MYERS DETOX™

Mitochondria Detox

A guide to restore mitochondrial function & boost energy production

WENDY MYERS

Introduction

If you're reading this, it's probably because you're either:

1. Tired and not sure how to fix things

OR...

2. You've actually made some health and energy improvements...

... YET you know there's so much more potential inside you!

Deep down, perhaps you feel—much like I did—there's an abundance of energy and vitality within, and something is standing in your way. In my many years of experience working with or coaching literally tens of thousands of individuals all over the world...

That “Something” Is Heavy Metals

And this book is about how they interfere with your energy on a cellular level, via your mitochondria. Mitochondria are quite simply the energy factories of your cell. They produce ATP (adenosine triphosphate), which is the currency of energy exchange throughout your body. Mitochondria also regulate your cellular metabolism - taking in necessary elements and nutrients while removing waste.

When your mitochondria are compromised, your entire body is effected. You have less energy, you age faster, you gain weight more easily, your immune system is weaker, the list is literally endless.

Thus, one of the first steps in recovering your health and realizing your body’s fullest potential is through restoring mitochondria function.

This guide, and my **Mitochondria Detox** protocol, focus on heavy metals because you simply cannot have optimal mitochondria function when your cells are overloaded with these toxins. As you’ll learn in the pages that

follow, they simply must be detoxified. Luckily, help is on the way. Armed with this information and the **Mitochondria Detox** protocol, you’re on the path toward recovering your mitochondrial function and experiencing radiant health. It is a great honor to share this information with you and assist you in reclaiming the energy, health, and vitality that is your birthright.

With love,

Wendy Myers

The Power of Mitochondria

Your mitochondria are truly your body's lifeline. They are our bio-batteries.

We have tiny organelles called mitochondria in our cells. Most cells have several thousands of them, and can comprise up to 50 percent of your cells' volume!

They supply a large percentage of your body's energy needs by converting the food you eat and the air you breathe into usable energy.

Through a process called electron transport chain, they combine the oxygen we breathe and produce ATP, or energy, molecules.

As you age, your body produces fewer mitochondria, so that makes taking care of the ones you have all the more important.

When a significant percentage of your mitochondria stops functioning properly, your health can falter and leave you more vulnerable to cancer and other chronic diseases.

However, I have discovered powerful strategies that can repair and improve the health of your mitochondria. The best initial strategy for repairing your mitochondria is the protocol you're getting with this **Mitochondria Detox Program**.

Let's continue taking a look at how your cells produce energy... ATP, short for adenosine triphosphate, is the bio-charged molecule that gives us energy for all our activities.

This is the reason you breathe and why you gasp for air when you engage in heavy activities like running.

Mitochondria need oxygen to churn out ATP energy and meet your needs.

It All Begins with the Sun

We walk, talk, run, work, and do all our activities because of the sun. This is why it's a very important part of energy production to spend time in the sun for at least 20 minutes daily if you're able.

Sitting in a near infrared sauna can also mimic the sun in the same way and charge your mitochondria. More on that later!

If you remember from science class, the energy cycle begins with plants. Plants are capable of converting solar energy into bioenergy through photosynthesis. They use the energy for their own purposes and store the rest in the form of sugar and other biological forms. This stored energy is passed on through the food chain.

All animals that eat plants – and all animals that prey on plant-eating animals – release this energy using their own mitochondria. We humans are part of this energy cycle and we release our energy the same way as all the animals.

Toxic metals cause mitochondrial dysfunction and are a major reason you're tired. In fact, mitochondria may be the earliest target of metal neurotoxicity.

Metals Disrupt Your Mitochondria in Two Ways:

1. They weaken or prevent ATP production.
2. They impair the antioxidant systems.

Mitochondria have their own antioxidant defense systems such as superoxide dismutase and glutathione, along with its derivatives glutathione disulfide, glutathione peroxidase, and glutathione reductase.

Mitochondria are the major source of free radical production and they need antioxidants to remove them, which otherwise are destructive to mitochondria. Metals are one of the body's primary sources of oxidative stress to the body.

It takes a lot of the body's energy to remove them. Oxidative stress is essentially an imbalance between the production of free radicals and the ability of the body to counteract or detoxify their harmful effects through neutralization by antioxidants like superoxide dismutase and glutathione.

Have you ever wondered how a girl who eats very little is highly active throughout the day? From where is she getting the energy? Or what about that boy who is eating a lot but is always slouching and slow? Where does all the food go?

You may be thinking, "I'm eating a healthy diet but I don't have the energy to be as active as I want to be!"

This is because mitochondria determine whether you are an active person or someone who is always fatigued.

The girl's mitochondria are efficient in producing energy, but in many others who are fatigued, the food just passes through the system without producing much energy. Metal toxicity is a very likely culprit. No matter how healthy your diet, exercise, sleep, and supplementation, toxic metals are throwing a monkey wrench into your ATP synthesis machine and preventing energy production.

Dysfunctional mitochondria lead to fatigue and in many cases severe chronic fatigue and serious illness, even cancer.

This program will detail how to get your mitochondria working at full capacity so you can produce the maximum amount of energy your body is capable of producing.

Aluminum and Mitochondria

A recent study found that while small amounts of aluminum can be tolerated in the short-term, chronic exposure and build-up in the body can lead to delayed neurological problems, including chronic fatigue and cognitive dysfunction.

Aluminum toxicity affects glutathione production – the major mitochondrial antioxidant – which is necessary for reversing oxidative stress. Aluminum radicals cause most of the damage to mitochondria.

Our mitochondria make our body's energy, so if you don't have enough glutathione to detox your mitochondria, they're not going to be able to produce energy at the level at which they are capable.

Aluminum radicals deplete mitochondrial iron content, which leads to generation of free oxygen radicals. Aluminum toxicity can also cause cell death because of the free radicals generated by aluminum itself.

It's important to realize that aluminum toxicity effects not only mitochondria, but also the resulting cell death can wreak widespread havoc in many systems of the body, which we discussed above.

How to Detox Aluminum

By detoxing aluminum, you will enjoy better brain function and so many other benefits! When it comes to detoxing aluminum, you can't do any better than oligomeric silica.

This ingredient is found in a hair, skin and nail product called Ageless AF (as Choline-Stabilized Orthosilicic Acid).

Many of you reading are probably taking it right now or have taken it in the past but had no idea that it was detoxing your body. Choline-Stabilized Orthosilicic Acid binds to hard-to-detox metals like aluminum, and helps eliminate them from the body when other products fail. That's why I formulated Ageless AF and recommend it above all other silica products out there—and why it's included in the **Mitochondria Detox** protocol.

Other types of silica do detox you, but not as well or in the same manner in which we are looking for in detoxing aluminum. The research on silica backs this up.

A study published in The American Journal of Clinical Nutrition found that soluble oligomeric silica aided in the reduction of aluminum and helped to prevent the build-up of this toxic metal in the body.

After this form of silica, the most important supplements for detoxing aluminum are grapefruit pectin, N-acetyl Cysteine (NAC), Vitamin c, glutathione, and R-lipoic acid and curcumin.

More on these and other steps in the protocol, in just a moment.

Arsenic and Mitochondria

I won't mince words: arsenic is one of the most potent mitochondrial poisons out there.

You already know that mitochondria are the cell's energy producers. Arsenic poisons the enzymes that transport nutrients into mitochondria. This is a problem because without nutrients, the mitochondria do not produce the energy you need. The result? Fatigue.

Arsenic impairs mitochondrial function by affecting various mitochondrial enzymes. Most of its toxicity results from interacting with sulfhydryl groups of proteins and enzymes, and some from replacing phosphorus in many biochemical reactions.

Arsenic deactivates the essential enzymes of mitochondrial function, such as dihydrolipoyl dehydrogenase and thiolase. Arsenic further affects mitochondrial function by binding and depleting lipoic acid in cells, thus interfering with the production of ATP. It can also directly bind to and inactivate ATP.

Research has proven that arsenic directly targets mitochondria. This metal causes the depolarization of the mitochondrial membrane, thus altering and compromising the mitochondria's structure. In addition to their importance in oxidative phosphorylation (OXPHOS) - an energy producing process in the body - mitochondria play a key role in apoptosis, or programmed cell death. When mitochondria are poisoned by arsenic, cell death is induced.

A 2007 study found that mitochondria and mitochondrial DNA (mtDNA) are heavily affected by the mutagenic effects of arsenic, making it an extremely dangerous genotoxic carcinogen.

Genotoxicity is when a chemical agent damages the genetic information of cells, which may then lead to a genetic mutation, which may then, in effect, cause cancer.

Arsenic can be removed from the body with only two supplements, which just so happen to be included in the **Mitochondria Detox** program: Ageless AF and CitriCleanse.

Arsenic is what is known as a trivalent heavy metal. It is very difficult to remove from the body unless silica, found in Ageless AF, is used to mobilize it from tissues. Once it is mobilized, the modified citrus pectin in CitriCleanse binds to the arsenic (and other metals and chemicals) and removes it from the body with no detox symptoms.

Tin and Mitochondria

The main problem with tin is that it causes fatigue. Actually, tin toxicity is one of the major players in chronic fatigue syndrome!

Your mitochondria have to have a certain charge on the outside of the membrane to function correctly. Tin dispels the charge on the outside of your mitochondria – your cell's powerhouses that make your body's energy. If there is no charge on the outside of the mitochondrial membrane, they cannot make adequate levels of energy.

Tin is found naturally in the environment at low levels. As a result, we can never completely avoid our exposure to it. But the consumption of canned foods and/or beverages is, by far, the biggest sources of toxic tin exposure in modern society. While food containers that contain tin usually have a very fine layer of lacquer applied to prevent the tin from leaching into your food or drink, that "protective layer" may actually do more harm than good.

This layer is often loaded with Bisphenol A (or BPA), a chemical that can mimic human estrogen and is linked to both breast cancer and early puberty in women. In fact, when the Environmental Working Group tested canned food bought across America, they found BPA in more than half, and at levels they noted as being, "200 times the government's traditional safe level of exposure for industrial chemicals". In short: consuming canned goods may put you at greater risk of BPA ingestion than drinking from plastic water bottles!

But the danger doesn't end there. That "protective" layer may actually be compromised, allowing tin to dissolve into the can's contents - especially when the foods and drinks are acidic. And when the lining isn't present – meaning plain, uncoated, internal surfaces are used for canning – the tin content in the food is increased and the toxicity risks even greater.

But aside from canned goods, you are still exposed in a variety of ways. More specifically, tin is present in such widespread sources as:

- Canned/tinned foods and juices
- Air
- Soil
- Landfills
- Asparagus (added to some asparagus to improve its taste)
- Brewer's yeast
- Cereal grains
- Coloring agents
- Dairy
- Dental amalgams
- Dyes
- Food additives
- Fungicides
- Some herbs
- Licorice
- Occupational exposure – tin mines, smelting
- Factories that make or use tin
- Seaweed
- Seawater
- Soaps
- Seafood (especially shellfish)
- Tin beverage cans and food containers
- Toothpaste containing Stannous fluoride
- Stabilizers in plastics, moluscicides, and miticides
- Water collected from galvanized (tin) roofs
- Water contamination
- Vegetables

The best thing you can do to reduce your exposure to tin is to reduce – or better yet, eliminate – the amount of canned products you eat or drink (1). But canned goods are not your only source of toxicity.

That's why it's crucial to regularly detox this toxic element using the **Mitochondria Detox** protocol before it does serious harm to your health.

Thallium and Mitochondria

Thallium is yet another mitochondrial poison. It poisons the enzymes that transport nutrients into your cells' mitochondria – the body's energy manufacturers. In this way, it renders your ATP energy manufacturers unable to produce energy as effectively. The result is chronic, unrelenting fatigue.

Thallium is added to gasoline and released into the air by car exhaust. That is why thallium toxicity is extremely prevalent in those who live in urban environments. You are exposed to thallium every time you eat foods harvested from contaminated soils. One particular culprit is kale. Eaten in moderation it is fine, but the tasty and trendy cruciferous vegetable can be hazardous to your health when eaten in abundance.

A 2006 study found that the cruciferous family of vegetables – kale, cabbage, cauliflower, and broccoli – to be hyperaccumulators of thallium, with kale being particularly potent in thallium, even when the soil it was grown in was low in thallium. The reason behind this is still unknown, but one current hypothesis is that organic kale is higher in sulfur, which is known to attract thallium (13). But you don't want to avoid these vegetables!

You just need to learn how to detox the thallium via the **Mitochondria Detox** protocol you've already begun to undertake.

Thallium poisoning causes extreme and unrelenting fatigue. It blocks potassium channels in the body and causes so many different problems as a result. It's almost always a factor in chronic fatigue.

People with serious mitochondrial dysfunction from thallium can experience:

- Muscle weakness and pain
- Gastro-intestinal disorders
- Cardiac disease
- Liver disease
- Respiratory illness
- Seizures
- Visual/hearing problems
- Lactic acidosis
- Susceptibility to infection

Cesium and Mitochondria

Ever heard of cesium? Most people haven't, and yet it also poses a big danger to your mitochondria. Cesium can be a big causative factor in fatigue because it displaces potassium in the body. This interferes in numerous processes that impact energy production, namely suppression of enzymes involved in the energy exchange of cells.

Dr. Bandazhevsky from the Belrad Institute explains the exact process by which cesium affects heart and energy production best:

> "The direct influence of cesium (137Cs) on the heart is due to its selective accumulation within the myocardial cells. This is due perhaps to the intense operation of the sodium-potassium pump. Since 137Cs is in the same atomic group as potassium, it can easily enter into the cardiomyocyte [cardiac cells]. This is accompanied by the suppression of the activity of the important enzyme creatine phosphokinase (CPK), which is involved in the energy exchange of cells: accumulation, transport, and utilization of high-energy phosphates. CPK catalyzes the eversible phosphorylation reaction, which involves the transfer of a phosphate group from ATP to creatine and from phosphocreatine to ADP."

Dr. Bandazhevsky observed that the decrease in activity of creatine phosphokinase (CPK) indicated serious metabolic defects in the energy metabolism of the heart cells. This is observed in changes of the mitochondrial system, in the form of an increased number and size of mitochondria because they are not working well.

The body produces many more malfunctioning mitochondria in a vain attempt to produce more energy. This malfunction is also observed in the changes in the number of intermitochondrial contacts.

Cesium has been found in foods that are naturally rich in potassium, such as mushrooms and berries, that come from areas contaminated by radioactive materials. Meats and dairy products from these areas tend to have higher levels of cesium-137 as well.

Below is a more extensive list of cesium sources:

- Fukushima fallout
- Eating Fish from the Pacific (that is cesium contaminated)
- Occupational exposure in the nuclear power industry
- Explosion of nuclear weapons
- Accidents involving nuclear power plants
- Accidents involving nuclear powered satellites
- Accidents involving nuclear powered submarines
- Radiation therapy for certain cancers
- Mining and milling of certain ores
- Flora, including lichens and moss
- Breast Milk
- Pasteurized milk
- Contaminated rice
- Sake from contaminated rice
- Fungi/mushrooms
- Contaminated tea
- Surface soils near Fukushima nuclear site

Lead and Mitochondria

By now, it should be clear that just about every heavy metal impairs mitochondrial function in some way. Volumes could be written about the damage they do to our cellular health. But since I know your goal is not to get a Ph.D.—and instead just detox them and reclaim your energy—we're going to cover one more before getting you into the actual **Mitochondria Detox** protocol.

Lead increases oxidative stress. It also leads to the degeneration and damage of mitochondria. It's also known that lead interferes with a process in the body known as heme synthesis, which then may cause interference in energy metabolism. Heme is essential in binding oxygen and distributing it around the body. It's made in your mitochondria.

Heme gives myoglobin and hemoglobin the ability to bind oxygen because of the presence of an iron atom. It also contributes to the red color found in muscles and blood. Each heme group contains an iron atom that is able to bind to one oxygen molecule. And when lead interferes in the process of heme production, the result is less oxygen to your tissues, causing fatigue.

When you look at lead toxic mitochondria under a microscope, you see that the lead completely surrounds the mitochondria, choking it off. Lead in essence suffocates the mitochondria and any energy it might have been able to produce. When I see a client that is reporting that they sleep 11-12 hours a day, the first thing I suspect is lead toxicity. They simply cannot produce enough energy to function and tend to sleep very long hours.

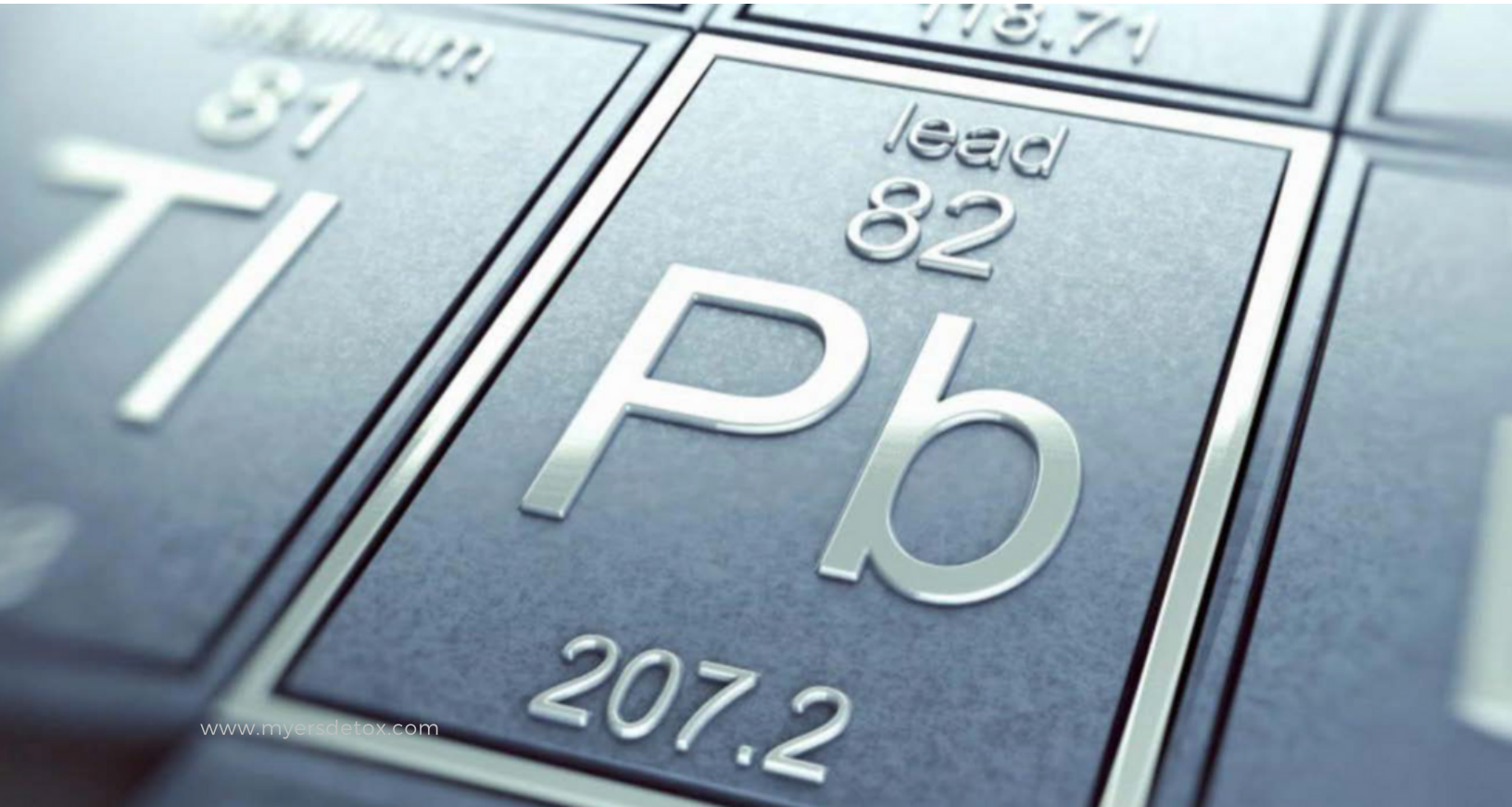
Unfortunately, lead is everywhere. No one can avoid it completely. Too much exposure to this toxic metal places more pressure on our already overburdened systems that are busy fighting off all the other toxins from our modern-day, industrial environment. Know its sources so that you can take steps to protect you and your family.

Lead is in the air due to coal combustion and fossil fuels. We breathe it in. While leaded gasoline is no longer used in the United States, if you live or travel to a developing country that still uses leaded gasoline, you must beware! You are breathing in neurotoxic lead!

The scariest part? Lead persists for 500 to 1000 years in the environment. So, even though we no longer use leaded gasoline in the U.S., this deadly metal can still be found in the soils where it then gets into our food and water.

That's right: soil may be contaminated with lead sediment due to industrial or car exhausts, especially in densely populated areas. You might want to have your soil checked for lead and other metals before growing your own vegetables under those circumstances.

Luckily, lead is very effectively handled with the core elements of the **Mitochondria Detox** protocol. Are you ready to finally learn it and begin your journey? Great, let's go!



Mitochondria Detox Protocol

Congratulations!

Now that you understand the damaging effects of heavy metals and how they dramatically impair mitochondrial function, you're ready to begin. As you follow this program, be gentle with yourself. Self-care rituals and detox aids (like infrared sauna treatments, if you have access) can be very helpful. Now let's get started...

CitriCleanse

CitriCleanse is one of the most effective detox agents around. When taken as a dietary supplement, it works as a blood cleanser, binding to metals and chemicals.

CitriCleanse must be taken when you do any kind of detox because they help bind mobilized toxins to prevent them from recirculating and distributing in other places the body.

But what is it?

CitriCleanse is digestible citrus pectin. Grapefruit pectin is a complex polysaccharide derived from the pulp and the peel of citrus fruits. It is modified by means of pH and temperature treatment, a modification which breaks it into shorter pectin chains that are more readily absorbed and used by the body.

Grapefruit pectin has been called “one of the most promising anti-metastatic drugs”. It’s even been reported to impede certain cancers, such as melanoma and prostate carcinoma.

CitriCleanse absorbs almost all metals and many chemicals, making it one of the most powerful natural binders that help to detox the body. I take it daily. You want to take about 5mg per day an hour away from food, supplements, and medications. You don’t want it absorbing them!
One of the main reasons to take a binder like CitriCleanse is to reduce detox symptoms. CitriCleanse drastically reduces or even completely eliminates detox symptoms, making a detox far more comfortable and even effortless. Many erroneously embark on a detox program and then forget - or even are unaware - that when they are mobilizing toxins, you have to take a binder.

Otherwise, the metals can deposit in other parts of your body, even your brain! This is why I insist that all of my clients, or anyone doing a detox program, take a binder like CitriCleanse.

Ageless AF

Ageless AF is an amazing supplement. First of all: it's all natural. Second: it contains silica, a mineral compound in which most people are deficient.

But Ageless AF has special kind of silica. You see, you just can't take normal or natural silica, like that derived from the horsetail plant, in order to receive its metal detoxing benefits. Ageless AF contains oligomeric silica and that is what sets it apart.

A study published in The American Journal of Clinical Nutrition found that soluble oligomeric silica aided in the reduction of aluminum and helped to prevent the build up of this toxic metal in the body.

This active ingredient binds to hard-to-detox metals that reduce our body's ability to make energy (like aluminum) and helps eliminate them from the body when other products - and forms of silica - fail.

Ageless AF detoxes thallium, arsenic, tin, cesium, and aluminum; these are specific metals that poison enzymes that transport nutrients into our mitochondria.

And as we've explored in this guide, our mitochondria are our little cells' powerhouses that make our energy!

Let's Get Going!

As we wrap up this guide, I want to commend you for taking THE most critical first step in reclaiming your energy levels and health. As you just learned, your mitochondria play an essential role in your cellular energy function and impact everything in your body.

Until we detox metals, which are often the single biggest barrier to happy, healthy mitochondria... not much else we do matters.

However, once we DO detox these metals and restore our mitochondria to peak functioning, everything else improves and we're ready to take the next steps in our journey. To be clear, it IS a journey. Removing these metals and boosting mitochondria is just the first step.

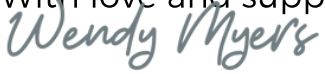
We can go deeper into detoxification and all-around rejuvenation in ways that transform our health, vitality, beauty and body with even more advanced strategies that I outline in my Myers Detox Protocol.

I highly recommend you learn more about that AFTER you feel like you have some momentum and experience with the **Mitochondria Detox** protocol. Combined, I know of nothing more powerful for removing deeply buried toxins, restoring cellular and overall biological functioning, and experiencing amazing health.

It is an unbelievable honor to be on this path with you; I couldn't be more grateful that we found each other, and that you've demonstrated your readiness to begin to reclaim your health and energy. The rewards of this journey,

including the energy, clarity, mood, fitness and anti-aging shifts you'll experience as a result of this process, are truly priceless. I'm thrilled for you, and look forward to hearing about your success.

With love and support,



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