SAFE, NATURAL SOLUTIONS FOR
Removing Heavy Metals and Environmental Toxins

By Isaac Eliaz, M.D., M.S., L.Ac.
Let’s face it: we live in an increasingly toxic world. From the water we drink to the foods we eat (yes, even organic) to the air we breathe and beyond, it’s impossible to altogether avoid exposure to health-robbing toxins, heavy metals, and radioactive particles. Research continues to highlight the links between exposure to these toxins and some of our most serious health conditions. But the news isn’t all bad. As a result of our increased awareness, we’re becoming more proactive in taking steps to reduce the toxic burden—for the planet and our health. More people are choosing organic foods, using household products that don’t contain harsh toxic chemicals and reducing their carbon footprint in numerous ways.

All of these steps are vitally important—but in today’s world, they’re often not enough to protect the body from an accumulation of toxins and heavy metals. Unfortunately, heavy metals build up in your bone and soft tissue, where they can cause serious health problems, oftentimes years later. So, in addition to limiting your exposure to these dangerous toxins, it’s also important that you rid your body of what might already be lurking there—a process known as chelation.

The way to do this is with gentle detox and chelation practices using active natural compounds that are clinically proven to remove these pollutants from our systems and support overall health in the process.

Conventional chelating therapies using IV medications can be expensive, elaborate, and damaging to your health. That’s why research on safer, more effective natural chelation and detoxification products is so important. I’ll be sharing the results of some very exciting clinical studies with you in this report.

But first, let me take a moment to explain what heavy metals are, where you’ll find them hiding, and just how damaging they can be to your health and the health of your family.

**WHAT ARE RADIOACTIVE PARTICLES?**

Radioactive isotope particles such as Cesium-137, Strontium-90, Iodine-131, and many others are typical byproducts of the nuclear industry and formed by the process of atomic fission, which is used to create nuclear energy. These highly unstable particles are present in nuclear fallout, a term used to describe clouds of radioactive material that escape into the environment. Radioactive particles affect numerous areas of health, mainly genetic, reproductive, and cellular health.

**Cesium-137** has a half-life of 30 years. It has biological activity similar to potassium. It becomes widely distributed in the body after exposure from the atmosphere, food, water, or dust. Cesium-137 affects cellular health, DNA, cardiovascular health, and other critical areas. Large tracts of land were abandoned after Chernobyl due to Cesium-137 contamination, and contaminated milk was one of the primary sources of exposure for the surrounding population for years to come.

**Strontium-90** is chemically similar to calcium and tends to deposit in bone and blood-forming tissue (bone marrow). Thus, Strontium-90 is referred to as a “bone seeker.” Internal exposure to Strontium-90 mainly affects the cellular health of the bones and blood. Strontium gets into the body primarily from ingestion of contaminated food.

**Iodine-131** concentrates primarily in the thyroid and breast tissue, thus significantly affecting thyroid and breast cellular health, as well as contaminating breast milk.
WHAT ARE HEAVY METALS?

Heavy metals are metals with a specific gravity at least five times that of water. Because they cannot be metabolized by your body, they accumulate in soft tissues and bones. They are unavoidable in today's industrialized world. They are even passed up the food chain and served on the dinner table in the form of seafood, fish, vegetables, processed food, and the like.

Some heavy metals, such as iron, copper, manganese, and zinc are beneficial. However, many heavy metals, such as mercury, lead, aluminum, and cadmium, are incredibly harmful. In this report, I'll cover the most common heavy metals. For now, I'd like to give you a brief overview of what's out there in the environment—and on your dinner plate or in a dentist's or doctor's office—that could be adding to your body's toxic heavy metal load.

HEAVY METALS AND DAILY EXPOSURE

Mercury

Mercury is far more ubiquitous than you might imagine. It occurs in three forms: elemental mercury, organic, and inorganic. Elemental mercury is released into the air by natural processes, such as volcanic eruptions. It is also present in dental amalgam fillings, thermometers, electric switches, fluorescent lights, and some batteries. Mercury is absorbed through the skin, the gastrointestinal tract, and vapor through the lungs. It accumulates in your body over time.

Inorganic mercury (mercury salts) is oxidized and combines with other elements to create salts. It is absorbed through the gastrointestinal tract (eating contaminated food), the skin (using creams that contain it), and the lungs (breathing contaminated air). It is present in skin lightening creams, preserving solutions for biological specimens, analytical chemistry labs, photographic processing, and metal etching solutions. It is also produced by mining operations, chloralkaline plants, the paper industry, coal burning, and waste incineration. It is dispersed into the air and returned to the earth in rainfall, which runs into rivers and lakes, thereby contaminating fish. Mercury was added to paint until 1990 when it was banned.

Inhalation is still the most common cause of exposure to mercury. There is little we can do about that except protect ourselves from mercury toxicity with appropriate lifestyle changes and supplements, which I will discuss later.

Organic mercury (also known as ethyl or methyl mercury) is the reactive form of mercury. It can pass the blood-brain barrier more efficiently, and is therefore considered more dangerous. Methyl mercury is converted from the elemental form by microorganisms and accumulates in the environment, seafood and marine mammals. Most fish contain methyl mercury, which is the most toxic form. Ethyl mercury is found in medical preservatives thimerosal and merthiolate, as well as in fungicides and antibacterials. All types of organic mercury are highly absorbable through the digestive tract and are incredibly toxic.

Mercury affects your immune system, alters genetic and enzyme systems in your body, and damages your nervous system by impairing your motor coordination and your senses of touch, taste, and sight. Methyl mercury is especially harmful to developing embryos, which are five to ten times more sensitive to mercury than adults are. Methyl mercury is 95-100% absorbed through the digestive tract. It crosses the blood-brain barrier and the placenta.
Fish and Seafood
Most of us are unwittingly exposed to methyl mercury whenever we eat fish and seafood. According to a 2000 report on mercury, the National Research Council considered those at the highest risk to be the children of women who eat fish and seafood during pregnancy. The same report estimated that more than 60,000 children are born each year at risk of adverse neurodevelopment impairment due to exposure to methyl mercury in the uterus.

In many states, pregnant women are already close to the safety limit of environmental exposure alone, and eating fish could be very hazardous to the developing embryo. The Food and Drug Administration (FDA) advises pregnant women to avoid eating shark, swordfish, king mackerel, and tilefish altogether. According to the National Oceanographic and Atmospheric Association, nearly all fish contain methyl mercury.

No matter what your age or gender, you should restrict your intake of shark, swordfish, king mackerel, tilefish, canned light tuna, shrimp, salmon, pollock, and catfish. The World Health Organization has publicly stated that there is no safe amount of mercury exposure that can be tolerated by the body.

Lead
We've all been made aware of the presence of lead in paint on toys and lead in other products, including food, from China. Lead is banned from paint in the United States, but older buildings that were painted before 1990 still emit lead from the paint. Other environmental sources of lead include smoke from burning fossil fuels, batteries, ammunition, x-ray shields, solder and pipes, municipal drinking water, printing ink, gasoline, fertilizer, cosmetics, and hair dyes.

Symptoms of lead exposure include abdominal pain, headaches, numbness, fatigue, dizziness, hypertension, kidney dysfunction, loss of appetite, fatigue, infertility, and insomnia. Chronic low-level exposure can lead to birth defects, mental retardation, autism, psychosis, allergies, dyslexia, hyperactivity, weight loss, shaky hands, muscular weakness, and paralysis (starting in the forearms).

Children are especially sensitive to lead and absorb up to 50% of lead contained in food. Because it can cross the placenta to the fetus and accumulate, it can cause mental retardation, brain damage, cerebral palsy, blindness, seizures and inability to speak in young children exposed in the uterus. According to an article published in the Sunday, July 8, 2007 edition of *The Washington Post*, high levels in childhood have also been linked to criminal behavior in adulthood.

Cadmium
Cadmium is used in nickel-cadmium batteries; PVC plastics; paint pigments; agricultural insecticides, fungicides, and fertilizers; cigarettes; dental alloys; electroplating; motor oil; and exhaust fumes. We absorb 15-20% through our lungs by breathing. About 2-7% of cadmium ingested is absorbed in the digestive tract. Cadmium affects the liver, the kidneys, lungs, brain, and bones, and passes through the placenta.

Aluminum
Although it is not classified as heavy metal, aluminum is regularly ingested in food additives, drinking water, antacids, and buffered
aspirin; and absorbed through the skin via astringents, nasal sprays, antiperspirants. It also enters our body from breathing automobile exhaust fumes in the air, using aluminum foil and cookware, soda cans, ceramics, and fireworks.

Although the jury is still out as to whether aluminum causes Alzheimer's disease, it is present in large amounts in the brains of people who have it. Besides that, aluminum affects the nervous system, kidneys, and digestive system and can cause degenerative muscular conditions and cancer.

**Arsenic**
Exposure to arsenic occurs mostly in the workplace, near hazardous waste sites, or in areas with high natural levels. Chronic low levels of exposure can lead to progressive peripheral and central nervous changes, numbness and tingling, muscle tenderness, needles and pins in the hands and feet. Neuropathy (inflammation and wasting of the nerves) occurs gradually over time. People with arsenic toxicity may also have a darkening of the skin that is not exposed to sunlight, and thick skin in the palms and soles. It can also cause birth defects and liver damage.

**HOW TO TELL WHAT'S IN YOUR SYSTEM**

It is not a simple task to find out what your heavy metal load is—and in my experience as a physician, most people pay attention to their body’s heavy metal load only after they become sick. Unfortunately, this is a mistake, just as we spring clean our homes and take out the trash, so, too, should we spring clean our bodies by ridding ourselves of heavy metals that impair our health and prevent us from being on top of our game.

When I treat patients, one of the first things I help them to do is detoxify their bodies and remove heavy metals—with supplemental help from protocols I have developed over years of medical experience. But the first step is finding out what your level of toxicity is—and for that, there are multiple methods, starting from a simple hair analysis and going all the way to an IV challenge with substances such as DMPS or EDTA (however, these IV chelation agents have potential side effects as I'll explain later).

A simple way to measure your heavy metal toxic load is through hair analysis and doing an audit of what you eat and drink. A hair analysis test will tell you what heavy metals are in your body. It will test for levels of arsenic, cadmium, lead, chromium, mercury, manganese, uranium, zinc, and other heavy metals. However, you should be aware that if you don’t eat fish, but have amalgam fillings, the hair analysis can be negative for mercury, and you can still have high levels.

You can also ask your doctor to perform appropriate tests on you to ascertain your levels of heavy metals. Such tests include blood tests, liver and renal function tests, urinalysis, fecal tests, and x-rays.

**ADDRESSING METAL TOXICITY**

Chelation of heavy metals from the body is not new. It was first used in World War I and has evolved since then. There are
several widely used conventional chelation treatments, which I will cover briefly, especially their side effects. Then, I will go into detail about effective natural therapies that you can use to remove heavy metals from your body—and stay protected against your unavoidable daily exposure.

CONVENTIONAL CHELATION AGENTS

Dimercaprol (BAL)

This was first used in World War I to chelate arsenic toxicity from poisonous gas used in the war. However, its side effects include hypertension; abdominal pain; a burning feeling in the lips, mouth and throat; anxiety; weakness; restlessness; headaches; and fever.

EDTA (Ethylendiamine Tetra-acidic Acid)

EDTA is a synthetic amino acid that can bind to all metals. Its side effects include a burning sensation at the site of the injection, an allergic reaction, low blood sugar, reduced calcium levels, headaches, nausea, dangerously low blood pressure, kidney failure, organ damage, irregular heartbeat, seizures, and death.

DMSA (Dimercaptosuccinic Acid)

BAL was modified into DMSA in the 1960s and quickly became the standard of care for chelating lead, arsenic, and mercury. Its side effects include chills, fever, diarrhea, loss of appetite, nausea, vomiting, and skin rashes.

DMPS (Sodium Dimercaptopropanesulfonate)

This was first used in the former Soviet Union to chelate mercury. It has significant side effects as a result of the tremendous shift of minerals in the nervous system.

As you can see, the above-mentioned conventional approaches all come with significant risks. However, since the 1970s, there have been some exciting discoveries in the field of chelation with certain natural substances, which I will explain now.

Natural Detoxification and Chelation Therapies

Detoxification practice is not new. Traditional health systems around the world have used specialized cleansing and detox programs as a way to support the body’s elimination systems to enhance long-term health and vitality.

Today, research demonstrates how certain natural compounds, nutrients, and practices can aid the body’s natural process of removing toxins, heavy metals, metabolic byproducts, and other accumulated waste.

The following nutraceutical ingredients are examples of natural agents that are commonly used to safely bind and remove toxins from the body, and enhance the body’s natural detox functions:

- Alpha Lipoic Acid (ALA)
- Modified Citrus Pectin (MCP)
- Alginites from kelp
- Glutathione
- N-Acetyl Cysteine (NAC)
Alpha Lipoic Acid (ALA)
ALA has been used to chelate mercury and arsenic. In rare cases, there is an allergic reaction to ALA. Other possible side effects include headaches, muscle cramps and pins and needles in hands and feet.

Modified Citrus Pectin (MCP)
MCP is clinically shown to safely remove lead, mercury, arsenic, and other toxic metals from the body, by binding to them in the circulation and allowing for safe excretion through the urinary and digestive tracts.

Alginates (from kelp)
Together with MCP, Alginates from the seaweed kelp were first discovered and used as chelating agents after the Chernobyl disaster in 1986. There are no documented side effects. A mainstay of natural chelation therapy in my practice is the combination of MCP and Alginates. Both are all-natural products that work in a very unique way in the body to both chelate and eliminate heavy metals, which I’ll discuss below.

Glutathione
Considered a “master antioxidant,” glutathione is produced by the body. It plays a key role in removing body burden of environmental toxins, as well as neutralizing toxins and free radicals produced by the body. Natural levels decline with oxidative stress, illness, and toxin exposure. Supplementing with sublingual or IV glutathione, or other ingredients that support glutathione production can provide critical detox support.

N-Acetyl Cysteine (NAC)
DNAC is a form of the essential amino acid, cysteine, which plays key roles in detoxification. NAC supports the production of glutathione in the body, and helps neutralize the effects of toxins and helps protect the liver. It has powerful antioxidant and anti-inflammatory actions, along with other key benefits.

MCP: A SAFE, CLINICALLY RESEARCHED NATURAL CHELATOR

Modified Citrus Pectin is derived from citrus pectin, which has been molecularly altered to fit a specific size and weight specifications. It belongs to a class of complex polysaccharides called polyuronides. It has a unique molecular structure that enables it to bind to heavy metals by forming an “egg box,” in which long negatively charged fiber chains stack together in groups that create pockets. Positively charged metal cations are attracted to these chains, and are pried loose from your soft tissues. They then become trapped in the pockets of the “egg-box” where they can be excreted from your body—with even greater effectiveness than other forms of treatment.

This is a critically important point. Most other chelation treatments manage to loosen and bind toxins from your tissues, which are then dumped into your intestines. However, the heavy metals are then quickly reabsorbed, creating a vicious cycle that never eliminates heavy metals from your body.

This limitation propelled me to find a way to block the re-absorption of heavy metals in the intestines so they could actually be
entirely excreted from the body. My research led me directly to Alginates, which are naturally derived from the seaweed kelp. Like MCP, their structure enables them to trap heavy metals in pockets.

I discovered, as I had suspected, that by pairing these two, I was able to successfully block re-absorption of these toxins and accomplish my goal of having the heavy metals completely excreted from the body. Another reason I like this combination of Alginates and MCP is that they don’t bind to the minerals that your body needs (a side effect of many conventional chelation treatments). They also work more gradually and are, therefore, safer while being as effective.

Figure 1. Polyuronides form stacks in solution in what is known as an “egg-box” structure. Each pocket of the “egg carton” contains a positively charged ion to balance the negatively charged chains. Usually the positive ions are sodium and potassium. However, toxic metals, notably lead, mercury, cadmium, and radioactive metals, have a higher affinity for polyuronides than the essential ions like calcium, magnesium, and potassium. Toxic metal ions become trapped in the “egg-box” structure and are eliminated from the body.

The research on the safety and effectiveness of MCP and Alginates is compelling—and these past two years ushered in two groundbreaking clinical studies with some extraordinarily promising conclusions, the highlights of which I’ll share with you now.

While chelation wasn’t the primary focus of my early interest in MCP (much of the focus has been placed on its role as a natural cancer fighter) this application is nevertheless a natural corollary. Reports of its strong effectiveness in this field first surfaced in the early 1990s, in the fevered effort to minimize the devastating physical consequences of the Chernobyl disaster on exposed Russians. In a multitude of cases, pectin prevailed as a powerful antidote to this toxic radiation.

Even so, research on this crucial application of MCP and modified Alginates remains limited. To fill this gap, I headed a small pilot study (involving five patients from my own clinic, Amitabha Medical Clinic and Healing Center), the results of which appeared in Forschende Komplementarmedizin, an international peer-reviewed journal in December 2007. This was the first study of its kind to examine the relationship between decreasing heavy metal loads using MCP and modified Alginates and possible benefits in a wide range of clinical symptoms and conditions.
MCP alone or the MCP/modified alginate complex yielded an impressive 74 percent average decrease in heavy metal levels among all five patients—an outcome that confirmed the previous findings of another peer-reviewed clinical trial using MCP, funded by the National Institutes of Health (NIH) and published in the peer-reviewed medical journal Phytotherapy Research in October 2006. In this first clinical study, oral administration of MCP resulted in a significant increase in the urinary excretion of heavy metals, including lead, mercury, cadmium, and arsenic among healthy patients receiving the therapy, while not affecting their essential minerals, and without any adverse side effects.

But what set the 2007 case studies apart is that the reduction in heavy metal loads also coincided with dramatic improvements in the participants’ clinical symptoms, ranging from raised PSA levels and asthma to IBS, adrenal fatigue, and depression. No adverse effects were reported—but subsequent increases in heavy metal load in one of the case studies at the conclusion of the treatment suggest that ongoing exposure and continued treatment may be necessary to achieve permanent improvements.

This groundbreaking clinical evidence confirms what I’ve prescribed in my practice for years—namely, that heavy metals are very prominent and deadly factors in a wide range of livelihood-robbing diseases. Furthermore, it might reveal a clue as to why citrus pectin and its derivatives are so universally beneficial to your health.

Nevertheless, this was only a report of five case studies—and more clinical evidence is still necessary. Fortunately, I’ve had the privilege of contributing to the growing body of research, which only reaffirms the positive results we’ve found in the past. This next one, however, focused on the reduction of lead toxicity in a group of Chinese children.

This study (Alternative Therapies in Health and Medicine, July 2008) was conducted at the Children’s Hospital at Zhejiang University School of Medicine in China, where children between the ages of five and twelve were admitted for toxic lead poisoning. Each child was given 15 grams of MCP per day—blood serum and urine excretion analyses were performed at the outset of the trial and at days 14, 21, and 28.

The results of administering MCP to the children stunned researchers. MCP dramatically lowered the lead levels in their blood and increased the lead excreted in their urine—in fact, the average changes registered in at a whopping 161 percent reduction and 132 percent increase, respectively. The importance of these incredible results cannot be stressed enough.

The addition of this latest Chinese Children study to the growing body of research is crucial—and just as far-reaching. As I mentioned earlier, the impact of lead toxicity on childhood health is powerful. It can contribute to irreversible developmental damage during these critical years of growth. And while the threat is most prominent in areas like developing countries, lead is an on-going health risk for millions of children worldwide.

**MCP AND ALGINATES REMOVE RADIOACTIVE URANIUM**

With growing exposure to radioactive ions in our environment, safe chelation methods to remove these dangerous elements from the body are increasingly important. A 2019 clinical case study published in Alternative Therapies in Health and Medicine,
showed that the researched combination of MCP and Alginates reduced body burden of radioactive uranium in a family who had been exposed through environmental contamination in their Southwest US community.

Fortunately, MCP and modified Alginates provide a highly effective, safe method for removing heavy metals and toxins from the body. Research also shows that these ingredients—MCP in particular—offer additional benefits to help not only remove toxins and health-robbing compounds but prevent and repair the damage done by harmful pollutants in the body.

MCP and Alginates are powerful, yet gentle enough for daily use to protect us in the face of ongoing exposure to heavy metals and environmental toxins.

We are all bombarded daily with a plethora of heavy metals and toxins in the air, our drinking water, food, and the environment in general, especially the urban environment. For a long and healthy life that is free of the chronic diseases that afflict so many of us today, we need a safe and effective method to prevent toxins from accumulating, and protect against their damaging effects.

As a physician, it is my goal to heal patients and return them to vibrant health with as little harm as possible—and as a part of this mission, I hope that this report has been helpful you. If you would like more information about my research or the natural therapies, I invite you to visit www.dreliaz.org, and to share this information with your friends, your family, and your doctor. I have spent many years studying and using safe chelation therapies on my patients, and the results have been—and continue to be—truly remarkable.

In good health,

Isaac Eliaz, MD, MS, LAc.
REFERENCES AND RESEARCH


Pazersdreh M. Development of a metallothionein-based heavy metal biosorbent. Center for Biomolecular Science and Engineering, Naval
REFERENCES AND RESEARCH


ABOUT THE AUTHOR

ISAAC ELIAZ, MD, MS, LAc

Dr. Isaac Eliaz, a pioneer in the field of integrative medicine since the early 1980’s, is a respected author, lecturer, researcher, product formulator and clinical practitioner.

Dr. Eliaz is a frequent guest lecturer on integrative medical approaches to health, immune enhancement, and cancer prevention and treatment. He has also taught several courses on Traditional Chinese Medicine for medical doctors and licensed acupuncturists. As an innovative formulator of dietary supplements, Dr. Eliaz developed and currently holds the patents for several of his unique herbal formulations. Many of these products are available through ecoNugenics, Inc, as well as from leading integrative medical professionals.

In order to substantiate nutritional approaches to health, Dr. Eliaz regularly participates in clinical studies and has been published in well-recognized, peer-reviewed journals. In addition, many of Dr. Eliaz’ formulations have been submitted for validation in independent human clinical studies whose results have been published in peer-reviewed journals.

Dr. Eliaz continually studies, integrates and applies the best of health practices of both western medicine and complementary and alternative approaches. A native of Israel, Dr. Eliaz lived in the Far East and in Latin America before returning to study medicine at Tel Aviv University. While studying for his degree, Dr. Eliaz’ interest turned towards the role of alternative therapies in daily health. This led to his eventual research and personal experience with yoga, shiatsu, and acupuncture as therapeutic modalities.

After graduating medical school in 1986, Dr. Eliaz established a highly successful clinical practice in Tel Aviv, utilizing his training in both western and eastern medicine. While maintaining a clinical practice, Dr. Eliaz pursued graduate studies in clinical herbology at Hebrew University of Jerusalem and classical Chinese medicine with teachers in Israel and Europe.

In 1989 Dr. Eliaz moved to the San Francisco Bay area in order to continue his studies at the American College of Traditional Chinese Medicine, earning a Master of Science degree in 1991. During this time he also energetically sought-out leading practitioners of alternative medicine to broaden his knowledge and experience. Since 1991 Dr. Eliaz has maintained a busy private practice in northern California that focuses primarily on integrative, holistic protocols for cancer patients.

The guiding mission of Dr. Eliaz’ professional life is achieving the integration and synergy of multiple healing modalities from both ancient and modern paradigms into a holistic practice of medicine. It is the heart of his clinical practice, of his research, and a mission that he communicates with great passion and clarity.

LEARN MORE

VISIT WWW.DRELIAZ.ORG TO REGISTER FOR MORE INFORMATION TODAY!