 28:446-464

Adapt Synergy

This supplement is highly beneficial for supporting adrenal health, which is crucial for regulating testosterone levels.

MitoCoQ

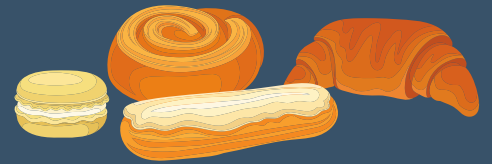
Coenzyme Q10 (CoQ10) is linked to testosterone production, with over 30 studies showing that deficiencies in CoQ10 can lower testosterone levels. MitoCoQ is our recommended supplement to optimize CoQ10 levels, enhancing both testosterone and overall metabolic health.

- Research Reference: *Biomolecules* 2018 Dec 13;8(4)

For more detailed information on protein sources and additional recommendations on protein powder, refer to the CAMP Nutrition Guide, which includes our top choice, Pure Protein Complete.

Incorporating these supplements into your routine will support muscle growth, hormone regulation, and overall metabolic health.

LEPTIN AND LEPTIN RESISTANCE



We highly recommend testing your **leptin levels** through bloodwork, as it's a key hormone in regulating body weight and metabolism. The ideal range for leptin is **4-8 ng/mL**; anything above 8 could indicate **leptin resistance**, which compromises the body's ability to burn fat and regulate body composition effectively. Without addressing leptin resistance, achieving or maintaining optimal body composition becomes much more challenging and requires significant effort.

Leptin is a peptide hormone produced by fat cells that helps regulate body weight by acting on the **hypothalamus** to suppress appetite and promote fat burning. It plays a crucial role in metabolic health and determines whether your body is burning or storing fat.

When leptin is functioning properly, it helps the body self-regulate toward an optimal weight. If fat stores are too high, leptin signals the brain to suppress appetite and burn fat. If the body requires more energy for growth or repair, appetite increases. This system is designed for balance, but environmental factors, diet, and lifestyle can disrupt leptin signaling, causing **leptin resistance**.

We often see **elevated leptin levels**, sometimes exceeding **20 ng/mL**, and in extreme cases, over 100 ng/mL. This usually happens when patients struggle to lose weight despite their best efforts, similar to what occurs in **insulin resistance** or **type 2 diabetes**. In leptin resistance, the brain reduces the body's metabolic rate, increases appetite, and signals the body to store excess calories as fat. This creates a vicious cycle where elevated leptin levels drive weight gain and increased hunger, making it difficult to lose weight or maintain a healthy body composition.

When leptin resistance is present, **caloric restriction** alone isn't effective and can make things worse. Conventional strategies such as eating fewer calories may slow metabolism further and lead to nutrient deficiencies, which ultimately harms overall health. Instead of burning fat, the body stores it, leading to continued weight gain and worsening leptin resistance.

Addressing **leptin resistance** is critical for those who are struggling with weight loss or maintaining optimal body composition. If your leptin levels are elevated, we recommend working with a practitioner who can guide you through dietary adjustments, lifestyle changes, and other treatments that support leptin sensitivity. Properly managing leptin can help restore your metabolism, reduce appetite, and ultimately improve body composition.

Leptin resistance often accompanies other metabolic issues like insulin resistance, mitochondrial dysfunction, low testosterone, adrenal fatigue, and sympathetic nervous system dominance. Overcoming leptin resistance requires testing, a solid plan, and time—but recovery is absolutely possible!

CAUSATIVE FACTORS OF LEPTIN RESISTANCE

- **Unhealthy Diet & Overeating:** Including late-night eating.
- **Chronic Inflammation:** Persistent inflammation contributes to leptin resistance.
- **Altered Microbiome:** Imbalances in gut, skin, and oral health can affect leptin regulation.
- **Chronic Infections:** Infections in any part of the body can disrupt leptin signaling.
- **Toxicity:** Mold, glyphosate, heavy metals, toxic estrogen, plastics, and non-native electromagnetic fields are major contributors to leptin resistance.
- **Excessive Indoor Time:** Limited sun exposure and artificial light can negatively affect leptin.
- **Lack of Earthing:** Insufficient grounding or sun exposure can increase inflammation; earthing mats may help.
- **Leaky Gut or Brain:** These conditions stress the hypothalamus and pituitary, contributing to leptin resistance. Stool and neural zoomer tests can help identify these factors.
- **Chronic Stress:** Elevated stress leads to a sympathetic-dominant nervous system, creating a feedback loop with leptin resistance. Using an Oura Ring to track HRV can help monitor and manage stress.
- **Lack of Exercise:** Sedentary behavior, especially prolonged sitting, can worsen leptin resistance. Aim for 10,000+ steps daily and incorporate movement throughout your day.



LEPTIN OPTIMIZATION TIPS

- **Follow the CAMP Nutrition Guide** and test for food sensitivities.
- **Prioritize Protein:** Aim for at least 0.75 grams of protein per pound of ideal body weight daily. For example, if your ideal weight is 160 pounds, target 120 grams of protein daily, divided into three 40-gram servings. If you exercise regularly, aim for 1 gram per pound. Choose non-toxic, non-inflammatory protein sources, both animal and plant-based. A list of options is available in our CAMP guide.
- **Strength & HIIT Training:** Incorporate strength training and high-intensity interval training (HIIT) into your routine, but avoid excessive amounts. We recommend a chiropractic and biomechanical evaluation to guide your exercise regimen.
- **Optimize Thyroid Health:** Get your thyroid hormone levels tested. Leptin and thyroid function are closely linked. Comprehensive lab testing for optimal T4 to T3 conversion and addressing any thyroid autoimmunity is essential. Consult with a functional medicine doctor for guidance.
- **Quality Sleep:** Aim for 1.5 hours of deep and REM sleep nightly. If you snore or sleep with your mouth open, your sleep quality may be compromised. We recommend [Intake Breathing Equipment](#), mouth taping, and seeing a dentist to assess your airway and mouth structure.

These strategies will help optimize leptin levels and prevent or reverse leptin resistance.



- **Cold Exposure:** Maximize cold exposure through cold showers, baths, or outdoor activities. Aim for at least 11 minutes of cold immersion each week to support leptin regulation and enhance mitochondrial, metabolic, and autonomic nervous system health.
- **Sauna Use:** Regular sauna sessions aid detoxification and metabolic health, further supporting leptin balance.
- **Sun Exposure:** Get ample sun exposure to as much skin as possible (without burning). Sunlight is essential for optimizing leptin levels and increasing fat burning through multiple pathways.
- **Optimize Vitamin D:** Ensure optimal Vitamin D levels, as they play a critical role in metabolic health and leptin regulation. Refer to our Detoxification Guide for strategies to enhance detox pathways.
- **Support Oral and Nasal Health:** Address the health of your oral and nasal microbiomes, and eliminate harmful bacteria from the mouth and sinuses. Toxicity in these areas can stress the pituitary and pineal glands, negatively impacting leptin levels. These issues can be tested and treated at our clinic.
- **Supplements:**
 - **Opti Metabolic** (containing berberine and alpha lipoic acid) can help regulate leptin and improve insulin resistance.
 - Curcumin, found in **Triforce Curcumin**, has been shown to reverse leptin resistance (Eur J Nutr. 2011 Apr;50(3):151-61).
 - **L-arginine** and **L-glutamine** may support GLP-1 receptor function, but should be used under the guidance of a doctor with appropriate lab monitoring.

These practices and supplements can help optimize leptin levels and combat leptin resistance.



GLP-1 AND SUPPORT FOR BLOOD SUGAR REGULATION AND WEIGHT LOSS

GLP-1 (glucagon-like peptide-1) is a powerful hormone produced primarily in the gut that plays a central role in blood sugar regulation, appetite control, digestion, and overall metabolic health. It helps the body manage glucose by increasing insulin secretion, reducing glucagon release, slowing gastric emptying, and enhancing feelings of fullness after meals.

When GLP-1 signaling is functioning well, people tend to experience better blood sugar stability, improved satiety, fewer cravings, and more efficient energy utilization. This is why pharmaceutical GLP-1 agonists such as Ozempic, Wegovy, and Mounjaro have become widely used for diabetes and weight loss.

However, while these medications can be effective in the short term, they are also associated with potential side effects including nausea, delayed gastric emptying or gastroparesis, reduced pancreatic stimulation, loss of lean muscle mass, micronutrient deficiencies, and weight regain when the medication is discontinued. For many individuals, these medications do not address the underlying drivers of metabolic dysfunction.

The good news is that the same physiological pathways targeted by GLP-1 medications can often be supported naturally through targeted nutrition, gut health optimization, and specific nutraceuticals—helping improve GLP-1 signaling without suppressing the body’s own metabolic capacity.



NATURAL WAYS TO SUPPORT GLP-1 FUNCTION

Opti Metabolic (Berberine-based support)

Berberine is one of the most well-researched natural compounds for blood sugar regulation and metabolic health. It has been shown to improve insulin sensitivity, reduce hepatic glucose production, and support healthy GLP-1 secretion. Berberine also activates AMPK, a key metabolic regulator often referred to as the body’s “metabolic master switch,” supporting both longevity and fat metabolism.



Triforce Curcumin

Curcumin is a potent anti-inflammatory compound that supports pancreatic health and improves insulin signaling. Research shows curcumin can enhance GLP-1 activity while reducing inflammatory stress that interferes with glucose regulation. This makes it especially valuable for individuals with insulin resistance, chronic inflammation, or metabolic syndrome.

Ultra Resveratrol

Resveratrol supports mitochondrial function, reduces oxidative stress, and improves metabolic flexibility. It has been shown to enhance GLP-1 signaling and insulin sensitivity while supporting healthy aging. By improving cellular energy production, resveratrol helps the body use fuel more efficiently rather than storing it as fat.

Ignite+ (Metabolic Activation & Fat Loss Support)

Ignite+ is designed to support body composition by activating key metabolic pathways involved in fat oxidation and energy expenditure. It promotes thermogenesis, supports the conversion of white fat to metabolically active brown fat, improves glucose handling, and helps balance hunger hormones such as leptin and ghrelin. This supports sustainable fat loss without suppressing appetite signals unnaturally.

Meta Probiotic (Gut–Metabolic Axis Support)

The gut plays a major role in GLP-1 production. MetaProbiotic combines targeted probiotics and prebiotics to support a healthy microbiome, which directly influences GLP-1 secretion, insulin sensitivity, inflammation levels, and nutrient absorption. Optimizing gut health is foundational for long-term metabolic success.

Dietary Fats That Activate GLP-1

Certain dietary fats naturally stimulate GLP-1 release and improve satiety after meals. These include fats from olive oil, pistachios, eggs, salmon, grass-fed beef, and other whole-food sources. When paired with adequate protein and fiber, these fats help stabilize blood sugar, reduce cravings, and support sustainable weight loss without extreme caloric restriction.

THE BIG PICTURE FOR GLP-1

Supporting GLP-1 naturally is not about forcing appetite suppression—it is about restoring proper metabolic signaling, improving insulin sensitivity, protecting lean muscle mass, and addressing the root causes of blood sugar dysregulation.

By combining targeted supplements, gut health support, and strategic nutrition, many individuals can experience improved metabolic health and body composition—either as an alternative to GLP-1 medications or as supportive care alongside them—while preserving long-term resilience and health.

ADRENAL FUNCTION

A key area of confusion we aim to clarify is the connection between adrenal function and metabolic health. The adrenal glands play a vital role in managing stress by releasing cortisol, which helps us respond to challenging situations. In the right amounts and at the right times, cortisol is crucial for regulating our sleep-wake cycle, known as the circadian rhythm. This internal clock evolved to handle basic survival stress, like escaping from a predator—triggering cortisol release to either fight or flee.

In modern life, however, we no longer face physical predators, but the stressors have shifted to work deadlines, relationship struggles, traffic, financial pressures, and even poor diet. Each of these modern "lions" strains our adrenal health, eventually leading to insufficiency. This prolonged stress response, where the body stays locked in survival mode, is what we refer to as adrenal fatigue.



Many people try to escape adrenal fatigue by adding more stress: long hours on the treadmill, endless HIIT classes, extreme calorie restriction, or even skipping meals. Exercise, when done correctly, is a form of hormetic stress—it should challenge the body while in the gym, but leave us stronger and more resilient during recovery. However, when this positive stress from exercise is paired with ongoing, unrelenting life pressures, the body can't properly recover. What used to boost energy and support metabolism now only exacerbates the problem.

This isn't a call to stop exercising altogether. Instead, it's an invitation to focus on recovery over intensity. Consider replacing some intense workouts with activities like stretching, mobility exercises, or a gentle sunrise walk. These changes should be made alongside efforts to reduce or reframe your life's stressors. This approach will help your adrenals shift from survival mode to a state of healing, improving both your energy and metabolic function.

When the adrenals are overburdened, the body may increase blood sugar regardless of your diet, making it harder to maintain insulin and blood sugar balance. If this sounds familiar, take a step back. Assess whether your nervous system is stuck in "fight or flight" mode and begin working on restoring balance to your nervous system and hormonal health.



ACTION STEPS TO REGULATE ADRENAL HEALTH

- 1 Eliminate manageable stressors:** Address factors like poor diet, chronic calorie restriction, and inadequate sleep.
- 2 Balance intense workouts with recovery:** Pair high-intensity exercise with stretching or mobility days for recovery.
- 3 Measure autonomic awareness:** Use tools like an Oura Ring to track HRV and assess your body's recovery needs.
- 4 Get tested:** Consider comprehensive testing, such as the [DUTCH test](#), to identify internal stressors. [[Click here to schedule an evaluation.](#)]
- 5 Supplement wisely:** Start with [Daily Mag](#), [Daily Mag Neuro](#), [Adapt Synergy](#), [Melatonin SRT](#), and [L-theanine](#) to support recovery and stress management.
- 6 Be patient:** It took years, if not decades, for your body to reach its current state. Recovery will take time.
- 7 Clarify your vision:** Read the Chirho Vision Guide and write down your personal goals. A clear vision with a plan will reduce stress on your nervous system and adrenals.



EXERCISE AND PHYSICAL ACTIVITY

Exercise is essential for overall metabolic and general health. Done correctly, it increases muscle mass, improves bone density, enhances insulin sensitivity, and even helps reverse insulin resistance. We recommend exercise in some form for all our clients and encourage them to embrace the lifelong journey of improving their fitness. Setting goals around getting stronger and faster is key. In this section, we'll cover various exercise types—HIIT, CrossFit, strength training, endurance training, and mobility—and provide specific exercises that can be done at home without any gym equipment.



It's also important to distinguish between activity and exercise. Many people describe how active their days are or how much movement they get at work. If you have an active lifestyle, that's great, as many people now work sedentary jobs. However, being active—whether through movement or lifting objects—is not the same as exercise. Activity helps with calorie burn and staying mobile, but exercise goes beyond that, offering more targeted benefits. While we encourage everyone to stay active, it's crucial not to confuse activity with intentional exercise.

A STORY ABOUT EXERCISE FROM DR. EMMA:

Exercise has been a part of my life since I was 11. Before that, I hadn't played any sports, and I was uncoordinated and weak. P.E. class was often hard and embarrassing for me. Everything changed when I broke my radius and ulna roller skating. My mom told me that once I could bear weight on my arm, I'd be starting CrossFit because she thought I was too weak and jokingly called my body a 'wet noodle.' So, that spring, I began CrossFit Kids' classes, and that was the start of my 12-year journey with CrossFit.

I'm no professional athlete, but I've become a CrossFit Level 1 Trainer. More importantly, exercise has been a constant in my life, and I have a deep gratitude and respect for it. I've become not only physically stronger but mentally tougher. The mental resilience I've gained has transformed the way I approach challenges in every aspect of my life. I can't recommend enough incorporating fitness into your life—and especially into your children's lives."



STRENGTH TRAINING

Strength training, also known as weight or resistance training, is essential for muscle building, preventing and reversing osteoporosis, improving insulin sensitivity, and reducing insulin resistance. While many exercises can be done with just your body weight, we recommend progressing to using dumbbells, kettlebells, and barbells for more variety and increased intensity. A pull-up bar and a yoga mat are also useful for floor-based movements.

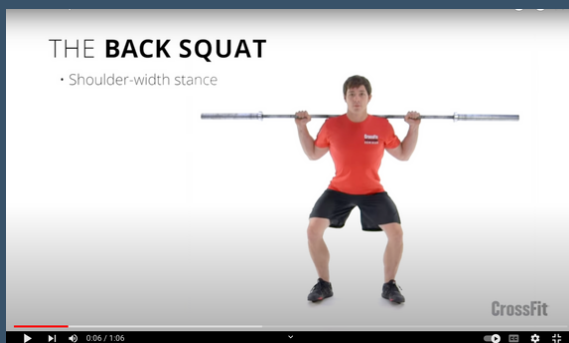
Here are some of our favorite strength training movements:

- Squats (back squats, front squats, goblet squats)
- Deadlifts
- Kettlebell swings
- Lunges & reverse lunges
- Ab rollers & planks
- Push-ups

We also enjoy using mini bands for exercises like side steps and squats. Gymnastic movements such as pull-ups, toes-to-bar, handstand variations, and sit-ups are highly beneficial as well.

We've listed these exercises below, along with video links to show you how to perform them correctly.

Back Squat



Front Squat



Side Plank



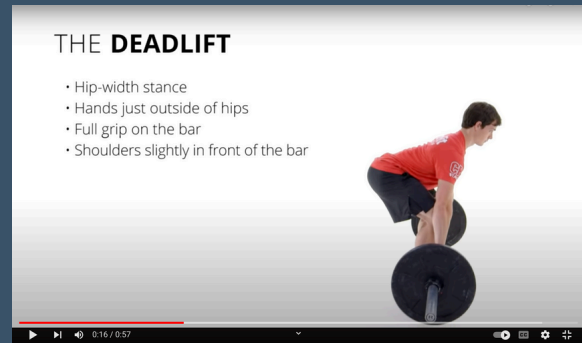
Goblet Squat



Push-up



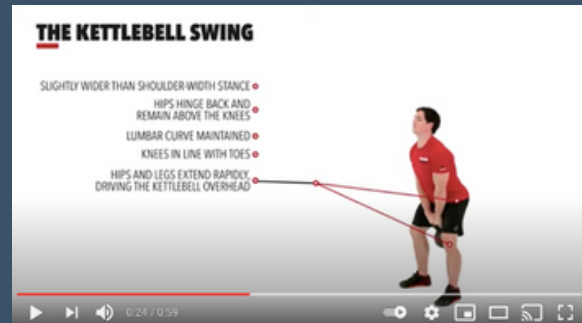
Deadlift



Mini-band side steps



Kettlebell Swing



Plank



Mini-band squats



Lunge



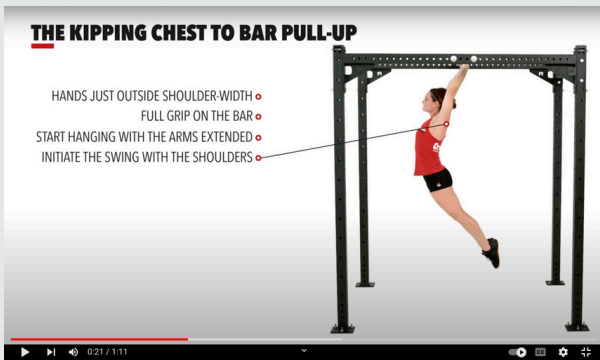
Reverse Lunge



Strict Pull-ups



Kipping Pull-ups



Ab Rolling



Toes to bar



Sit-up



Handstand



Dead bug



These workouts can last anywhere between 5 and 30 minutes depending on your ability level, weight load, and time you have available!

ENDURANCE TRAINING

Endurance training, often referred to as cardio, is another key exercise for metabolic health. These exercises elevate your heart rate, boosting cardiovascular fitness and overall stamina. Some of the most effective endurance exercises we recommend include running, jump roping, double-unders, cycling, and rowing.

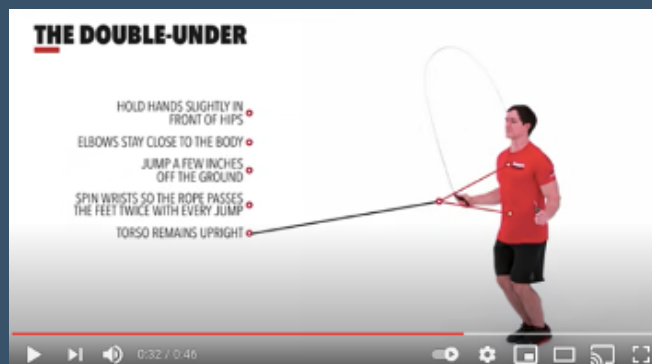
Running is an excellent starting point since it requires no equipment, though a jump rope is an affordable option for variety. Rowing and cycling are great if available, but you can achieve similar benefits with bodyweight exercises. These workouts are efficient and can often be completed in just 10-15 minutes per day.

Below, we've listed these exercises along with video links to guide you on proper form and execution.

Jump Roping



Double-unders



HIGH INTENSITY INTERVAL TRAINING

HIIT is a form of cardio that involves short bursts of intense exercise followed by brief recovery periods. This style of training is perfect for those with limited time who still want to achieve significant results. HIIT workouts are time-efficient, and even just a few minutes can provide a powerful impact.

There are several free apps available to guide you through HIIT sessions and structure your workouts effectively. One recommendation is the Seven: 7-Minute HIIT Workout app, which offers a variety of quick, high-intensity routines



Dr. Harmon often emphasizes not overcomplicating your fitness routine. A simple goal of 20 minutes of exercise per day, regardless of the type, can yield great benefits. Hold yourself accountable to at least 20 minutes of movement daily. In the next section of this guide, we'll provide additional workout suggestions.

Sprinting: Sprinting is an excellent fat-burning exercise, especially for targeting visceral fat. Try to incorporate sprints into your routine—10 sets of sprints ranging from 50 to 100 yards is a fantastic addition to any workout week.

Walking: Walking, while essential for a healthy lifestyle, doesn't quite fall under the "exercise" category. However, it's crucial to aim for over 10,000 steps daily. A study published in March 2022 found that achieving this step count can reduce the risk of mortality by up to 60%.

Walking, particularly after meals (post-prandial walking), is especially effective at stabilizing blood sugar levels and promoting fat burning. We recommend walking after your last meal to maximize these benefits, even though it's more of a movement practice than a formal exercise.



MOBILITY

In the context of exercise, mobility refers to the ability to move freely and with a full range of motion during movements. Good mobility is crucial for injury prevention and allows you to perform exercises more efficiently, with better speed and strength.

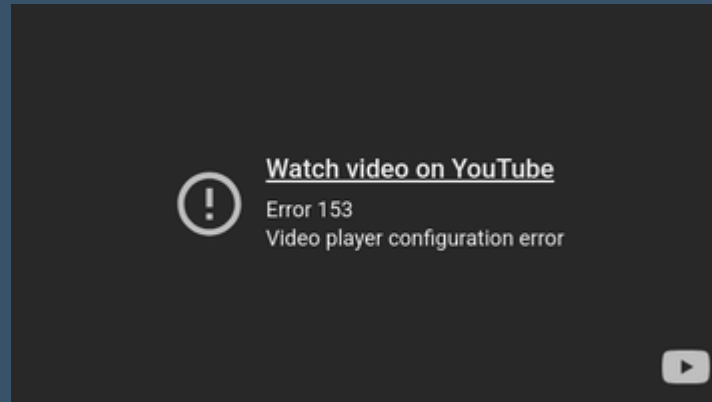
Some of the mobility exercises and programs we recommend incorporating into your routine include:

- Foam Rolling
- The Melt Method
- Primal Movement
- The Bretzel Stretch
- Yoga (Note: We advise caution with certain yoga styles, such as Kundalini.)

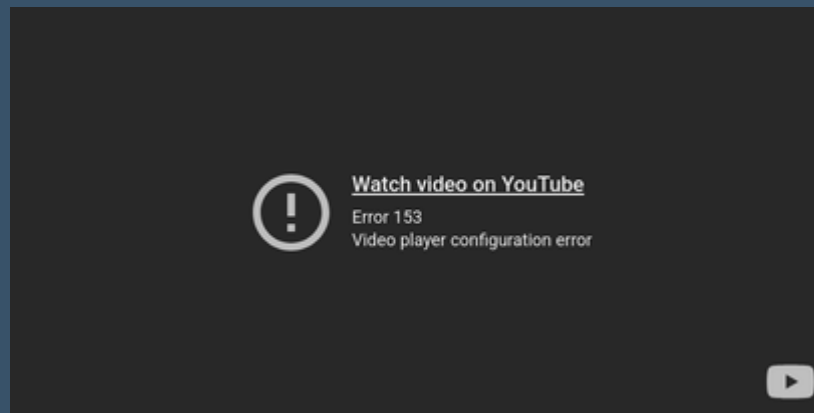
These practices help improve flexibility, joint health, and overall movement quality, enhancing your performance in strength and endurance exercises.



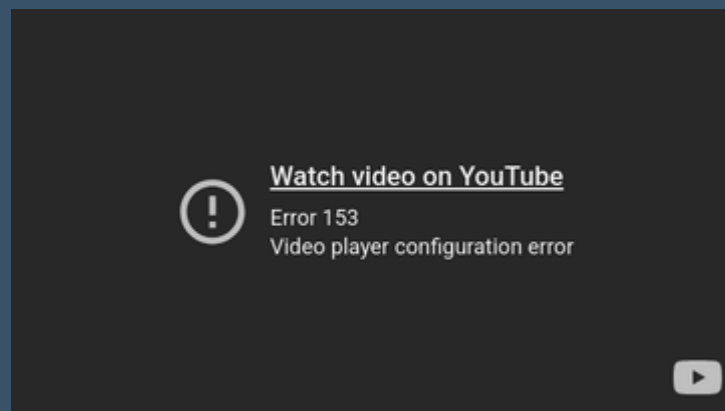
Foam Rolling



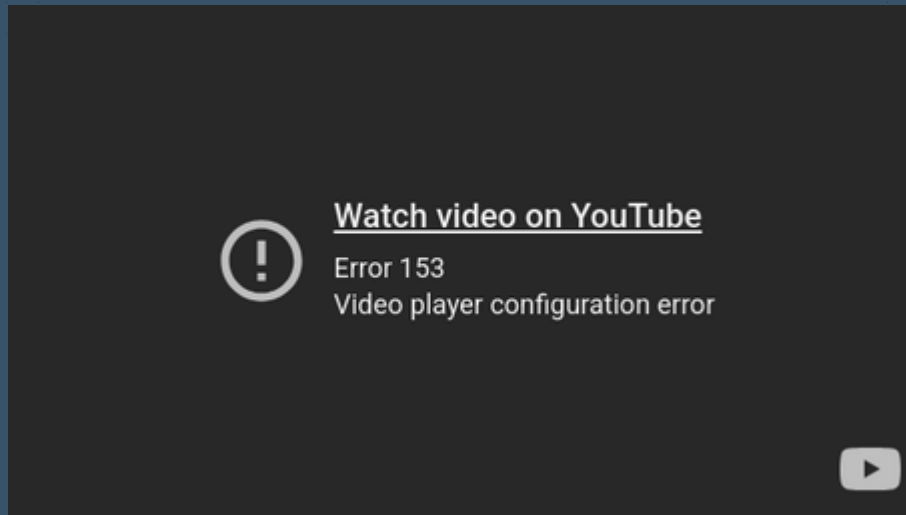
Melt Method



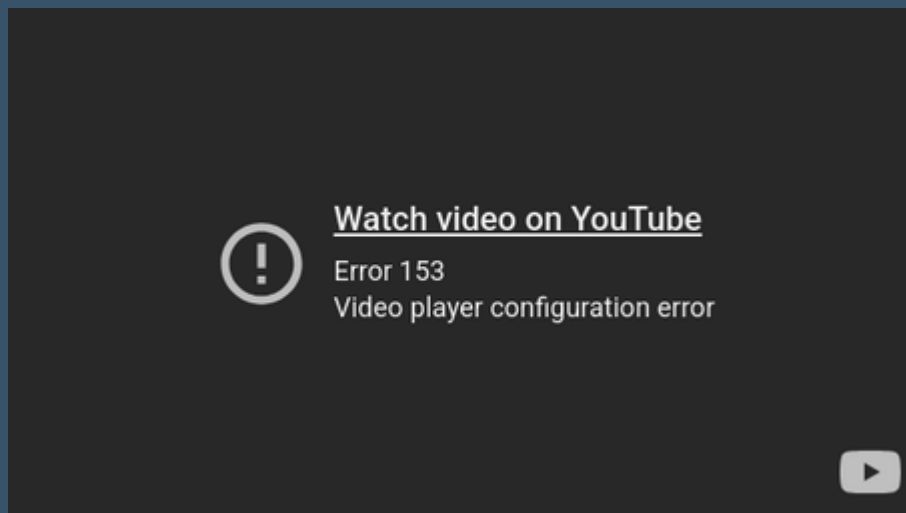
Primal Movement



Bretzel Stretch



Yoga



We recommend dedicating more time to mobility, particularly as you increase your exercise intensity, which may lead to more soreness and stiffness. Aim for 15-30 minutes, depending on your specific needs, to effectively enhance recovery and maintain flexibility.

SAMPLE WORKOUTS

If you're starting from scratch with no exercise equipment, the best place to begin is with bodyweight exercises, HIIT (High-Intensity Interval Training), and sprinting.

For those who are very ill or have limited mobility, start with walking, squats to a chair (lowering yourself down and standing back up), and possibly incorporating small hand weights as you build strength. It's important to remember that, over time, you can regain your health and gradually reach your highest level of fitness.

If you're working out alone at home, it can be challenging to know where to start. To help, we've created 8 home workouts, some of which require no equipment, while others need minimal gear. These workouts will give you a solid starting point as you learn to design your own routines.

SAMPLE WORKOUTS WITH NO EQUIPMENT

Workout 1: EMOM for 20 Minutes

- **Description:** Every minute on the minute (EMOM) for 20 minutes, perform the exercises listed. Rest with the remaining time after you finish each movement.
 - **Odd Minutes:**
 - 10 air squats. Advanced option: 10 pistol (single leg) squats, 5 per side.
 - **Even Minutes:**
 - 10 pushups. Advanced option: 10 hand release pushups.



Workout 2: Repetition Scheme (27, 21, 15, 9)

- **Exercises:**
 - Reverse lunges
 - V-ups
 - Burpees
 - Pushups
- **Description:** Perform the exercises for 27 repetitions each, then 21 repetitions each, followed by 15 and ending with 9. Complete all reps of one exercise before moving to the next.



Workout 3: Walk Around the Block

- **Description:** Perform the following sequence:
 - 50 pushups
 - 200 walking lunge steps
 - *Note:* Every time you come to a stop or pause, perform 20 air squats.
 - 50 pushups



Workout 4: Death by Burpees

- **Description:** Every minute on the minute, perform an increasing number of burpees:
 - Start with one burpee in the first minute, two in the second minute, three in the third minute, and so on, until you can no longer complete the required number of burpees within the minute.

SAMPLE WORKOUTS WITH MINIMAL EQUIPMENT

Workout 5: 5 Rounds

- **Equipment Needed:** Jump rope, wall, ABMAT (optional)
- **Routine:**
 - 400 meters/2-minute run
 - 3 wall walks
 - 100 jump rope skips or 30 double-unders for an advanced option
 - 25 butterfly sit-ups



Workout 6: Repetition Scheme (21, 15, 9, 3)

- **Exercises:**
 - Handstand pushups against the wall, hand release pushups, or regular pushups
 - Walking lunge steps
 - Burpees
- **Description:** Complete the exercises for 21 repetitions each, then 15 repetitions, 9, and finally 3. Perform all reps of one exercise before moving to the next.

Workout 7: 5 Rounds with Kettlebell

- **Equipment Needed:** Kettlebell
- **Routine:**
 - 20 kettlebell swings
 - 400-meter run



Workout 8: 3 Rounds with Kettlebell

- **Routine:**
 - 5 V-ups
 - 5 goblet squats, holding the kettlebell in front of the chest with both hands
 - 5 V-ups
 - 5 reverse lunges, holding the kettlebell in front of the chest with both hands

BEYOND EXERCISE: COMPONENTS FOR BIOMECHANICAL AND MOVEMENT SUCCESS

BREATHWORK

Breathing is a powerful tool for improving health, especially when combined with movement and exercise. We highly recommend nasal breathing over mouth breathing, both during exercise and at rest. While it may feel counterintuitive or challenging at first, nasal breathing is more efficient, allowing you to work harder and longer. It may require some training, and you may need to reduce the intensity of your workouts temporarily as you adjust.

An [Intake Breathing device](#) can be helpful for both exercise and sleep, supporting improved breathing patterns.

For a deeper understanding of breathwork, we recommend exploring *The Oxygen Advantage* by Patrick McKeown and content by Wim Hof, both of which offer valuable insights into how breath can enhance physical performance and overall well-being.

FOOTWEAR

There are varying opinions on footwear in the fitness industry, but for most of our patients, we recommend **minimalist, barefoot-style shoes** or even going barefoot, if your environment and activity allow for it. This style allows your toes to spread naturally and helps strengthen your feet, letting them function the way they were intended to. While this approach may seem unconventional to some, think of it like wearing mittens on your hands—what many consider "supportive" footwear can actually be "restrictive."

We also advise avoiding high heels as much as possible, as they disrupt your foot biomechanics and create tension that harms posture and movement.

Great barefoot shoe brands include:

- Vivo Barefoot
- Zero Shoes
- Earth Runners
- Ahinsa
- Flux Footwear
- Groundies

Grounding is another benefit of working barefoot. Dr. Harmon does about 90% of his workouts barefoot, often outdoors on grass, to maximize the benefits of grounding. While it may take some time for your feet to toughen up and get used to the sensation, the long-term benefits are worth it. Whether you're exercising barefoot or in minimalist shoes with zero or minimal lift, you'll reap the rewards of improved foot health and biomechanics.

To supercharge your efforts, consider **habit stacking**—combining multiple healthy habits into one routine. For example, doing a morning workout barefoot while the sun rises can combine physical exercise with the benefits of grounding and exposure to sunlight. In our busy lives, why not take advantage of the opportunity to maximize multiple health benefits at once?



CHIROPRACTIC CARE

Chiropractic care offers numerous benefits, with one of the most important being improved biomechanics—a key factor for fitness success. Proper movement is essential for effective exercise, and pain or restricted motion can be significant barriers to staying active. Chiropractic adjustments help restore spinal alignment, reduce pain, and improve range of motion, making it easier to move and exercise without discomfort. It's also an excellent way to prevent injuries associated with physical activity.

The health of your spine directly impacts the function of your nervous system. A healthy nervous system supports optimal metabolic function, helping you achieve better overall health.

We recommend finding a skilled chiropractor near you who can provide regular care. If you're local to our area, we'd be thrilled to help you with chiropractic care and support your journey to better movement and health.



ADDITIONAL RESEARCH ON EXERCISE

While the primary focus of this resource is metabolic health, it's important to recognize that improving metabolic health has far-reaching benefits. It enhances immune function, prevents disease, and even helps reverse disease. Two recent studies highlight the incredible impact of exercise in preventing and reversing cancer, underscoring the importance of incorporating exercise into your daily routine.

1. **Exercise-Induced Metabolic Shield in Distant Organs Blocks Cancer Progression and Metastatic Dissemination**

- This study shows that exercise helps create a metabolic shield in distant organs, blocking cancer progression and reducing the spread of metastatic cancer. [Read the study here.](#)

2. **Acute Effect of High-Intensity Interval Aerobic Exercise on Serum Myokine Levels and Tumor-Suppressive Effects in Advanced Prostate Cancer**

- Research reveals that high-intensity interval training (HIIT) has a significant tumor-suppressive effect in patients with advanced prostate cancer, offering a promising therapeutic approach. [Read the study here.](#)

Additionally, emerging research shows that exercise strengthens the autonomic nervous system, which plays a critical role in regulating inflammation and reducing oxidative stress—key factors in aging and overall health.

3. **Effects of Exercise Training on the Autonomic Nervous System, Focused on Anti-Inflammatory and Antioxidant Effects**

- This study highlights how exercise helps activate the autonomic nervous system, boosting its ability to control inflammation and reduce oxidative damage. Improving autonomic function not only supports metabolic health but enhances every aspect of your health. [Read the study here.](#)

These studies underscore the profound benefits of regular exercise, not only for metabolic health but also for cancer prevention, disease reversal, and overall well-being. Exercise is a powerful tool for improving health on multiple levels.

RECOVERY AND BODY CARE

Recovery is just as important as exercise for long-term success. It allows your body to repair, adapt, and strengthen. Without proper recovery, you risk fatigue, poor sleep, and injury.

Prioritizing rest ensures you maximize the benefits of exercise, optimize biomechanics, and maintain sustainable progress.



HOT THERAPY, COLD THERAPY, AND CONTRAST THERAPY

Contrast therapy, which alternates between hot and cold treatments, enhances recovery and supports metabolic health, including the lymphatic system.

For hot therapy, we recommend using a sauna, especially the JNH Sauna if you plan to invest in one. Traditional Finnish saunas and Epsom salt baths are also excellent options.

For cold therapy, ice baths or cold plunges are ideal, but cold showers are a more accessible alternative. To start, finish your regular shower with 60–120 seconds of cold water. Research shows that 11+ minutes of cold immersion per week at temperatures below 56°F can dramatically improve metabolic health, burn fat, boost immunity, reduce inflammation, enhance stress resilience, and increase dopamine levels (improving focus, energy, and mood). Make it a goal to incorporate this cold immersion weekly.

Primary recovery tools we recommend are saunas, ice baths, and cold showers. Additionally, massage, chiropractic care, and whole-body vibration therapy can aid in recovery by improving blood flow, easing soreness, and correcting imbalances caused by exercise.

If you track recovery with an Oura Ring, monitor your recovery score and Heart Rate Variability (HRV) to determine when extra recovery methods are needed.

THE IMPORTANCE OF SLEEP FOR METABOLIC HEALTH

Sleep is crucial for metabolic health, influencing fat-burning, insulin sensitivity, appetite regulation, and hormone production. Lack of sleep disrupts these processes, making weight loss more difficult and increasing the risk of conditions like obesity and diabetes. To truly optimize metabolic health, aim for 7+ hours of quality sleep each night.

Aligning your sleep with your circadian rhythm is essential. Exposure to natural morning sunlight—within the first hour of waking—helps reset your internal clock, boosts mood, and supports metabolic function. Try to get 10-15 minutes of sunlight early in the day to kickstart your natural rhythm.

On the flip side, blue light from screens interferes with your circadian rhythm and reduces melatonin, making it harder to fall asleep. To protect sleep quality, avoid screens at least an hour before bed and consider using blue light-blocking glasses.

Tracking your sleep with devices like the Oura Ring can help you measure sleep quality and make adjustments for better results. By improving both the quantity and quality of your sleep, you support better metabolic health and overall well-being.



EVENING AND MORNING ROUTINES FOR RECOVERY

Both evening and morning routines play a critical role in your overall recovery and metabolic health. How you begin and end your day significantly impacts your ability to recover from exercise, manage stress, and optimize your energy levels.

Evening Routine: Your evening routine sets the stage for quality sleep, which is when much of the body's recovery and repair happens. Aim to wind down at least an hour before bed by engaging in activities that relax your mind and body, such as reading, stretching, or practicing deep breathing. Avoid stimulating activities like intense exercise or screen time, as blue light from devices disrupts melatonin production and impairs sleep. Creating a consistent bedtime ritual helps signal to your body that it's time to rest and recover, making it easier to fall asleep and enjoy deep, restorative sleep.

Morning Routine: A well-structured morning routine helps you start the day with intention and sets the tone for your recovery. Begin with hydration, preferably water with added electrolytes, to replenish after hours of sleep. Incorporating natural sunlight exposure within the first 30 minutes of waking supports your circadian rhythm, boosts mood, and enhances your body's ability to burn fat. Movement, whether light stretching, yoga, or a short walk, stimulates circulation and prepares your body for the day ahead. A consistent morning routine can improve mental clarity, reduce stress, and optimize metabolic function by stabilizing blood sugar and boosting energy for the day.

Together, these routines play a significant role in optimizing recovery, improving metabolic health, and ensuring you wake up feeling energized and ready to take on the day.



ENVIRONMENTAL AND LIFESTYLE FACTORS

REDESIGN YOUR ENVIRONMENT

Optimizing your work or home environment can significantly improve your biomechanics and encourage movement throughout the day.

We recommend replacing a standard desk with a standing desk or a floor setup to give you the flexibility to move. If possible, alternate between sitting, standing, and even kneeling to keep your body active. Scheduling regular breaks to move is also key—set reminders to stand up, stretch, or take a short walk.

Adding equipment like a vibration plate, pull-up bar, rebounder trampoline, or foam roller can serve as visual cues to encourage movement. If equipment isn't an option, simply use your phone to set reminders for quick exercises like squats, jumping jacks, or stretches.

For more insights on optimizing your environment for better movement, check out *The Align Method* by Aaron Alexander.





ENVIRONMENTAL TOXINS

Environmental toxins play a significant, yet often overlooked, role in metabolic health, including fat loss and weight management. While we have a separate resource dedicated to this topic, it's important to highlight how these toxins can hinder your weight loss efforts.

Many environmental toxins, such as heavy metals, pesticides, and endocrine-disrupting chemicals, are stored in **adipose tissue** (fat cells) because fat is the body's natural storage medium for harmful substances. This is a protective mechanism, as it keeps the toxins away from vital organs and systems, preventing them from circulating freely in your bloodstream where they could cause immediate harm. However, this can lead to a situation where the body essentially "holds onto" fat as a defense strategy, making fat loss more challenging.

The more toxins you are exposed to, the more your body may retain fat in an attempt to isolate and neutralize these substances. This can slow down fat-burning processes, impair metabolic function, and complicate your weight loss efforts. The body's natural detox systems, like the liver and kidneys, work tirelessly to filter these toxins, but when overwhelmed, the storage of toxins in fat cells becomes the next line of defense.

Understanding the connection between **environmental toxins** and **fat storage** can help you make more informed choices about the products you use, the air you breathe, and the foods you consume. Reducing exposure to harmful chemicals and focusing on detoxification strategies, along with maintaining a healthy lifestyle, can promote more effective fat loss and improve overall metabolic health.

OBESOGENS

Environmental toxins, particularly a group known as **obesogens**, play a significant role in disrupting metabolic health. These chemicals are closely linked to metabolic dysfunction and obesity. A familiar example of an obesogen is **mold**, which many people encounter in their homes.

Obesogens are chemicals that not only make weight loss more difficult but also promote fat gain. These substances are commonly found in our environment—present in food, water, air, and even household products. One of the primary ways these toxins affect the body is by disrupting the **endocrine** and **hormonal systems**, which are crucial for regulating metabolism. Moreover, obesogens can have generational effects, as they can be passed from mother to child through the placenta and breast milk, perpetuating the cycle of metabolic dysfunction across generations.

These are the 5 most common endocrine disrupting obesogens:



Bisphenol-A (BPA): This chemical is found in canned foods, plastics, and water bottles, can significantly impact metabolic health. A recent study showed that a liter of water from a plastic bottle contains 100,000 to 350,000 BPA nanoparticles. These particles mimic **estradiol**, leading to **estrogen dominance**, which can cause bloating, weight gain, and metabolic disruption. Reducing BPA exposure by avoiding plastics and canned goods can help prevent these effects.



Phthalates: Phthalates are synthetic chemicals commonly found in products like toys, medical devices, food packaging, soaps, shampoos, and perfumes. They contribute to weight gain through two main pathways: first, by inhibiting **androgen receptors**, which impairs testosterone production and utilization in both men and women; second, by disrupting **PPAR receptors**, which slows metabolism. These disruptions contribute to metabolic dysfunction and weight gain.



3

Atrazine: Atrazine is one of the most widely used herbicides in farming, particularly in the Midwest, where it helps control weeds in crops like corn. As an obesogen, atrazine not only contributes to weight gain but is also a potent hormone disruptor. It reduces **testosterone** levels in both men and women, further impairing metabolic health. For those living in regions where atrazine use is high or consuming crops from those areas, avoiding this chemical becomes challenging, increasing the risk of hormonal imbalances and weight gain.



4

Perfluorooctanoic acid (PFOA): PFOA is a harmful chemical found in products like waterproof clothing, non-stick cookware (e.g., Teflon), food packaging, and stain repellents. The most common exposure comes from non-stick cookware, where toxins can leach into food. PFOAs disrupt **mitochondrial function** through the PPAR pathway, slowing fat loss, reducing energy, and impairing brain function. Limiting exposure to PFOAs, especially by avoiding non-stick cookware, can help protect metabolic and cognitive health.



5

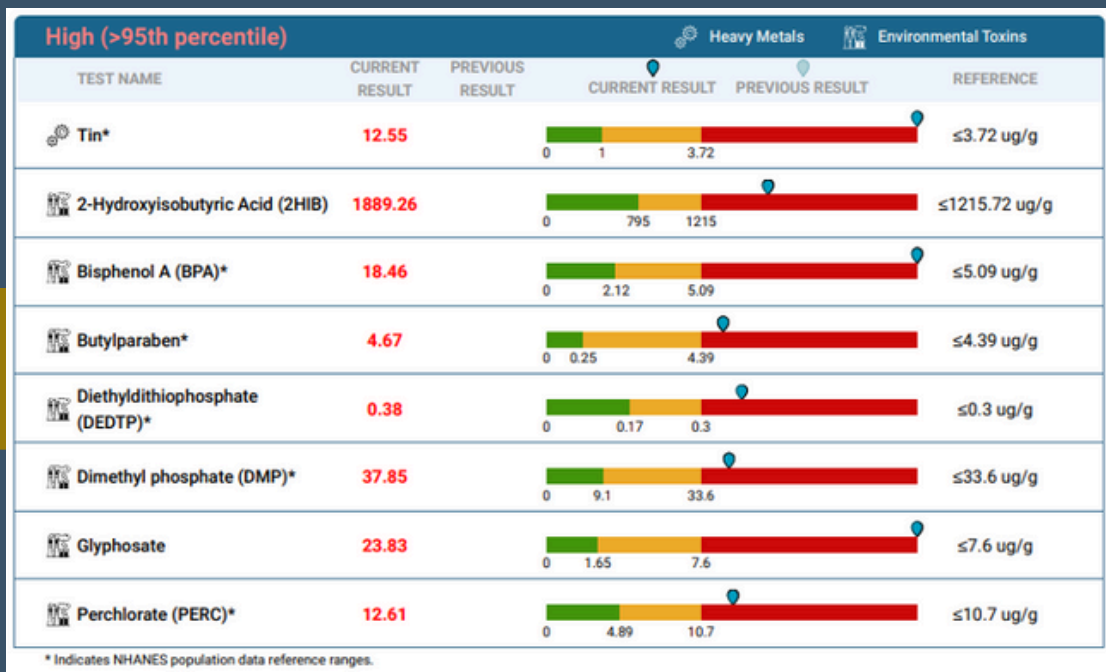
Organotin: Organotin refers to a group of toxins, including PVC plastic and tributyltin, commonly found in plastic plumbing pipes, vinyl flooring, school supplies, clothing, and polluted drinking water. Exposure to organotins has been linked to **obesity**, as well as **fertility issues, cancer, hormonal disruption, and nervous system damage**. Reducing exposure to products containing organotins can help mitigate these health risks and support better metabolic and overall health.

HOW TO REMOVE OBESOGENS FROM OUR LIFE

- **Filter Your Water:** Drink reverse osmosis or similarly filtered water. Many tap and well waters are contaminated with obesogens, so investing in a good water filter is essential. Avoid drinking from plastic water bottles, as they can leach harmful chemicals.
- **Replace Non-Stick Cookware:** Non-stick cookware, especially Teflon, can release harmful chemicals into your food. Switch to safer alternatives like ceramic, stainless steel, or cast-iron pans.

- **Eat Organic:** Choose organic foods whenever possible to reduce exposure to obesogens. Also, minimize consumption of pre-packaged or canned foods, as they often contain chemicals that can leach into your meals.
- **Avoid Herbicides and Pesticides:** Many obesogens, like atrazine and glyphosate, are found in herbicides and pesticides. Avoid spraying these chemicals around your home to limit direct exposure through inhalation or skin contact

Below is an image from a patient's Total Toxicity test, highlighting elevated levels of several obesogens and toxins we've discussed.



In our **Detox in a Toxic World Guide**, we offer a comprehensive approach to removing toxins from both your home and body, which is essential for any successful weight loss journey.

For further reading and research, we've included the following links:

- [Obesogens: A Unifying Theory for the Global Rise in Obesity | International Journal of Obesity](#)
- [Environmental Obesogens: Mechanisms and Effects on the Metabolic System | Nature Reviews Endocrinology](#)

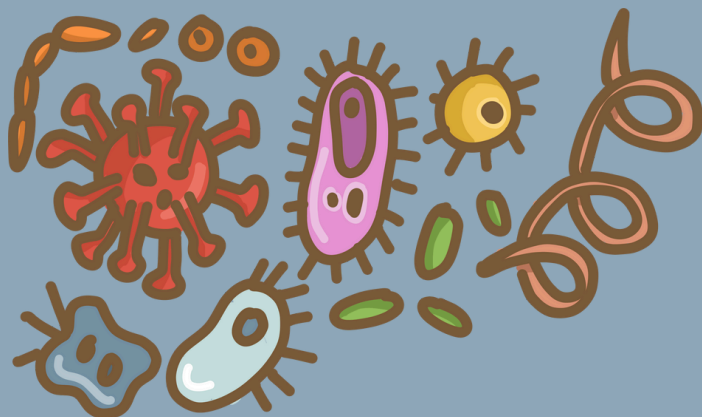
GUT MICROBIOME AND ITS IMPACT ON METABOLIC HEALTH

The connection between the state of your gut microbiome and your metabolic health is profound but often overlooked. One key mechanism involves the production of endotoxins by imbalanced gut microbes. These endotoxins can leak through a permeable gut lining, triggering systemic inflammation that impairs metabolic function, leading to conditions such as insulin resistance, weight gain, and difficulty burning fat.

Beneficial bacteria in the gut play a significant role in fat-burning and glucose regulation. Without these helpful microbes, achieving optimal metabolic health becomes much more difficult. Some of these bacteria, like *Akkermansia mucinophila*, have been shown to directly influence satiety, glucose regulation, and weight optimization. In fact, this particular strain has been studied for its ability to upregulate GLP-1 production, a hormone that helps regulate blood sugar and improve insulin sensitivity. Research published in *Frontiers in Microbiology* suggests that *Akkermansia mucinophila* could potentially be used as a therapeutic intervention for diabetes and other metabolic conditions due to its impact on metabolic health and weight regulation ([Source](#)).

Additionally, short-chain fatty acids (SCFAs), which are produced by healthy gut bacteria, have been shown to enhance fat metabolism. These fatty acids increase fat burning while decreasing fat storage. However, many people—especially those with gut imbalances—experience low SCFA production, which further hampers their metabolic health.

Unfortunately, gut imbalances are not just an adult issue. Many children are now struggling with metabolic conditions, such as Type 2 diabetes and non-alcoholic fatty liver disease (NAFLD), stemming from compromised gut health.



OPTIMIZING GUT HEALTH FOR BETTER METABOLIC FUNCTION

To optimize your gut health, start by understanding its current state. A comprehensive stool analysis is one of the best ways to identify imbalances in your gut flora. Once the issues are identified, supporting gut integrity and digestion is crucial. We recommend digestive enzymes like **Digest Support** or bitters before meals to aid in digestion. Additionally, supporting gut lining health with products such as **GI Vive**, **Immuno Revive**, or **ION Biome** can help reinforce the gut barrier and improve nutrient absorption.

The role of the autonomic nervous system (ANS) in digestion is also important. To facilitate proper digestion, it's essential to engage the parasympathetic nervous system (the rest-and-digest system). Practices like deep breathing, meditation, and vagus nerve activation are key for stimulating this state. You can learn more about optimizing your nervous system function in our **HRV Guide**.

Focusing on gut health is a cornerstone of improving metabolic health. With the right interventions, you can enhance your ability to regulate blood sugar, burn fat efficiently, and maintain a healthy weight. When your microbiome is balanced, your metabolic health, along with overall well-being, thrives.



ADVANCED STRATEGIES AND TESTING

FUNCTIONAL MEDICINE TESTING

We offer a wide range of functional medicine tests that directly and indirectly support metabolic health. Our comprehensive blood work panels assess deficiencies and toxicities, while we also conduct specialized tests for environmental toxins, mycotoxins, and heavy metals. To evaluate gut health and mitochondrial function, we offer stool tests, food sensitivity testing, genetic SNP analysis, and organic acid testing. [\[Click here to shop our testing.\]](#)

In addition, we assess body composition and the health of the spine and nervous system through X-rays and our BrainTap HRV technology. If you're seeking a more thorough, personalized approach to address metabolic or other health concerns, we invite you to schedule an initial evaluation with our office to get started.

[\[Click here to schedule an evaluation.\]](#)



CONCLUSION

TOP TEN FAT LOSS REMINDERS

1. **Eat your last meal by 6 PM:** The 4-6 PM window is metabolically active, so aim to finish eating by then.
2. **Limit alcohol:** It negatively impacts metabolic function.
3. **Dine out 1-2 times per week:** Control portions and ingredients by eating at home.
4. **Avoid snacking:** Not snacking is more effective than eating healthy snacks.
5. **Pack your lunch:** Bring lunch to work to avoid overeating.
6. **Lift weights & sprint:** These exercises significantly boost fat-burning.
7. **Prioritize protein:** Essential for weight loss and muscle maintenance.
8. **Eat at regular times:** Strengthens the nervous system and metabolism.
9. **Stay hydrated:** Drink plenty of water throughout the day.
10. **Add electrolytes to morning water:** Support hydration and metabolic function.

DOING EVERYTHING RIGHT, BUT STILL HOLDING ON TO EXCESS WEIGHT?

If you're doing everything right but still struggling with excess weight, unresolved trauma, limiting beliefs, and mindset issues could be at play. These emotional barriers are often overlooked in weight loss.

Explore resources like trauma-informed therapy, mindset coaching, or books on emotional resilience to address these blocks. Working through these issues can be just as important as physical strategies for achieving lasting weight loss and health.



Books:

- *The Body Keeps the Score* by Dr. Vessel Van Der Kolk
- *The Biology of Belief* by Dr. Bruce Lipton
- *The Emotion Code* by Dr. Bradley Nelson
- *Unloving* by Dr. Henry Wright
- *Braving the Storm* by Megan Van Zyl

We also highly encourage working with a professional counselor to address unresolved trauma, as it can be a key factor in overcoming weight loss plateaus and achieving long-term health.



OTHER BOOK RECOMMENDATIONS

- *Dark Calories* by Dr. Catherine Shanahan
- *Fiat Food* by Matthew Lysiak
- *Good Energy* by Dr. Casey Means and Calley Means
- *Metabolical* by Dr. Robert Lustig



SHOP THE NEW METABOLIC TRANSFORMATION BUNDLE



We hope this guide has equipped you with the tools and insights to optimize your metabolic health and body composition. Remember, it's a journey. By focusing on movement, nutrition, sleep, stress management, and recovery, you're laying the groundwork for lasting vitality.

Stay consistent with small, sustainable changes, and trust that each step brings you closer to your goals. We're here to support you every step of the way—here's to your continued health and transformation.