

Detox Heavy Metals to Help End Exhaustion and Chronic Fatigue

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

STORY AT-A-GLANCE

- › Metals that are particularly detrimental to mitochondrial function include aluminum, arsenic, cesium, tin and thallium. Other toxic metals that many have in their bodies include cadmium, mercury and lead
- › When you have heavy metal toxicity, you tend to attract EMFs to your body. EMFs in turn impact your body's metabolism and ability to effectively eliminate toxins and heavy metals
- › Excellent detoxification aids include a full spectrum low EMF infrared sauna together with sodium r-lipoic acid. Minerals such as magnesium, zinc, selenium, potassium and iodine are also important detoxification aids

This article was previously published April 8, 2018, and has been updated with new information.

Detoxification is an important aspect of optimal health, but can be quite confusing, not to mention risky if done incorrectly. Wendy Myers, a functional diagnostic nutritionist, founder of [MyersDetox.com](#) and author of "[Limitless Energy: How to Detox Toxic Metals to End Exhaustion and Chronic Fatigue](#)," is a treasure trove of information on this topic.

One key component many fail to take into consideration when detoxing is their exposure to non-native electromagnetic fields (EMFs) and microwave radiation from cellphones

and Wi-Fi routers. Unless you address these exposures, your detoxification capacity may be impeded. In other words, your body may not be able to excrete heavy metals as efficiently as it would otherwise, due to the interference caused by EMFs.

EMFs Hinder Detoxification

As explained by Myers, when you have heavy metals in your body, you tend to attract EMFs to your body. EMFs in turn impact your body's metabolism and functioning – and its ability to effectively eliminate toxins and heavy metals.

"That is one of the things I work with," Myers says. "Identifying and trying to reduce EMF in [my clients'] environment, so they can improve their body's ability to function generally and to detox."

In my book, "[Fat for Fuel: A Revolutionary Diet to Combat Cancer, Boost Brain Power and Increase Your Energy](#)," I detail a program to improve your mitochondrial function, and reducing your toxic burden is an important part of the equation. Your mitochondria will suffer as long as you bombard your body with EMF. In fact, EMF exposure itself is intrinsically a mitochondrial poison.

Professor Emeritus Martin Pall, a biochemist who specializes in multiple chemical sensitivity and chronic fatigue syndrome, wrote an excellent paper explaining one of the primary mechanisms of harm from exposure to microwave radiation from cell phones. It is related to voltage-gated calcium channels. EMFs impact these calcium channels that release calcium into the cell.

Calcium causes nitric oxide release and combines with superoxide, thereby creating peroxynitrate, which is a massive producer of hydroxyl free radicals, the most destructive free radical known. Regular exposure to EMFs can actually poison your cells more than ionizing radiation from X-rays.

Common Metals Wreak Havoc With Your Mitochondrial Function

Fatigue is a widespread problem today. "In doing my research, I was trying to figure out what is making us so tired," Myers says. Eventually, she discovered a treasure trove of mitochondrial research and studies showing how various metals impact the mitochondria's ability to produce adenosine triphosphate (ATP), the energy currency in your body. Metals that are particularly detrimental to mitochondrial function include:

- **Aluminum**, which is very prevalent in our environment, including the air we breathe, thanks to geoengineering. Aluminum is also found in many vaccines, and is used in water treatment plants to separate out sediments. Antiperspirants, aluminum cans, foil and cookware are other common sources of exposure.

Aluminum poisons enzymes that transport nutrients into your mitochondria, impeding their ability to produce energy. "When you remove aluminum and other mitochondrial poisons, we see a dramatic uptake in people's energy levels, even people who are chronically fatigued or bedridden from their fatigue," Myers says. "Within a year or so, they are able to start functioning again just from detoxing these metals"

- **Arsenic**, found in antibiotics fed to conventionally-raised chickens and eggs, is another. To avoid arsenic, eat organic, pastured eggs and chicken. Rice is another common source, and Myers recommends avoiding brown rice for this reason. Other sources include wine, apple juice and drinking water
- **Tin** affects your mitochondria a bit differently. The membrane of your mitochondria needs to have a certain charge to function properly. Tin dispels that charge, effectively handicapping the mitochondria. According to Myers, many have surprisingly high levels of tin in their bodies
- **Thallium**, which was banned in the U.S. in 1972 as a pest control,¹ is a gasoline additive,² that is also used to make optic lenses, semi-conductor materials, low-temperature thermometers, imitation jewelry and as a contrast agent in some molecular tests for cardiac function and finding tumors.³ Few are aware of this, or understand its health effects, but thallium is a major factor in chronic fatigue

How to Test for Heavy Metals

There are a number of different ways to test for heavy metals, including hair, urine and stool. Certain metals, such as thallium, show up best in a urine dimercaptosuccinic acid (DMSA) challenge test. DMSA is a chelating agent that can be administered either orally or intravenously. When taken together with a synergistic agent like glycine, it binds to the metals in your body, forcing them out through your stool and urine.

Myers typically starts out doing a hair mineral analysis. It's easy to do, relatively inexpensive and provides a significant amount of information. Ideally, you'll want to do all three – hair, stool and urine tests – as no one test is perfect. Some metals come out in hair, others in urine and/or stool. Cadmium, for example, comes out in stool, so a stool test will be the most accurate.

"A lot of people have cadmium toxicity, so it's very important to measure that," Myers says. "A lot of people have mercury fillings, so we'll see a lot of silver from those amalgams coming out in the stool as well. Those kill gut bacteria and cause gut dysbiosis ... Other metals prefer to be excreted in the hair. That's why I'd like to use all those different tests."

No One Is Exempt From Heavy Metal Toxicity

I did a heavy metal analysis on hair, urine and stool, and despite leading a fairly clean lifestyle, I had every single one of these heavy metals in my body. So, I'm currently doing Myers' detoxification program myself. While some believe detoxification is unnecessary and view such recommendations with suspicion, I believe accumulation of toxins is an unfortunate artifact of living in the 21st century.

You're continually exposed, so not only might you need to go through an aggressive detoxification program, but then you need to have some form of maintenance program to keep up with the continuous exposures.

"Yes, that's my main message to people," Myers says. "You should think of detox as a lifestyle, not something that you're doing for 30 days, six months or even a year. It's just something that you incorporate into your healthy lifestyle. We'll talk about some of the supplements and detox protocols that you can do to facilitate that ...

I'm always surprised that my healthiest clients, like yourself, have a lot of metals coming out. Your body is working really well. You're very healthy, so your body is able to excrete these metals much better than someone who is sick ... or their detox organs aren't functioning very well. But no one is exempt. Everyone has toxic metals in their body that we want to tend to if we plan to live a long, healthy, energetic and disease-free life."

Indeed, because I lead such a healthy lifestyle, I thought I was somewhat immune to this kind of toxicity. I now suspect my arrogant ignorance of EMF exposure sabotaged my body's ability to excrete these toxins. Now, I'm extremely diligent about avoiding EMF exposures, and I believe it's having a positive effect.

Unfortunately, virtually no one, not even most detox experts, understand the EMF issue. I'm trying to change that by starting a dialogue about it. Because you can implement all of these detox strategies, but if you don't radically reduce your EMF exposure, you're merely spinning your wheels, investing time, energy and resources while limiting any potential benefit.

Near- Versus Far-Infrared Saunas

Saunas are an excellent detoxification tool, and Myers is one of the few clinicians who actually understands the difference between regular infrared saunas, which use far-infrared and the near-infrared. Far-infrared helps accelerate removal of toxins through sweat, but near-infrared, in the range of 830 to 850 nanometers (nm) is especially important for improving mitochondrial function.

Delivering near-infrared light to the compromised mitochondria synthesizes gene transcription factors that trigger cellular repair. So, ideally, you'll want to use a full-spectrum sauna. At present, those are hard to find, but you can modify your far-infrared sauna by adding a near-infrared light in the 830 to 850 nm range to it.⁴ Myers explains:

"Infrared saunas are one of the best ways to detox your body. I recommend them to all my clients ... [T]he most common sauna is a far-infrared sauna ... I'm a big fan of near-infrared saunas also.

There are near-infrared bulbs saunas, which are fine for detoxification, but you want to add more concentrated near-infrared energy. You can do that with near-infrared light emitting diodes (LEDs). The best detox combo is a far-infrared sauna with a near-infrared LED and a red LED panel inside of it. That's the best combo."

Other Sauna Considerations

Another important consideration when looking for an infrared sauna is to make sure it's a low-EMF version, as many will emit very high amounts of extra-low frequency EMFs. So, look for manufacturer specifications on EMF emissions. As a general recommendation, avoid the really cheap ones made in China. In addition to EMFs, many of those made with inexpensive materials contain glue and particle board that emit volatile organic compounds (VOCs).

Some recommendations call for constructing your own near-infrared sauna using four 250-watt heat lamp bulbs. Most of the energy they produce is in the mid- and far-infrared range, with only 10 percent or so in the near-infrared. The drawback is that the radiation tends to decrease rapidly the further you get from the bulb, and you cannot get too close to the bulb because it's so hot you'll burn yourself. As a result, you're getting mostly far-infrared even from these bulbs.

I prefer Myers' recommendation, which involves using infrared LEDs, as they generate very little heat, so you can put them very close to your body, right where you need it.

Myers explains:

"The near-infrared LEDs are something that have been available in the last few years. There are amazing companies making products like these, the near-infrared and red LED combo products that you can add to your near-infrared bulb sauna or far-infrared sauna. That's the way that I would go if you're looking for that maximum detox effect."

Sauna Recommendations for Detoxification

Contraindications for sauna use include having a pacemaker or metal implants in your body, as they may be heated by the infrared rays. Most people with metal pins in their body will not experience any problems, but it's something to be mindful of. Saunas are also generally contraindicated for children under the age of 7.

"Their temperature regulation system doesn't quite work well enough, so I would not have a child use an infrared sauna," Myers says. "As far as how to use a sauna, I recommend people do them three to five days a week, starting with about five to 10 minutes.

If you're really, really ill, you'd want to start with a low amount and then slowly work your way up; like maybe each week add a couple of minutes to your sessions. You ought to do what works for you. It doesn't matter what I say or what I recommend. I want you to listen to your body and do what works for you. If you start to feel nauseated, lightheaded or unwell in any way, it's time to get out of the sauna."

Dry brushing your skin prior to the sauna is also helpful as it will get your lymph moving. Then, as soon as you get out of the sauna, be sure to shower right away. The last thing you want is for those excreted toxins to dry out on your body after you've sweated them out.

I will typically jump into my pool right afterward. The water being a cool mid-40s in the winter to 80s in the summer, it gives me the added advantage of cold thermogenesis in

the winter, but also helps remove the toxins excreted through the skin in my sweat. Also be sure to use some kind of binder when detoxing in a sauna. You need something to mop up all the toxins mobilized from your tissues to keep them from your vital organs.

The Importance of Magnesium

Myers also has an online program called "Mineral Power," which focuses on replenishing minerals lost during the detoxification process.

"There's always a cost to any kind of detox protocol you do," Myers says "... But the benefits far outweigh the cost. We're willing to sacrifice some minerals for the benefits. But there are other minerals, like magnesium, which 80 percent of people are estimated to be deficient in. Magnesium is incredibly important to facilitate all of your body's enzymatic processes, your metabolism ... including facilitating detoxification."

Earlier I mentioned the importance of avoiding EMF as it affects your voltage-gated calcium channels. In studies on calcium channel blockers, researchers discovered these medications mitigated and nearly eliminated the EMF effects. Now, magnesium is a calcium channel blocker, which means that not only will magnesium help your detoxification process if you're deficient, but it may also remediate some of the inevitable EMF exposure we're all subject to.

"I can't tell you how many clients have told me that they just started taking magnesium alone and they start feeling better within a week or so," Myers notes. "I had the same experience when I did my first hair tissue mineral analysis a long time ago. I started taking magnesium. I couldn't believe how much better I was feeling. I had to become a practitioner and tell more people about this, about the importance of minerals."

The Importance of Zinc

Zinc is another important mineral required for detoxification. Minerals help push out metals, as many metals bind to receptors that would normally be occupied by minerals. When you're deficient, metals can easily take the minerals' rightful place. Zinc helps push out cadmium, a metal that causes more cancers than all of the other metals combined. Myers explains:

"This is why cigarette smokers get cancer. It's why my dad got esophageal cancer. He smoked for 40 years ... [Y]ou get cadmium from cigarettes ... our environment [air] ... shellfish and fish. It's not only mercury that's in fish. It's cadmium as well. Cadmium interferes when DNA copies. When a cell multiplies or divides, cadmium interferes in the DNA copying properly, so you get this mutated cell.

We have about 100 million cancer cells in our body at any one time. But if your immune system is malfunctioning, say it's damaged by metals, EMF or it's nutrient-deficient or just doesn't have the energy to function, that's when that mutated cell caused by cadmium will be allowed to grow and manifest into a tumor, be it malignant or benign. That's the mechanism by which cadmium causes cancer."

Cadmium is also a significant contributor to hardening of the arteries. If you are zinc deficient, your body is forced to accumulate cadmium to repair the arteries. However, cadmium is hard and brittle, so when it deposits into your arteries, it reduces the arteries' ability to expand and to contract, thereby contributing to high blood pressure and heart disease.

This is also the mechanism by which smoking leads to heart disease. The good news is you can reverse this process by taking proactive steps to remove cadmium from your system. It is a slow, long process, however.

Other Important Minerals

Other important minerals include:

- **Selenium** – Most people have insufficient levels of selenium, and you need this mineral to repair chromosome damage. Selenium is also needed for the conversion of thyroid hormone, from T4 to T3. You need it to make glutathione in your body – a master antioxidant made by your liver that is important for heavy metal detoxification.

Selenium also prevents viral replication, and helps detoxify arsenic, beryllium, cadmium, mercury and silver. The daily recommended dose is 200 micrograms (mcg) per day.

- **Potassium**, while not a primary detox mineral, does help push out thallium.
- **Iodine** can also be beneficial. Thyroid disease is extremely common, especially in those drinking fluoridated water, as fluoride displaces iodine. Chlorine and bromine also displaces iodine, and they too are added to your water supply and/or food.

Iodine helps push out halogens that compete with iodine uptake in the thyroid. To facilitate detoxification of halogens, you will need to take much higher amounts of iodine than typically recommended for general health.

All these supplements are classified as Generally Recognized As Safe (GRAS), so there are no toxicity concerns. One exception is selenium. You do not want to take excessive amounts of it, and it has a very low therapeutic ratio. So, don't take more than the recommended 200 mcg per day. More is not better in this case.

Where to Find Detox Help

Wendy is currently working on starting a detox institute, scheduled to open in 2018. She's partnered with Dr. Bruce Jones to develop and legitimize hair mineral analysis. The Institute will teach medical doctors, licensed professionals and laypeople the science behind the use of hair mineral analysis.

"To date, most of what you learn about hair mineral analysis doesn't have a scientific backing to it. What we want to change, and what I want to do, is really

legitimize it in the eyes of the medical profession. We're going to accomplish that by [making sure that] everything we say is backed by scientific research. You can look forward to that in 2018."

If you would like to schedule an appointment with one of Myers' personally trained Mineral Power practitioners, visit MineralPower.com.

"That's where you can learn all about our detoxification program. It's really a healing program as well. I wake up every day so excited to teach people about the importance of detoxification and how metals are affecting their body, because they're not getting that information from their conventional medical doctor.

They go to their doctor and maybe they're getting advised to take medications or surgery, which is useful in many situations. But there's a big absence of information into the underlying root causes of people's health issues, which are mineral and nutrient-deficiency, metal and chemical toxicities, EMF and other factors. I really want to educate people what they're missing in trying to reach their health goals," Myers says.

"... It can really help to have someone holding your hand and getting support if you run into a road block or a problem with detoxification. Sometimes, there is preliminary work we have to do to get someone to the point where they're able to detox ... We help to troubleshoot what those issues are and develop a really individualized detox program to get your body where you want to get it."

Myers' book, "[Limitless Energy: How to Detox Toxic Metals to End Exhaustion and Chronic Fatigue](#)," goes into these and many other details not covered in this interview. At \$5.99 for the electronic version, it's an absolute steal. If there's a specific toxin you're concerned with, Myers' book will help you identify the different sources and the specific strategies you can use to eliminate it.

Also consider getting a high-quality, low-EMF infrared sauna, and use it regularly in combination with these binders and any minerals you may be in need of. We live in a

very toxic world. Even if you think you're doing most everything right, chances are you have accumulated heavy metals in your body, which may prevent you from experiencing peak health.

Sources and References

- ¹ [Biomonitoring California. Thallium Fact Sheet. 2018](#)
- ² [Justia Patents May 5, 1984](#)
- ³ [Medscape December 12, 2021](#)
- ⁴ [CMVision IR130 198 LED Indoor/Outdoor Long Range 300-400ft IR Illuminator With Free 3A 12VDC Adaptor](#)