

HEAVY METAL TOXICITY

A Modern Day Epidemic Not Being Addressed

By Dr. Jay Davidson

Heavy metal toxicity is a modern day epidemic that is not being appropriately addressed by traditional medicine and even most natural health practitioners. Heavy metals promote low oxygen levels and a low body temperature, which allow pathogens to thrive.

Mercury

Mercury is often talked about in reference to eating fish, vaccines, and dental fillings. Amalgam tooth fillings are made of 50% mercury along with 35% silver, 13% tin, 2% copper and a trace amount of zinc.¹ Research has shown that the amount of mercury in your brain is proportional to the amount of mercury in your teeth.² Moreover, people with amalgam fillings have been shown to have twice as much mercury in their urine as people who do not have amalgam fillings.³ And it's not just having the fillings in your body - just being in a mercury rich environment has an adverse effect on your body. Research has shown that dentists have 4 times higher mercury urine levels than the average American.⁴

Mercury is 1,000 times more toxic than lead and the methyl-mercury vapor emitted from tooth fillings is 100 times more toxic than elemental mercury! To make matters worse having another metal in your mouth like gold for a crown or nickel in a retainer wire increases the amount of mercury that is released. This process is called galvanism, which happens when two metals get in contact with an acid. In this case, the acid is your saliva, which leaches mercury 10 times faster than normal.⁵

Before you schedule an appointment with your dentist to take out your toxic fillings, there are steps you need to take to protect yourself. People tend to think amalgam fillings are primarily made of silver because of their color but as I stated earlier, 50% of the filling is actually comprised of mercury. When people discover the truth, they want to get them removed but don't know the proper process to go through in order to not only remove the fillings but also protect their bodies from the effects of the mercury. The sad news is that traditional dentists often don't know any more than their patients do. Traditional dentists will just drill into the tooth in order to remove the filling, which actually vaporizes the mercury and is more dangerous than just leaving the fillings in place. I recommend that clients go to a biological dentist who is trained to remove the amalgam fillings properly. There is a significant difference between a conventional dentist and a biological one. I give my clients a checklist of questions to ask their dentist and I even have a few

practitioners I recommend in Mexico when there is a lot of work that needs to be done in the mouth and cost is an issue.

Metal Sensitivity Testing by Neuroscience (Pharmasen Labs) is useful for people having dental work done so they know how their bodies will likely react to any discharge of heavy metals during or after a procedure

However, proper removal of the fillings isn't the end of the process! For those who have had toxic fillings removed, there is typically a six-month honeymoon period before a major crash in your system occurs if the mercury that was already released into your body isn't dealt with. Inevitably, people feel better after getting the chunks of mercury removed from their bodies! The problem is that mercury had been slowly leaching out into your system ever since you first had the fillings put into your mouth! Patients typically find they have about six months to remove all of the amalgam fillings and begin heavy metal chelation treatment before their body crashes. People feel good at first because the source has been removed and is no longer releasing mercury. However, the fact that the source has been removed is what gives the body permission to begin to dump what it has been storing. In an attempt to get rid of the mercury, the body begins to release it, but is unable to truly get rid of it. Mercury is literally spread throughout the body and causes it to crash as the mercury is reabsorbed. A true heavy metal detox is essential in order to completely remove the mercury from your body before it is able to do widespread damage.

I always recommend that clients work with a practitioner who is properly trained.

This is too dangerous to do on your own!

Mercury is the second most neurotoxic chemical on the planet, meaning it viciously attacks the nervous system. With that in mind, it is concerning to know that research indicates that mercury is twice as high in the environment as scientists previously believed.⁶ Mining operations and paper industries are significant producers of mercury. However, don't think that the majority of the mercury we are exposed to is atmospheric. It is in most of the food we eat! In 2009, *The Washington Post* reported that 50% of high-fructose corn syrup contained mercury.⁷ Knowing the amount of foods that contain high-fructose corn syrup, it is terrifying to think of how much mercury the average American is consuming without knowing it.

Questions that can identify mercury related toxicity:

- Did you wear contact lenses during the 1980s or early 1990s? (Thimerosal, which contains 50% mercury, was an ingredient in many contact lens cleaners at that time).
- Did you take oral contraceptives during the 1980s or early 1990s?
- Do you have insomnia-like sleep issues? Do you often wake up and cannot fall back asleep?
- Do you have to urinate frequently during the day, night, or both?

Mercury primarily attacks the brain and kidneys. Symptoms of mercury toxicity include tremors, insomnia, neuropathy, paresthesias, irritability, personality changes, headaches, weakness, blurred vision, slowed mental response, and an unsteady gait (imbalance).

Mercury has also been shown to increase autoimmune diseases.⁸

Do you remember the Mad Hatter from Alice in Wonderland? The term “Mad Hatter” described people who wore felt hats because mercury was used to reduce the mold that was produced when creating the hats. Do an online search for “Mad Hatter’s Disease” for more details about the symptoms people experienced in the 1800s. Manufacturers are still using chemicals and processes that put our health in danger today. We must uncover the truth and protect ourselves.

Lead

Lead is typically associated with the paint that was used on homes before 1978 or plumbing pipes before 1940. But would it surprise you to learn that today there are modern sources of this deadly toxin that we encounter in our everyday lives? Some modern sources of lead include:

- Commercially processed vinegars, which have been shown to have lead in them. Balsamic vinegars and aged vinegars are the worst. White vinegars from rice and grapes usually contain less lead but still have trace amounts.
- Children’s toys
- Jewelry
- Vinyl and faux-leather
- Indian and Chinese herbs (concentrations of lead were elevated by 10-40% due to their processing practices).⁹

Questions that can identify lead toxicity:

- Does your occupation involve construction, soldering, metal salvage, or stained glass?
- Are you an electrician or handle electrical devices, electrical wiring, ballasts, or TV glass?
- Do you wear lipstick?
- Do you have any tattoos?
- Do you handle and/or reload ammunition?
- Do you or have you regularly consumed the supplement coral calcium?

A recent study published in *The Journal of Environmental Health* found women between the ages of 65-87 with high lead levels were nearly 60% more likely to die than those who did not have elevated lead levels during the twelve year study.¹⁰ Common symptoms of lead toxicity include loss of IQ (inability to focus or learn in a school setting), heme synthesis

(a cause of anemia), lowered Vitamin D synthesis, slowed nerve conduction, and neuropathy. Research has correlated low-level lead exposure to increasing the prevalence of gout.¹¹ Lead can also cause high blood pressure.¹²



32 different lipsticks were analyzed in a recent study in *Environmental Health Perspectives*. 24 of them (75%) contained lead!¹³ This is especially troubling considering the study states that the average woman consumes six pounds of lipstick in her lifetime!

Lead toxicity is often called a “generational curse” because the number one source of the lead in your body is your mother! Lead is carried in our bones and mothers inevitably pass it on to their babies throughout their pregnancy.

In fact, lead toxicity can be passed on for four generations on the female side. Sadly, lead toxicity is the most common heavy metal toxicity in children. The CDC reports that nearly 3% of U.S. children aged 1 to 5 years old have high lead levels in their blood. In 2010, an estimated 535,000 children in this age group had blood lead levels at or above the CDC's recommended threshold of 5 µg/dL. Overall, the mean blood lead level in those aged 1 to 5 was 1.3 µg/dL. Mean levels were highest among African American children, children between the ages of 1 and 2, children enrolled in Medicaid, and children living in poverty. MMWR's editors concluded: "Resources should be targeted to those areas where children are most at risk."¹⁴ Even small amounts of lead cause damage to our bodies.¹⁵

Again, lead is stored in our bones. When you go through any hormonal shift (puberty, pregnancy, menopause, etc.) lead is released. For example, when bone density changes, you can be assured that lead is being released into the body. Lead being released doesn't cause loss in bone density - it's something that happens because of the change in bone density. The emotional swings that women tend to experience during menopause (a stage in life that is often associated with a change in bone density) could be caused by the release of lead into their bodies! This could indicate that a heavy metal detox would benefit women going through menopause.

Cadmium

The heavy metal cadmium is found in cigarettes. If you are or were a cigarette smoker or in an environment that contained cigarette smoke, your problems may be linked to cadmium exposure. Other sources include batteries, PVC plastics, motor oil, exhaust from motor vehicles, and even paint pigments.

Do you eat non-organic food? The toxic heavy metal cadmium was found to be significantly higher in non-organic foods. This is because the insecticides, fungicides, sludge, and commercial fertilizer non-organic farmers use contain cadmium and pollute the soil.¹⁶ Cadmium targets organs like the liver, placenta, kidneys, lungs, brain, and bones. Cadmium can increase your heart size, cause higher blood pressure, exacerbate atherosclerosis, reduce kidney function, depress the immune system, cause aches and pain in bones and joints, and has even been linked to lung and liver cancer.

Aluminum

One of the highest levels of aluminum that I have seen on a test came from someone who had a stroke a year prior to being given the test. He answered "Yes" to the following three questions:

- Do you eat a lot of soy foods?
- Do you cook with aluminum pans?
- Do you wear antiperspirant deodorant?

Aluminum targets the brain, central nervous system, kidneys, and digestive system. Science has also linked Alzheimer's, degenerative muscular conditions, and cancer to aluminum toxicity.¹⁷ Aluminum is found in food additives, antacids, buffered aspirin, nasal sprays, drinking water, tobacco smoke, aluminum foil, aluminum cans, ceramics, and fireworks. Research has shown that high levels of aluminum increases the risk of developing breast cancer.¹⁸ More troubling is the fact that the aluminum that is found in deodorant mimics estrogen and has been shown to absorb and be stored in breast tissue!¹⁹

Other Worthwhile Mentions

Bismuth

Pepto-Bismol® and other treatments for diarrhea are the most common source of bismuth. It can also be found in drinking water, and in non-organic fruits, vegetables, and grains. Prolonged bismuth toxicity has been shown to cause neurological problems, generalized inflammation, kidney damage, and even reduced brain function.²⁰

Arsenic

Arsenic can be found in paints, rat poison, fungicides, wood preservatives, and even in our drinking water worldwide. It affects the food we eat like shellfish, cod, and haddock because it is so prevalent in the world's waterways. It is also commonly used in the manufacturing of chemicals, glasses, and pesticides. Arsenic targets the blood, kidneys, central nervous system, digestive system, and our skin. Arsenic has been shown to decrease production of red and white blood cells, cause fatigue, abnormal heart rhythm, bruising, and impaired nerve function. It also causes stomach aches, nausea, vomiting, and diarrhea. Early warning signs of arsenic toxicity are pins and needles sensations on the hands and feet.

A few other toxins that must be mentioned are **antimony, barium, gadolinium, gallium, nickel** and **tin. Platinum** and **palladium**, which are found in exhaust fumes caused from the catalytic converters and is often used in high-end jewelry, have also been shown to cause major problems.²¹ I had a client take a heavy metals test while she was having chemotherapy treatments for cancer and I found that the level of platinum in her body was astronomically high. Most chemotherapy drugs are heavy metal based and contain platinum.²²

Heavy Metal Testing

Conventional testing for heavy metals consists of drawing blood to see what's in the blood stream. The problem is that heavy metals will only appear in the bloodstream if there was an acute exposure within the last week. For example, if you broke a thermometer and had your blood tested two days later, mercury would likely be found in your bloodstream. This kind of testing is not accurate for determining the effects of a lifetime of exposure or chronic exposure to heavy metals. *The target of heavy metals is not the blood stream.* That means that if you grew up in a home with leaded pipes but were not exposed to lead in the last week, a standard blood test for lead would come up negative but there would still be lead stored up in your body (and specifically your bones). Standard blood tests miss the heavy metals that are being stored in your body.

Hair analysis is another testing method that practitioners use. However, while hair analysis has some accuracy for minerals, it is not useful for detecting heavy metals. Also, some practitioners muscle test for heavy metals. I caution against this type of testing for heavy

metals. I am not against muscle testing in general, but it is not useful regarding heavy metals. For instance, mercury has a high affinity for brain tissue (specifically the hypothalamus and pituitary gland). When someone is muscle testing they are challenging the nervous system, including the brain. Since mercury is a neurotoxin that targets the brain, the accuracy of muscle testing would be impacted by any mercury present in the brain at the time of testing. I think of mercury as the heavy metal of deception. My wife had a blood test and a hair analysis for heavy metals that came back negative. She was also muscle tested and heavy metals were shown to not be a major issue. Those results were inaccurate and it caused more suffering until someone told us how to properly test for heavy metals.

The best test that is currently available is a heavy metal urine challenge test. When being given this test, you take a true heavy metal chelator like DMPS, DMSA, or EDTA and your urine is then collected to be analyzed. The chelator pulls heavy metals out of the body through the liver, kidneys, and urine. In this test, the urine is sent in and inspected for the presence and amount of twenty different heavy metals. There are very specific instructions needed for this test to make sure it is performed correctly and to ensure that it doesn't cause the individual any harm. Go to a trusted health professional with experience in testing and treating heavy metal toxicity to have this test properly administered.

Do You Have Hormone Issues?

Many people who are told they have hormone problems actually have mercury toxicity. Like I said earlier, mercury targets the brain and specifically the hypothalamus and pituitary gland. The hypothalamus and pituitary gland control the endocrine system's organs. They also communicate with the adrenal glands, thyroid, and reproductive organs in men and women. If the hypothalamus or pituitary gland are impacted by mercury toxicity, their ability to function is hindered and any organ or system that depends on them will also suffer.

Pathogenic Biofilms

Biofilms are basically interconnected groups of microbes that gather together and attach to a surface.²³ They much prefer to be anchored to a surface than to freely float around in the body.²⁴ Think of a biofilm as a blanket that is spread out on top of a bunch of microbes. This biofilm is typically composed of calcium, magnesium, iron, mercury, lead, copper, and other trace metals.²⁵ To get rid of the microbes, you have to take off the blanket holding them together (remove the biofilm). Chelating agents degrade biofilm by binding the metals that are required for pathogen aggregation and exopolymer cross-linkage. Enzymes may be combined with chelating agents for a synergistic anti-biofilm effect. Biofilm matrix of gram-negative bacteria are typically anionic and bind cations such as calcium and magnesium. This leads to polymer cross-linking and increased strength.²⁶

Mercury Changes Mating Behavior

Heavy metals are massive hormone disruptors. Researchers from the University of Florida, Gainesville studied ibises (tropical birds resembling seagulls) that had been exposed to mercury. They not only had disrupted endocrine systems, but seemed to experience chemically induced homosexuality. The male birds who had higher levels of mercury in their systems had a greater tendency to be attracted to the other male birds. Whether this translates to humans is yet to be researched. There is not much toxicity research in this category and I don't expect there to be much in the future.²⁷

DETOX

heavy metals, biotoxins, and
persistent organic pollutants

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Everything that can be invented has been invented. ”

—Charles H. Duell, Commissioner of US Patent Office in 1899

There are great tools to remove the toxins from your body at the cellular level. There are also many trendy treatments that don't actually work. The word “detox” carries a variety of meanings depending on who is using the word. People detox from things like alcohol, painkillers, and many other addictive substances. Detox can also refer to going on a juice fast or doing a colon cleanse (flush). Some simply use the term in reference to losing weight.

In this eBook, detox is referring to the removal of toxic substances at the cellular level. In other words, detoxing is all about getting the dangerous substances out of your cells. I believe you need to heal the cell in order to get well. Toxins include, but are not limited to, heavy metals, biotoxins, and persistent organic pollutants (POP's). POP's are organic compounds such as PCB's (polychlorinated biphenyls), DDT (dichlorodiphenyltrichloroethane), chlordane, and furans. Dioxins that are resistant to environmental degradation through chemical, biological, and photolytic processes also fall into this category.²⁸

POP's include many of the insecticides from the 1950s and 1960s.²⁹ This caused

bioaccumulation of these POP's in humans and animals. A lot of these chemicals have been shown to disrupt the endocrine system (hormones) and reproductive system. The repercussions of this are immunologic, developmental, neurologic, and behavioral. POP's have also been linked to heart disease, cancer, diabetes, and obesity.³⁰

One of the most ridiculous statements I have heard in reference to detoxing came from a medical doctor who said he didn't believe in detoxifying the body because, "That's what the liver and kidneys are for." Just because we were given those organs doesn't mean we don't get overloaded with toxins and need to assist the body in removing them. You can't get away with what people got away with 30 years ago. We live in a different world that is packed with stressors, technology, chemicals, and pollution. To not consider that detoxification ever needs to be addressed is absurd.

U.S. chemical production increased 23.5 times between 1947-2007.³¹ Not surprisingly, it is widely believed that the average adult now has roughly 700 different contaminants in his or her body. If that isn't frightening enough, research concludes that 80% of all cancers are attributed to environmental factors, including exposure to carcinogenic chemicals.³² Even the Mailman School of Public Health at Columbia University reports that "95% of all cancer is due to diet and the accumulation of toxins."³³

Research shows that the average infant is born with more than 200 toxins already present in their bodies. The Environmental Working Group (EWG) found an average of 200 industrial chemicals and pollutants in umbilical cord blood from 10 babies born in August and September of 2004 in U.S. hospitals. Tests revealed a total of 287 chemicals in the group. The umbilical cord blood of these 10 children, collected by the Red Cross after the cord was cut, harbored pesticides, consumer product ingredients, and wastes from burning coal, gasoline, and garbage. This study represents the first reported umbilical cord blood tests for 261 of the targeted chemicals and the first reported detections in cord blood for 209 compounds. Among them are eight perfluorochemicals used as stain and oil repellants in fast food packaging, clothes, and textiles (including the Teflon chemical PFOA, which was recently characterized as a likely human carcinogen by the EPA's Science Advisory Board). Dozens of widely used brominated flame retardants and their toxic by-products and numerous pesticides were also found.³⁴ When born with this amount of toxic buildup already in our bodies, the impact of our environment as we live only increases. Keeping the "bucket theory" in mind, it's difficult to disconnect the increase in autoimmune diseases from the fact that so many people are being born with buckets that are already full.

While zeolite, chlorella, cilantro, and foot baths are some very commonly used things that supposedly help to detoxify the body, I'm personally not a fan of these treatments. Zeolite can grab onto things in the digestive tract, but its molecules are too big to pass through the intestinal barrier to do much of anything inside of your body. Chlorella and cilantro are typically referred to as "heavy metal chelators" because they are in the sulfur-hydrogen group. In vitro studies show that these substances will bind a heavy metal.³⁵ Let's be very clear: in vitro means that the study was done in a petri dish and not in the human body. When mercury and cilantro are the only thing in a petri dish it will bind, but it's a whole

different ballgame when you need to bind and then remove a heavy metal from the body. Clinical experience tells me that chlorella and cilantro just stir up the metals in the body and can actually cause more damage to highly toxic or sensitive people.

Foot baths are popular (especially at health expos) because people get to instantly see the water turn a color like dark brown or green. I don't believe that foot baths are a scam, but they definitely do not detoxify the body at the cellular level. My experience shows me that foot baths may help the liver and gallbladder but I believe there are better tools to address these problems.

Glutathione

Glutathione (GSH) is the strongest antioxidant that exists and is also a natural detoxifier. The great thing is that our body naturally makes it! All cells are capable of making glutathione, but liver production is key. If levels of GSH drop too much in the cell, the cell dies. Research shows that people diagnosed with autism and cancer have extremely low levels of GSH.³⁶ In fact, 90% of Americans are deficient in Glutathione.³⁷ GSH requires magnesium and is one of the few antioxidant molecules known to neutralize mercury.

Dr. Boyd Haley of the University of Kentucky states that, "In autistic children, glutathione levels are less than half the normal levels."³⁸ Research confirms this and finds that autistic children do have low glutathione levels. Lead researcher, Jill James, professor of biochemistry and pediatrics at the University of Arkansas for Medical Sciences said, "Given an equal load of environmental toxicants, these kids wouldn't be able to detoxify it or excrete it as well as the average kid."³⁹

GSH plays a key role in modulating autoimmune reactions. GSH is 5000x stronger than any other antioxidant such as Vitamin C or E (Vitamin E is known as the "master antioxidant"). While Vitamin C has 5 and Vitamin E has 3, GSH has over 1 million extra electrons to donate to the body.

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We've already found dozens of ways to live an extra decade or two - in good health. The easiest and surest way: increase your body's supply of glutathione.

””

—Dr. David Williams

The problem is that glutathione is not absorbed in the digestive tract very well. This means that taking glutathione on its own won't help you much. A good option is to take liposomal glutathione, which is able to be absorbed into your digestive tract. But I warn you, most taste horrible in liquid form. Another option is to get a GSH injection. This typically makes people feel good for a month or two and then they go through a hard crash. This treatment is not the way to raise glutathione levels in the body because the injected glutathione cannot get inside of the cell. Remember it's all about health at the cellular level, meaning inside the cell. I believe this is what so many practitioners miss.

Glutathione is composed of 3 amino acids (tripeptide): cysteine, glutamic acid, and glycine. Cysteine is the rate-limiting factor in GSH production because it's not found in foods very often. N-acetyl cysteine is a supplement that helps to increase glutathione production. GSH requires a lot of your body's energy to be created (it takes 3 ATP's). Glutathione exists in two forms in the body: the reduced (active) form called GSH and in the oxidized (inactive) form called GSSG. Healthy individuals have more GSH than GSSG.

My choice for increasing glutathione inside the cell is [GCEL](#) by Systemic Formulas. GCEL contains an acetyl form of glutathione that is absorbed very well along with glutathione pre-cursor N-acetyl cysteine that allows your body to make and raise intracellular glutathione. It also contains compounds like selenium, alpha-lipoic acid, cordyceps, and milk thistle, which help to recycle the oxidized form of glutathione, GSSG back into the reduced form GSH.

Important Glutathione Caution

When raising GSH intracellularly, toxins will be released from your cells and processed by your liver. A large majority of these toxins will be dumped into the bile. This bile will then be moved into your digestive tract. This would be an easy way to eliminate the toxins, but the body recycles bile since it takes so much energy to create. When the bile is recycled, so are the toxins in the bile. This means you recirculate toxins.

This is why it is necessary to take something to bind onto the toxins so your body will not reabsorb them when you increase glutathione. Clays and carbons seem to grab onto the toxins and pull them out of the body well. Clays and carbons are the environment's natural filters, meaning that if they are exposed to any pollutants or chemicals, it will automatically bind them. Keeping this in mind, it is imperative to find an extremely high quality source of carbon or clay. Be careful! These compounds have a tendency to cause constipation.

The most effective toxin elimination supplement I've found is [BIND](#) by Systemic Formulas. BIND contains pharmaceutical grade super-activated carbon that acts as a magnet by absorbing chemicals for safe and easy elimination. This prevents toxins from recirculating throughout the body and getting reabsorbed, which causes more symptoms. BIND also contains powerful probiotics, humates, and fulvates. Humates and fulvates have a high affinity for mercury, lead, cadmium, and other heavy metals. This allows you to bind heavy metals in the gut. The first step is to pull the toxins out of our cells by using GCEL. The next step is to pull those toxins out of our body by using BIND.

The very first time I took a supplement to raise glutathione intracellularly happened to be the first generation of GCEL and BIND. GCEL and BIND are considered to be the third generation of modern toxin elimination supplements. When I first began taking them, I found that I would wake up in the morning with a crust around my eyes. So much so that I would have to peel it off in order to open my eyes! Experiencing this made me remember all of the times I went through this as a child. It was evident that the detoxification process was bringing out the symptoms I had previously experienced as my body healed.

GCEL and BIND Recommendations

Initial Dosing: Take 1 GCEL in the morning. Take 1 BIND before bed on an empty stomach. *Note: BIND should only be taken with water (no food or other supplements)! Follow this initial dosing plan for 2-4 weeks before moving onto the daily dosing plan.*

Daily Dosing: Take 2 GCEL in the morning and 2 BIND before bed on an empty stomach for 2 weeks. Then for the following 2 weeks, increase the dosage to 4 GCEL in the morning and 4 BIND before bed on an empty stomach. Repeat this daily dosing cycle as many times as needed.

Always Use GCEL & BIND Together!

The most common question I get asked is, "How long should I take these?" I personally believe that GCEL and BIND are products to consume on a regular basis throughout your lifetime. This is much more important than taking a multi vitamin! At the very least, I recommend that people take GCEL & BIND for 90 days to dramatically increase their glutathione level. Alternate between doses of GCEL as described in the daily dosing instructions to maximize glutathione production and avoid letting your body get used to it.

Whey Protein and Glutathione

Whey protein increases glutathione production as well.⁴⁰ Unlike carbohydrates and fats, the body does not store protein. This is why it's so important to get enough protein in your diet! Protein is part of every cell, organ, and tissue in your body. Whey protein concentrate has the highest biological value (BV) of any protein. This is a measure of how well something is absorbed and assimilated. Even though some health advocates view whey isolate protein as better than whey concentrate, I prefer whey concentrate because it's less processed than whey isolate. I like to think whey concentrate is to whey isolate what brown rice is to white rice. Included on the next page is a chart describing the biological value of various kinds of protein.

PROTEIN	BV (BIOLOGICAL VALUE)
Whey Concentrate	104
Hydrolyzed Beef Protein	101
Isolate Whey Protein	100
Whole Egg	100
Milk	91
Egg White	88
Cottage Cheese	84
Tuna	83
Fish (other)	82
Beef	80
Chicken	79
Casein	77
Soy	75
Peanuts	68
Yogurt	68
Wheat	64
Oatmeal	58

Whey protein has been shown to:

- Promote lean muscle and stimulate fat loss.
- Provide energy, boost immunity, repair muscles and bones.
- Stabilize blood glucose levels and suppress appetite.
- Defend the body against free radical damage, toxins and cancer.⁴¹

In July 2010, *Consumer Reports* tested 15 popular protein drinks. All 15 had measurable amounts of heavy metals in them! 20% had worrisome levels of arsenic, cadmium, and lead! The worst of the products tested was Muscle Milk Chocolate Powder®, which contained all four toxic metals (and three of them at the highest levels of all products tested). Three daily servings of this particular brand and flavor contained an average of 5.6 µg cadmium, 13.5 µg of lead, 12.2 µg of arsenic, and 0.7 µg of mercury.⁴² Needless to say, this is not the way to get your protein!

How To Find Good Whey Protein

1. It must come from all-natural, grass-fed cows, *not* pesticide-treated, grain-fed cows
2. It must come from hormone-free cows, *not* hormonally-treated cows because the commonly used rBGH hormone is linked to cancer
3. It must be *cold processed* to protect the nutrients in their natural state and not heat processed. Whey that is heat processed makes the whey acidic, nutritionally deficient, and damages the micronutrients and amino acids
4. It must be processed without acids or chemicals. Do not choose whey proteins that have been processed with acid or ion exchange. The bottom line is that acids and ion exchange processing denatures the amino acid profiles
5. It must be sweetened naturally, *not* artificially. Aspartame and sucralose are toxic to the body
6. It must be free of toxic heavy metals. You want to avoid protein powders (both whey and non-whey) that contain dangerous levels of heavy metals like mercury, lead, cadmium, and arsenic. *Consumer Reports* evaluation showed the majority of the leading brands of protein powders exceeded safety limits for those heavy metals
7. Make sure it's 100% whey concentrate

Most whey proteins available are contaminated with toxic heavy metals, contain dangerous artificial sweeteners like aspartame and sucralose, and have been highly processed.

My favorite fast and healthy "shaker bottle" to make is to take a scoop of grass-fed whey protein, 2 tablespoons of chia seed, a tablespoon of MCT (medium chain triglyceride) oil, and a scoop of greens, which are basically powdered vegetables and super-foods. Add water to it and consume. Be sure to shake the shaker bottle a few times within the first few minutes so the chia seed does not gel and solidify at the bottom of the bottle. This happened to me a few times and it's annoying! *The best time to have this whey protein drink is after exercise, as a full meal, or even as a snack. My favorite whey protein is Multi-Whey by Vibrant Life, which comes in [Chocolate](#) or [Vanilla](#). Multi-Whey meets all the criteria above plus it has vitamins, minerals, and enzymes in it too!*

Pasteurization

According to the Weston A. Price Foundation, "Pasteurization is much more damaging to the proteins than the fats. The only thing ruined in the fats is the Wulzen Factor, which protects against arthritis. If only pasteurized cream is available, you can get the Wulzen Factor by adding high-vitamin butter oil to the pasteurized cream."⁴³

GSH helps to detoxify most drugs and pollutants, but certain drugs lower glutathione. One major drug that reduces glutathione is acetaminophen, which is found in the following: Actifed Plus[®], Anacin[®] (all products), Benadryl[®] (Plus and Plus Nighttime), Comtrex[®] (all products), Dristan[®] (all products except Room Vaporizer), Drixoral Plus[®], Excedrin[®] (all products), Nyquil Nighttime Cold Medicine[™], Pamprin[®] (all products), Panadol[®] (Children's and Infant's), Percogesic[®], Sinutab[®] (all products), Sominex Pain Relief Formula 1[®] Tablets, TheraFlu[®] (all products), Tylenol[®] (all products) and Paracetomal[®], which is the European version of Tylenol[®].

Tylenol[®] not only depletes GSH, but also CoQ10 and increases liver enzymes. Acetaminophen (Tylenol[®]) use is the number-one reason for acute liver failure in the United States. It is also responsible for 8 % to 10% of end-stage renal disease in the U.S.⁴⁴

A study that analyzed 322,959 thirteen-to-fourteen year-olds from 50 different countries concluded that as many as four out of every 10 cases (40%) of wheezing and severe asthma in teens may be linked to the over the counter medication, Tylenol[®]. Using it even once in the prior year was linked to a 43% greater likelihood of current wheezing symptoms.⁴⁵ Another study found that children who had been given acetaminophen early in life had up to seven times greater chance of developing wheezing.⁴⁶ Research also shows chronic users Tylenol[®] (Paracetamol[®] in Europe), are at increased risk for blood cancers.⁴⁷

Heavy Metal Detox

Lead and mercury slow your ability to remove some of the toxins from your body because lead and mercury affect the methylation process. Dr. Garry Gordon believes that lead makes mercury 100 times more toxic than it would be without it.⁴⁸ According to the EPA, mercury is the second most toxic element known to man (only uranium is more toxic).⁴⁹

As I researched and learned about the dangers of heavy metals, I immediately wanted to get tested and get them removed right away. This is not how it works. Please understand that it takes years to truly remove heavy metals from your body. I cannot tell you how angry it makes me that there are practitioners who tell people that it only takes 3 months to get rid of heavy metals! This bad advice hurts people. It can take 2-4 months to remove the heavy metals from the body's tissues, but at that point you haven't even started getting to the main storage source! It is the storage source that matters.

Mercury has a high affinity for brain tissue and must be removed from the brain! Lead loves bone and must come out of the bone! That cannot happen in 3 months! If you are actually taking a true chelator and using it appropriately, then you can empty the body's tissues in 3 months, but the work has just begun.

I had a client named Richard who had been properly tested for heavy metals in the past. The test showed he was high in lead and moderately high in mercury. When he first came into my office, Richard only weighed 110 pounds, spoke and moved slowly, and was always hunched over. At that point, he had been chelating heavy metals for about four years. His "natural" medical doctor was giving him EDTA IV chelation therapy once every two weeks during that period. He used DMSA when retesting Richard for heavy metals, which kept showing a higher level of lead each time he retested. With symptoms continuing to progress, he came to me looking for answers. I explained to him that IV chelation is not only one of the most expensive routes, but is also dangerous because of the pharmacokinetics of true heavy metal chelators. Pharmacokinetic interactions are determined by a supplement's or a medication's absorption, distribution, metabolism, and elimination. This basically refers to how long it takes your body to absorb the substance, distribute it throughout the body, use the substance, and then eliminate it.

For example, it takes about 2-3 hours for your body to eliminate about half a dose of Tylenol®. People who have damaged livers can take longer because the drug is processed by the liver for removal. This is why Tylenol's® label says to only take it every 4-6 hours. Half-life is an important pharmacokinetic parameter. EDTA's half-life when administered via IV is only 1.5 hours. EDTA's half-life administered rectally is 8 hours. DMSA's half life is 2.5-3.5 hours. Full absorption is at about 4 hours when taking the few minutes the digestive tract needs to absorb it into account. Half-life of DMPS, when given via IV, is about 1 hour while orally it is about 9 hours.⁵⁰ Every person is different and the means used to administer a treatment alters its lifespan as well.

When we talk about heavy metal removal (chelating), the chelator needs to be taken according to its half-life for safe and effective removal. This means that very little will be left in circulation to redistribute in the body when it is stopped. Following the half-life rules, an IV would need to be administered every 1.5 hours, which is impractical and is why no one does it. The other issue with Richard was that the only chelator he was taking was EDTA, which does a great job of pulling lead out of bones, but does not effectively remove it from the body. That's why every time he retested for heavy metals with a "different" chelator it showed higher and higher levels in his body's tissues. The bones were releasing the lead but it remained in his body.

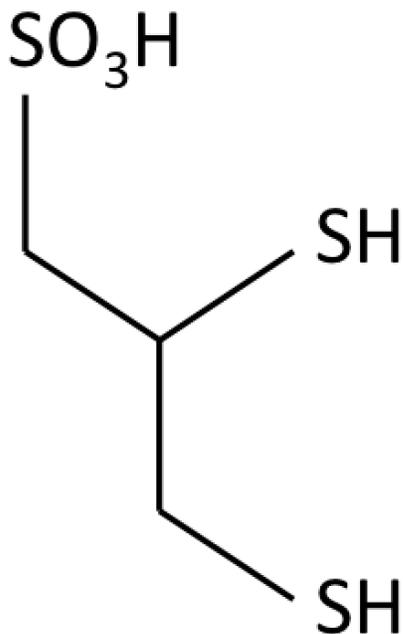
“

A major cause of the Roman Empire's decline, after six centuries of world dominance was its replacement of stone aqueducts by lead pipes for the transport and supply of drinking water. Roman engineers, the best in the world, turned their fellow citizens into neurological cripples.

”

—Harris L. Coulter, Ph.D.

Richard was basically neurologically crippled by the improper administration of a heavy metal removal protocol. The protocol his doctor used caused the lead to be pulled out of his bones and forced it into circulation. Richard told me that he was very smart, but that he has noticed his ability to function and to talk declined drastically since his treatments began four years prior.



DMPS

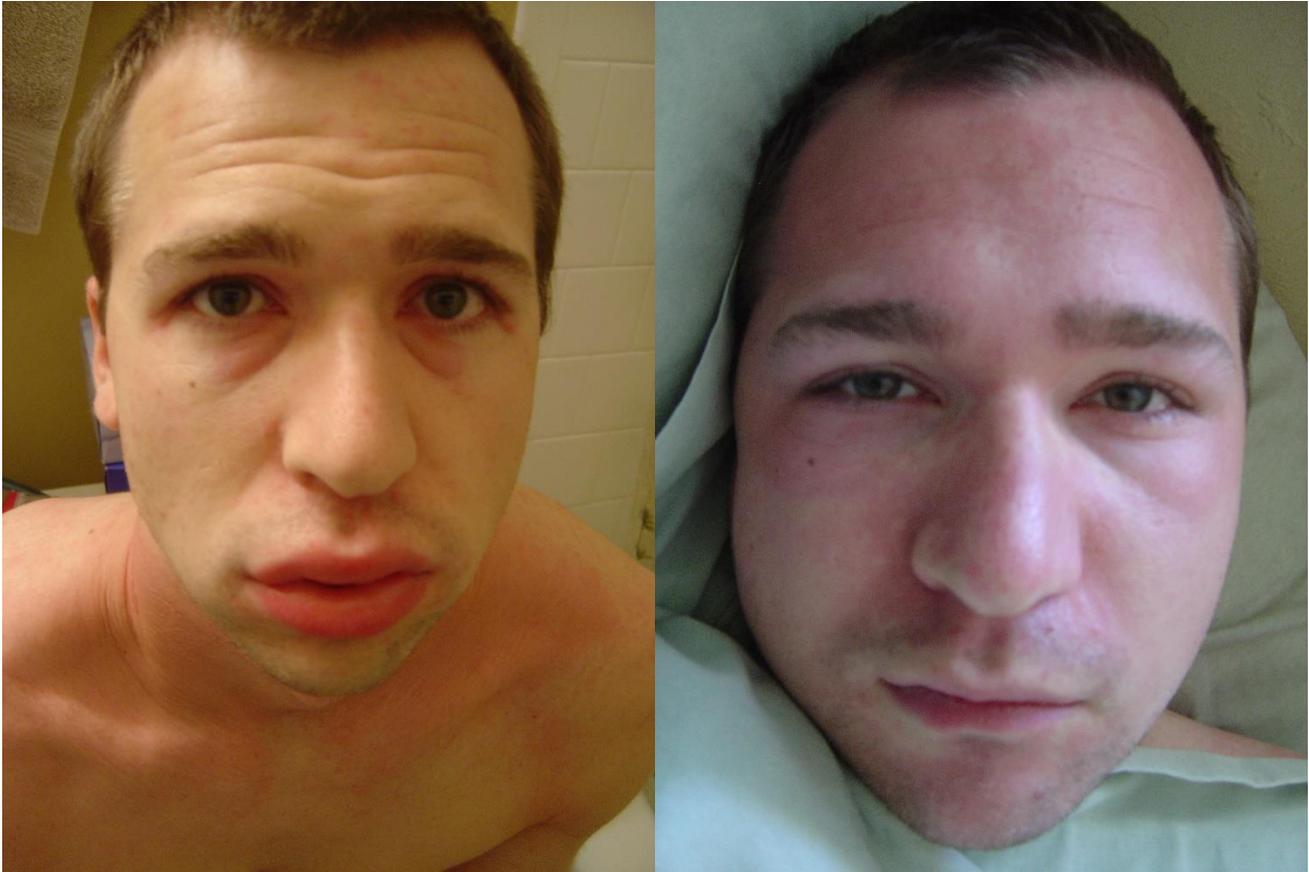
I hope that you can see that the chelation therapy that is chosen, the way it is administered, and the amount that is given all work together. Choose an experienced practitioner who knows the science behind this topic! You must remember that this is all about science. In order to safely remove the the toxins from your body you must follow the basic rules of chemistry. This includes the basic rule involving concentration gradients. This basically means that substances move from high concentrations to low concentrations. This must not be violated during the chelation process.

Cilantro or chlorella are not true chelators. True chelators would be considered dimercaprol, DMSA (dimercaptosuccinic acid), EDTA (ethylenediamine tetraacetic acid), DMPS (dimercapto-propane sulfonate), ALA (alpha lipoic acid) and BDTH₂, which is no longer on the market and was once sold under the name OSR#1. A \$31 million trial of chelation therapy by the National Institutes of Health found very positive results from chelation therapy.⁵¹

There was a dentist who retired after 25 years and wanted to detox mercury out of his body. He was properly tested for heavy metals, but hardly any showed up in the results despite the fact that he had been constantly in the presence of mercury in his workplace. He repeated the test and got the same result. He then balanced the trace minerals in his body following the protocol I detail in my book, 5 Steps to Restoring Health Protocol. After balancing his trace minerals, he repeated the same test he had taken before but the results were drastically different. This time tons of mercury showed up in his testing.

It is essential that you employ a well-trained and experienced health practitioner. My wife and I struggled greatly when we first began to learn about heavy metal chelation because of the bad advice and protocols that we were told to follow. We were both tested for heavy metals and found that we each had moderate to moderately high levels of mercury and lead in our bodies. Following the guidelines and a practitioner's advice, we took DMSA according to its half-life. Shortly after starting the chelation process I developed a rash and fever that continually progressed and I had to stop the treatment. This practitioner did not know why this was happening or how to fix it. My wife also experienced severe symptoms and had a massive Lyme flare up when following the DMSA half-life protocol.

A year later another doctor referred us to a physician in Florida who had personal experience with Lyme disease, mold sensitivity, and heavy metal toxicity. I was simply there to support my wife and did not expect my life to be impacted by this visit. We told that physician about our bad experience with the DMSA protocol and she informed us that there was another chelating agent that was much better and safer than DMSA. To begin the chelating process again, she prescribed DMPS to Heather and I. We were told to take one DMPS capsule a day. Much to my surprise (I was supposed to be the healthy one, remember?), I began to feel sick and my skin became hot and prickly. Suddenly after that, I got a rash over my entire body and my lips began to feel puffy! Heather called the physician right away, not knowing what to do. The physician consulted with another physician in New Zealand but the only answer they had for me was to take an oatmeal bath and to go to the hospital if my symptoms worsened. I have never been a fan of hospitals and didn't like that answer. The next morning the swelling in lips and under my eyes took over my whole face. I was so hot that I was shivering under the covers but couldn't stand to have anything touch my skin.



After that horrific experience, I decided there was just no way I could ever get the heavy metals out of my body. I stopped my treatment and Heather followed my lead by stopping her treatment as well. My digestive tract was so stressed out by those experiences that I developed nut, sunflower seed, and mango allergies. It took about a week to identify that it was almonds that were causing the intestinal pain that was so intense that it stopped me from being able to work or function normally.

A few years later, I was sitting in a seminar searching for more information to help my wife. The speaker explained the details of heavy metal chelation to me in a way I had never heard before. He explained the importance of understanding the half-life of a chelator, understanding the client you are working with, and gave a brief mention to the idea that some people are fast metabolizers. I realized that I was a fast metabolizer and that the allergies I had developed after the DMPS chelation therapy were caused by leaky gut.

After that point I thought I should give chelation one more shot, but I needed to heal my gut first. My digestive tract had always been sensitive, but I had never been diagnosed with any digestive ailment before. After fixing the problems with my digestive system, I never had an issue with heavy metal chelation again. About a year and half into my treatment, my brain clarity and focus drastically improved. I also no longer have any allergies!

Certain chelators are fat soluble, which means that they cross the blood-brain barrier. DMSA and DMPS are not fat soluble, but ALA is. It's important to work with a practitioner who is experienced with heavy metal detoxification so they can customize it properly for you. You do not want to start with a fat soluble chelator before you empty the body's tissues first! After draining the body's tissues of toxins, you can begin the chelation treatment in order to pull mercury out of your brain and lead out of your bones. ALA (alpha lipoic acid) is a heavy metal chelator that targets mercury, cadmium, and arsenic.⁵²

ALA is an essential cofactor of four mitochondrial enzyme complexes. It's found in almost all foods in small amounts and is synthesized via fatty acid biosynthesis. ALA has two forms: R-lipoic acid and S-lipoic acid. It has antioxidant properties and helps to regenerate Vitamins C and E. It is a true chelator that crosses the blood-brain barrier, is antiviral, and increases the production of glutathione (GSH). This is important because the brain has the lowest level of antioxidants in the body. When taking ALA, be aware that it can cause some GERD-like symptoms (heartburn) when taken on an empty stomach.

It took my wife about a year after I began my chelation therapy to feel ready to begin again. Despite her long list of health problems and the many ways she tried to treat them in the past, attacking the Lyme and heavy metals at the same time is what gave her the best results. We worked with some great and knowledgeable practitioners throughout her journey, but they were only able to give us some pieces to the puzzle. Heather's complicated situation forced me to research and put all the pieces together into a new and effective protocol. This not only helped Heather, but has now helped countless others who have used my 5 Steps to Restoring Health Protocol™.

Sinus Love

If you have sinus issues (or had them in the past), it's normal for you to experience some sinus congestion at some point during the chelation process. There are several ways to remedy this naturally. Ginger is known to help with motion sickness and calming down the digestive tract, but few people appreciate its great ability to aid the sinuses. I recommend adding a teaspoon of ginger to a cup of herbal or green tea. The Neti Pot® is also a great tool. Pour lukewarm water into the Neti Pot® with some sea salt for the best results. Frequency technology is also useful for helping with sinus issues.

For more information go to
www.DrJayDavidson.com

And get his #1 International Best Selling Book,
[5 Steps to Restoring Health Protocol!](#)

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