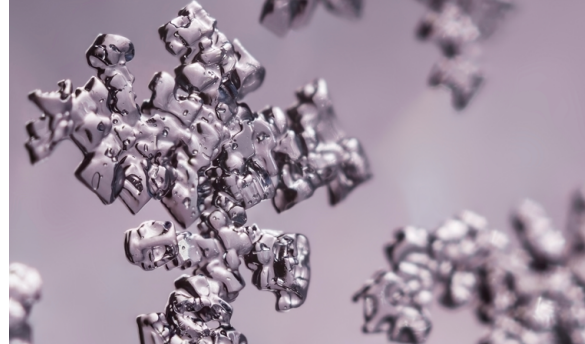


# Heavy Metal Detoxification

Clinical Protocol to Support Clearance of Heavy Metals\*



## Heavy Metal Accumulation and Health

Heavy metals, which have a specific gravity of at least five times that of water, cannot be efficiently metabolized or eliminated by the body and are left to accumulate in soft tissues and bones, with a special affinity for fat tissue, including the nervous system.<sup>1,2</sup> Chronic exposure to heavy metals can lead to critical vitamin and mineral deficiencies and serious health consequences, such as neurological, cardiovascular, hormonal and autoimmune disturbances, as well as male and female infertility.<sup>3</sup>

Heavy metals can be highly damaging to the rapidly developing tissues and organs of children, where impaired cognition, learning disabilities, and behavior issues can ensue. A developing fetus can also be affected, as certain metals including mercury and lead can pass through the placenta to the fetal brain tissue.

Sources of toxic metals include:

- Fish/seafood — shark, swordfish, king mackerel, tuna, shrimp, salmon, pollock, and catfish can contain mercury
- Coal-burning plants/waste Incinerators
- Cigarette smoke (first and second hand) — arsenic, cadmium, and lead exposure
- Dental fillings — mercury-based amalgams
- Antiperspirant deodorants — aluminum chlorohydrate
- Insecticides, fungicides, and fertilizers — cadmium may be present

Common heavy metal toxicants include aluminum, arsenic, cadmium, lead, and mercury, among a variety of others. Reducing exposure through proactive health practices is of primary importance. Supporting healthy detoxification and clearance of metals can be achieved through strategic intervention with supportive antioxidants, amino acids, and chelating agents that support effective removal of metal ions from tissues and circulation.\* Optimizing elimination through fluid and fiber intake may help facilitate excretion and reabsorption of metals through enterohepatic recirculation.\*

This clinical protocol is designed to support the clearance of heavy metals and healthy detoxification pathways through evidence-based diet, lifestyle, and nutritional strategies.\*

## Diagnostic Biomarkers and Clinical Indicators of Heavy Metal Toxicity

### Toxic Metal Screening

- 6-hour urine testing (baseline and provoke challenge) for tissue
- Whole blood (current or recent exposure)

### Designs for Health Genomic Spotlight™

- Detoxification report
- Methylation report

## Therapeutic Diet and Nutritional Considerations

- Encourage adequate fiber intake through a diet (RDA: 25 to 38 g/day) or supplementation with formulas such as [Fiber Prebiotic Complete](#) and [PaleoFiber® RS](#)
- Recommend patients consume organic where possible to reduce exposure to pesticides and herbicides
- Advise patients to increase consumption of cruciferous vegetables that supply beneficial isothiocyanates and sulfur-rich foods such as garlic, onions, and eggs
- Recommend foods high in cysteine to support endogenous glutathione production<sup>4-6</sup>
- Emphasize omega-3 fats (salmon, mackerel, trout, herring, sardines) and omega-9 fats (olive oil, olives, almonds, hazelnuts, avocados, macadamia oil, and coconut oil) to support a healthy inflammatory response
- Guide patients to choose wild-caught fish rather than farm-raised fish and to avoid high levels of heavy metals, such as swordfish, orange roughy, shark, king mackerel, and tile fish<sup>7</sup>
- Encourage increased intake of herbs like cilantro, parsley, watercress, and fennel; consider incorporating [EssentiaGreens™](#) and [Reds](#)
- Recommend maintaining optimal hydration to support detoxification and elimination pathways

## Lifestyle Interventions

- Encourage practices that support healthy detoxification through sweat, such as exercise and sauna
- Advise avoiding alcohol and over-the-counter medications (unless prescribed), when possible
- Direct patients to avoid toxicant exposure by opting for personal hygiene and household products that are free of phthalates, PCBs, dioxins, etc.
- Recommend use of a high-quality water filtration system

# Supplement Protocol

Primary Support:



<p><b>Liposomal Glutathione</b></p>	<p><b>Metal-X-Synergy™</b></p>	<p><b>Amino-D-Tox™</b></p>
<p><b>Dose</b> 2 pumps three times per day</p>	<p><b>Dose</b> 2 capsules with lunch and dinner (4 capsules total)</p>	<p><b>Dose</b> 2 capsules three times per day in between meals</p>
<p><b>Duration</b> 3 months; re-evaluate biomarkers, signs, and symptoms</p>	<p><b>Duration</b> Ongoing as needed</p>	<p><b>Duration</b> 3 months; re-evaluate biomarkers, signs, and symptoms</p>
<p><b>Formula Highlights</b></p> <p>Liposomal Glutathione provides 100 mg of reduced glutathione in each 1 mL serving (approximately 2 pumps). This product is formulated using liposomal technology, which results in superior delivery, absorption, and bioavailability, helping to overcome the absorption challenges typically faced with oral glutathione supplementation.* Glutathione is one of the most powerful antioxidants produced by the body. It helps protect cells against oxidative stress from dietary and environmental free radicals, and those resulting from normal metabolic processes.* Glutathione helps protect vulnerable DNA from damage, while also serving as a key factor in proper detoxification.*</p>	<p><b>Formula Highlights</b></p> <p>Metal-X-Synergy™ is designed to help support the normal process of heavy metal detoxification from the body.* It contains a wide array of ingredients that work together to reduce the initial absorption of metals into the tissues and organs, pull them out more effectively, and help decrease their reabsorption through enterohepatic recirculation.* Metal-X-Synergy™ contains N-acetyl-cysteine and clinically relevant amounts of reduced glutathione, organic chlorella, garlic powder, and R-lipoic acid to promote healthy detoxification and elimination pathways.*</p>	<p><b>Formula Highlights</b></p> <p>Amino-D-Tox™ is useful for preparing the liver for phase II detoxification.* It does not contain botanicals, minerals, or B vitamins that would also upregulate phase I detoxification, which may result in intermediate metabolites that could cause sensitivity reactions.* Providing nutritional support for phase II detoxification helps conjugate toxins and prepare them for safe elimination from the body.*</p>

Secondary Support:



<p><b>Complete Mineral Complex</b></p>	<p><b>Charcoal Plus Binder</b></p>
<p><b>Dose</b> 3 capsules per day</p>	<p><b>Dose</b> 2 softgels per day at least 2 hours before or after other supplements or medications</p>
<p><b>Duration</b> 3 months; re-evaluate biomarkers, signs, and symptoms</p>	<p><b>Duration</b> 3 months; re-evaluate biomarkers, signs, symptoms</p>
<p><b>Formula Highlights</b></p> <p>Complete Mineral Complex is ideal for use when mineral replenishment is desired.* This product is iron-free and utilizes the finest chelated minerals from Albion® Minerals for optimal absorption.*</p>	<p><b>Formula Highlights</b></p> <p>Charcoal Plus Binder is a synergistic blend of three research-backed ingredients that have a broad-spectrum binding capacity to help promote normal detoxification and toxin elimination.* It features targeted amounts of activated charcoal, purified zeolite, and organic chlorella to support the body's normal clearance of environmental toxins, heavy metals, and microbes.*</p>

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---heavy-metal-detoxification-references>

Dosing recommendations are given for typical use based on an average 150-pound healthy adult. Health-care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities, appropriate monitoring, including liver function tests (LFT) is recommended.

For considerations regarding herb-drug and nutrient-drug interactions, please refer to reliable, evidence-based resources such as the Natural Medicine Database or Stargrove MB, Treasure J, McKee DL. *Herb, Nutrient, and Drug Interactions: Clinical Implications and Therapeutic Strategies*. St. Louis, MO: Mosby-Elsevier; 2008.

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\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.