Safe, Natural Therapies for Heavy Metal Toxicity

By Isaac Eliaz, M.D., M.S., L.Ac.
Let’s face it: we live in a toxic world. News of heavy metals and environmental toxins showing up in everything from children’s toys to babies’ umbilical cords has made headlines in recent years, and these examples are just the tip of the iceberg.

Municipal tap water in most cases is contaminated with heavy metals and environmental pollutants. Automobile exhaust fumes spew heavy metals and hydrocarbons out constantly into the air that we breathe. Produce that is not organic contains heavy metals and persistent organic pollutants (POPs) which bio-accumulate in the body causing significant health problems. The truth is, it’s impossible to completely avoid exposure to heavy metals and environmental toxins.

The 2011 nuclear crisis in Japan is yet another tragic example of the potential for life threatening pollution, this time in the form of nuclear radiation fallout, to contaminate our environments and cause widespread health repercussions.

But the news isn’t all bad. As the Age of Information progresses, we’re becoming more aware of our toxic environment and we are taking steps to lessen the toxic load on the planet and on our bodies. We are recycling more and making wiser choices in our daily lives—you’ve probably already made the switch to organic or locally grown produce, or started using household products that contain minimal amounts of toxic chemicals and heavy metals.

All of these lifestyle changes are vitally important—but sometimes they’re not enough, especially in the face of direct exposure to heavy metals or radioactive particles. But there are other natural solutions for protecting your health. Whether you are concerned about the immediate or long term repercussions from being exposed to these dangerous pollutants, there are a few natural compounds which have been scientifically proven to remove heavy metals, radiation and other environmental toxins from the body.

Unfortunately, heavy metals and radioactive particles can build up in your bone and soft tissue, where they can cause numerous very serious health problems, often times years later. So in addition to minimizing 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.

This is no easy task—and conventional chelating therapies can be expensive, elaborate, and sometimes damaging to your health. That’s why research on safer, more effective natural chelation products is so important. I’ll be sharing the results of some very exciting clinical studies with you later on in this report—but first, let me take some time to explain what radioactive particles and heavy metals really 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 and Iodine 131 and many others are typically byproducts of nuclear energy and are formed by a process
of atomic fission which is used to create atomic energy. These highly unstable particles are present in many types of nuclear fallout, a term used to describe clouds of radioactive material which escapes into the environments and can cause significant damage, mainly to rapidly dividing cells. Radioactive particles are particularly damaging to DNA and can cause mutations which lead to cancer in many cases, depending on severity of exposure.

Cesium-137 has a half-life of 30 years. It has biological activity similar to potassium, becomes widely distributed in the body after exposure from the atmosphere, food, water or dust and can cause cancer, DNA mutation, cardiovascular disease and other serious health problems. Large areas of land were abandoned after Chernobyl due to Cesium-137 contamination, and contaminated milk was one of the main 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 is linked to bone cancer, cancer of the soft tissue near the bone, and leukemia. Strontium gets into the body primarily from ingestion of contaminated food.

Iodine-131 concentrates primarily in the thyroid, and in breast tissue, leading to a significant increase in thyroid and breast cancer risk, as well as contamination of 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 and 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 extremely 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 dentist’s or doctor’s office—that could be adding to your body’s toxic heavy metal load.

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. It is absorbed through the skin, the gastrointestinal tract and as vapor through the lungs. It accumulates in your body over time. The vapor caused by mercury in amalgam fillings is harmful to you.
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, chloralkali 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 and 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 and can pass the blood-brain barrier more easily, 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 extremely toxic.

Most vaccines contain ethyl mercury, in the form of Thimerosal—that includes everything from the flu vaccine to the vaccines given to millions of infants. Thimerosal has been used worldwide since the 1930s as a preservative in vaccines, cosmetics, eye drops, contact lens solutions and tattoo ink. Because of its mercury content, Thimerosal is known to have neurotoxin properties and in the case of vaccines, it has been linked to autism. It has been removed from pet vaccines and contact lens solutions, but still is used as a preservative in vaccines for children. This year, mercury-free flu vaccines are available, but you have to ask for them.

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 completely. According to the National Oceanographic and Atmospheric Association, nearly all fish contain methyl mercury.

No matter what your age or gender, 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.

**Vaccinations**

Most vaccines contain ethyl mercury in the form of a compound called Thimerosal, which is used (unnecessarily, I might add) to preserve the vaccine. It is also used as a preservative in cosmetics, eye drops, contact lens solutions, tattoo ink and many other commonly used products.

Thimerosal is a neurotoxin that is thought to be linked to the rising number of cases of autism because the cumulative amount of mercury in the Infant Immunization Schedule exceeds the recommended threshold set by the government for methyl mercury. Researchers first questioned the safety of adding Thimerosal to vaccines in the 1970s, and in the 1990s it was removed from pet vaccines and contact lens solutions.

During that decade, more than 40 million children were vaccinated with vaccines containing this compound and the number of vaccinations containing Thimerosal given to children almost tripled. It was removed from most vaccines in 1999 on the recommendation of the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). Most flu vaccines still contain it.

Symptoms of mercury toxicity in young children are very similar to those of autism. A one-year-old child, receiving the government-mandated vaccinations under the Immunization Schedule would receive 4-6 shots during one doctor visit. This means that child over time would be injected with as much as four times the amount of mercury considered safe.

There are safer options. You should request a mercury-free flu or other vaccine. A longer-term option, which I recommend, is to strengthen your immune system with appropriate supplements such as medicinal mushrooms, zinc, vitamin C and Echinacea (for short-term use).

**Lead**

We’ve all been made aware recently 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 and 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 a 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 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 at the Amitabha Medical Clinic and Healing Center, 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 intravenous challenge with substances such as 2,3-Dimercapto-1-propanesulfonic acid (DMPS) or Ethylenediaminetetraacetic acid (EDTA) (with 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.

**How to Remove and Prevent Heavy Metal and Radiation 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.

**Dimercaprol or British anti-Lewisite (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**

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**
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.

**Sodium Dimercaptosuccinatate (DMPS)**

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 Chelating Therapies**

The following natural chelating agents are used in both conventional and alternative medicine:

- Alpha Lipoic Acid (ALA)
- Vitamin C
- Modified Citrus Pectin (MCP)
- Alginates

Before I go into more detail on Alginates and MCP, I’ll quickly cover the side effects of all therapies first.

**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.

**Vitamin C**

High doses can cause diarrhea, nausea and abdominal cramps.

**Modified Citrus Pectin (MCP)**

No known adverse side effects.

**Alginates (from kelp seaweed)**

Together with pectins, alginates from the seaweed kelp were first discovered and used as chelating agents to remove radiation from victims of the Chernobyl disaster in 1986. In fact, it was this initial use of pectins and alginates in the treatment of Chernobyl victims which prompted my original research into the chelation properties of these unique compounds. There are no documented side effects.

Although I frequently use ALA and vitamin C for chelation protocols in my clinical practice, the mainstay of my therapy 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 and radioactive particles.

**A safe chelating substance with clinical research on its side**

MCP is derived from citrus pectin, which has been molecularly altered to fit certain size and weight specifications making it easily absorbed into the blood stream. It belongs to a class of complex polysaccharides called polyuronides, and has a unique molecular structure that enables it, while in suspension in your body fluids, to bind to heavy metals and radioactive particles 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 easily 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 and radioactive particles in the intestines so they could actually be fully excreted from the body and my research led me directly to Modified Alginates, which are derived from the seaweed kelp. Like MCP, their structure enables them to trap heavy metals and radioactive particles 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 them 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. Normally the positive ions are sodium and potassium. However, toxic metals especially 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 Modified 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.

Inspired by this early research, I wanted to learn more about this crucial application of MCP and Modified Alginates. 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.

Another published study (Zhao ZY, Liang L, Fan X, Yu Z, Hotchkiss AT, Wilk BJ, Eliaz I. Altern Ther Health Med. 2008 Jul-Aug;14(4):34-8) 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, and 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.

Fortunately, MCP and modified alginates provides a highly effective safe way for removing heavy metals and toxins from the body, and continued lifelong protection against heavy metals and toxins with the maintenance dosages—and I cannot stress strongly enough how important continued maintenance is for protection.

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, such protection is essential.

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 mentioned here, 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, M.D., L.Ac.

About the Author: Isaac Eliaz, M.D., M.S., L.Ac.

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. 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.

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