

Approaching the Body Burden

BY GUY DEVIN, PHD

Today's modern lifestyles take a serious toll on our bodies. Thousands of noxious chemical compounds, many of which didn't exist 100 years ago, now pervade our food, water and air. Herbicides and pesticides, some of which are neurotoxins, are sprayed on our food. We refer to the result of that toxicity as the body burden: that uncomfortable sensation we feel inside mentally, emotionally and spiritually. It is not our imagination.

Heavy metals such as lead, mercury, arsenic, aluminum and cadmium enter our bodies through food, air, cooking utensils, deodorant and even the fillings in our teeth. These metals can damage our nervous, immune and reproductive systems. Hydrocarbons from smoke stack industries, wood-burning stoves, car exhaust, as well as fuel additives like MTBE poison the very air we breathe.¹ We are being mass medicated with fluoride in our water, a known neurotoxin. These toxins may also alter our body chemistry toward a state of metabolic inflammation, which can lead to future health challenges.

We should avoid whatever toxic elements we can, but many of these conditions are not in our control. We often feel powerless to change our circumstances, but we can substantially protect ourselves with a three-pronged approach to environmental toxins. First, don't allow toxins into the body; be mindful of the quality of food and water

ingested and clean up the environment to the extent that we can. Second, cleanse the bodily systems of existing toxins. Third, with diet and nutrition, strengthen the body's organs of detoxification, such as the liver, and support the biochemical processes of natural detoxification. This is proactive health care, taking personal responsibility for our own well-being.

Body detoxification is a way to naturally assist the body in eliminating accumulated toxins that interfere with one's quality of life. Detoxification requires dietary changes and/or supplementation to eliminate toxic build-up, which adds to the body burden over time. At best, we should consider a cleansing program twice a year: once in the spring and again in the fall. We can look deeper into this concept of "detoxification" by exploring chemical sensitivity and helpful cleansing nutrients.

Due to the depth and breadth of this topic, I will focus on chemical toxicity, as this is a critical area that directly contributes to body imbalances, especially in the liver (the hardest working organ in the body).

A Modern Problem

A major problem has hit America in the late 20th century that is farther-reaching than most people are aware—chemical sensitivity. In fact, some studies indicate millions of Americans may be afflicted with chemical sensitivities, although this is difficult to establish concretely.²



In the past century, modern organic chemistry has synthesized and released into the world many xenobiotic (foreign to our normal biology) chemicals. It is estimated that there are 100,000 man-made chemicals to which humans are exposed on a regular basis.³ The food-processing and food-growing industries put an approximate 10,000 xenobiotic chemicals into our food supply alone.

These chemicals can be found in common items such as cleaning fluids, dry-cleaning compounds, glues, cigarette smoke, perfume and building materials. Chemical sensitivity is the result of impairment or inadequacy of



molecules that are capable of “grabbing” metal molecules, to form complex ring-like structures called chelates. This process helps the body excrete metals.⁴

Detoxification can benefit the entire body, but has the greatest effect in the liver. As the primary organ of detoxification, the liver filters one liter of blood each minute and eliminates a multitude of toxins that the body encounters on a daily basis.⁵ N-acetyl cysteine and silymarin support liver health by increasing glutathione content, which is the primary intracellular antioxidant and binds to toxins so they can be excreted from the body.⁶ Glutathione has been shown to be a significant factor in heavy metal mobilization and excretion, specifically with application to mercury, cadmium and arsenic.⁷ Lipoic acid is associated with the chelation and elimination of transition metals, antioxidant activity and increased glutathione. This last activity appears to be mediated by affecting the level of the enzyme g-glutamylcysteine ligase (GCL), the rate-controlling enzyme in glutathione synthesis.⁸ Betulin, a compound in white birch bark, supports the health of the liver by reducing the toxicity of cadmium on human liver cells.⁹

Many plants contain biological molecules that offer critical protection against the onslaught of man-made chemicals as well as free radicals, which could be considered toxins. Olive leaf is a source of oleuropein, which may protect cells from oxidation by supporting glutathione production.¹⁰ Experimental results strongly indicate the protective effect of vitamin C and silymarin against lead toxicity on liver tissue.¹¹ Some polyphenols in rosemary show activity as antioxidants, and in inducing the detoxifying enzyme glutathione S-transferase (GST), which attaches a toxin to glutathione in human liver cells.¹² Curcumin (turmeric) and cilantro are also protective plant compounds.

Liver/Detox: Phase 2 Detoxification

The liver detoxifies the by-products of digestion and other harmful substances through a complex series of chemical reactions often referred to as Phase I and Phase II detoxification. During

Phase I, a toxin enters the cytochrome p-450 system and is broken down into smaller fragments. In Phase II, these fragments become bound to other molecules that allow the fragments to be safely excreted from the body. A number of natural compounds found in plants are recognized as potent Phase II detoxification inducers, including isothiocyanates from wasabia and broccoli sprouts, which have been shown to induce GSTs and possibly other detoxification enzymes¹³, curcumin, which indirectly increases the expression of phase II enzyme genes¹⁴, and ursolic acid from holy basil, which has been found to induce the activity of metallothionein (a protein related to the detoxification of heavy metals) in the liver.¹⁵

Clear circulation is critical for cardiovascular health. An array of ingredients has been shown in scientific studies to support the excretion of heavy metals from the bloodstream. EDTA is a chelating agent that binds with toxins such as lead and promotes their elimination. Modified citrus pectin is an oral absorbent for heavy metals.¹⁶ Chlorella and cilantro have received attention for their ability to help the body excrete lead, although the mechanisms behind this may need more research.^{17,18}

EDTA Cleansing

Among all of the ingredients, one of the newest and most fascinating is EDTA (ethylenediamine tetraacetic acid), an amino acid-like compound. EDTA is a chelating agent that binds divalent and trivalent metal ions, which are then excreted in the urine. EDTA has been shown to have a particular affinity for lead while having less attraction to essential metals such as zinc, calcium and magnesium.¹⁹ It may be beneficial to include calcium D-glucarate during detoxification, as it supports the process of glucuronidation, in which foreign organic compounds, fat-soluble toxins and excess steroid hormones, like those from estrogen families, are detoxified and excreted.

You're just living a normal life, but your liver is jumping through hoops to keep you going, so make sure you get plenty of exercise, fresh air and clean

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the body's natural detoxification systems, allowing excessive levels of harmful, xenobiotic chemicals to accumulate in the body, with results that are often devastating.

In sensitive people, artificial chemicals can cause an incredible range of problems: “fogginess” and lack of focus, emotional distress, fatigue and more. The parts of the body that are most affected can vary depending upon the person and the chemicals involved.

Chelation and Nutrients

For the human body, chelation is the natural detoxification process of organic

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water. Also, eat your organic vegetables and fruit, which minimizes your exposure to excess toxicity. **VR**

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