

## HEAVY METAL TOXICITY



Heavy metals become toxic when they are not metabolized by the body and accumulate in the soft tissues. Heavy metals may enter the human body through food, water, air, or absorption through the skin when they come in contact with humans in agriculture and in manufacturing, pharmaceutical, industrial, or residential settings. Industrial exposure accounts for a common route of exposure for adults. Ingestion is the most common route of exposure in children. The most commonly encountered heavy metals are arsenic, lead, mercury, cadmium, iron, and aluminum.

Children may develop toxic levels from the normal hand-to-mouth activity of small children who come in contact with contaminated soil or by actually eating objects that are not food (dirt or paint chips). Less common routes of exposure are during a radiological procedure, from inappropriate dosing or monitoring during intravenous (parenteral) nutrition, or from a broken thermometer.

The association of symptoms indicative of acute toxicity is not difficult to recognize because the symptoms are usually severe, rapid in onset and associated with a known exposure or ingestion. The symptoms of toxicity from chronic exposure are also more easily recognized; however they are much more difficult to associate with their cause. Symptoms of chronic exposure are also very similar to symptoms of other health conditions and often develop slowly over months or years. Sometimes the symptoms come and go over time, leading the person to delay treatment, thinking that the symptoms are related to something else.

Symptoms of heavy metal toxicity can include:

- Headaches
- High blood pressure
- Fatigue
- Muscle pain
- Joint pain
- Digestive problems
- Constipation
- Brain fog
- Hormone imbalance
- Depression

### HOW TO DETOX FOR HEAVY METAL TOXICITY

The primary detoxification treatment for most heavy metals is chelation therapy. Chelating agents are substances that go through the body to attract and bind heavy metals to be excreted. Chelating agents are usually given in pill form but may also be given intravenously, by suppository or by injection. It takes anywhere from many months to several years for chelation therapy to remove toxic metals, and can be quite costly.

Though chelation therapy has been considered to be generally safe for most people, new information has surfaced that suggests otherwise. The chelating agents used by the medical profession are drugs and do have side effects, sometimes severe ones. Two of the most important factors in determining chelation safety are dosage and frequency. Too much can be extremely dangerous, and too little is ineffective. Synthetic chelators should be used only in cases of acute metal poisoning, or as a last resort when other methods have been exhausted. Natural methods should be tried first. Natural chelating agents include combinations of herbs, amino acids and other nutritional supplements. Certain toxic elements can be removed by taking specific combinations of minerals and vitamins.

### RECOMMENDATIONS

The supplements in the following protocol are a general recommendation with an average dosage. By using the CustomVite program, our team of nutritionists has the ability to customize each supplement (or even add/delete) to a patient's unique nutritional requirements. Depending on the severity and the level of heavy metals in the body, dosages can be adjusted accordingly to help improve your patient's overall nutritional status. This recommendation does not take into account drug-nutrient interactions. By having the patient provide us with their current prescriptions and supplements through our Lifestyle and Medical History Questionnaire, we can cross-reference their information to determine if there are any interactions for their personalized formulation.

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## HEAVY METAL TOXICITY PROTOCOL

The following is a list of nutritional supplements that can be used as a natural detoxification protocol for heavy metals:

<b>SUPPLEMENT</b>	<b>DOSAGE</b>		
Vitamin A (Palmitate) .....	5000 IU	Molybdenum (Amino Acid Chelate) .....	100 mcg
Beta Carotene .....	5000 IU	Chlorella regularis .....	500 mg
Vitamin C (Ascorbic Acid) .....	2000 mg	Spirulina .....	250 mg
Vitamin E (Natural – Succinate) .....	400 IU	Milk Thistle .....	200 mg
Riboflavin (Vitamin B2) .....	100 mg	DL-Methionine .....	250 mg
Niacin (Niacinamide) (Vitamin B3) .....	100 mg	L-Cysteine .....	100 mg
Pyridoxine hydrochloride (Vitamin B6) .....	100 mg	L-Glutamine .....	500 mg
Folic Acid .....	800 mcg	L-Glutathione .....	500 mg
Methylcobalamin (Vitamin B12) .....	500 mcg	L-Glycine .....	500 mg
Magnesium (Amino Acid Chelate) .....	300 mg	N-Acetyl-Cysteine (NAC) .....	500 mg
Zinc (Chelazome Amino Acid Chelate) .....	60 mg	Taurine .....	500 mg
Selenium (Amino Acid Complex) .....	100 mcg	Choline Bitartrate .....	100 mg
Copper (Amino Acid Chelate) .....	2 mg	Citrus Bioflavonoids .....	200 mg
Green Tea Extract .....	250 mg	Lipoic Acid .....	200 mg
		Kelp .....	500 mg