

Oral Chelation: Heart and Body Health

Clearing Out the Plaque and Toxins

The Usefulness of Oral Chelation for Heavy Metal Toxicity and Cardiovascular / Circulatory Health Issues

By Maile Pouls, Ph.D.

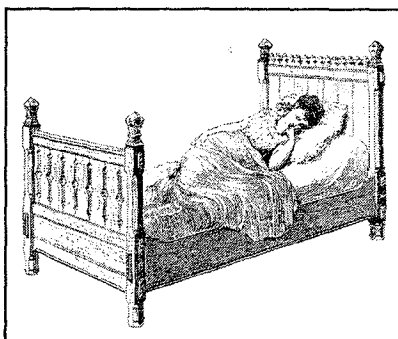
IT IS SAID THERE IS A BLESSING WITHIN EVERY MISFORTUNE. Sixteen years ago, chronic mercury exposure and attendant nutritional deficiencies nearly killed me. While it was happening, I viewed this terrible experience and the years I spent trying to regain my health as an unmitigated disaster. I have since discovered the gift of the misfortune.

The “disaster” occurred while I was working as a dental hygienist, which I did from 1967 to 1983. At that time, protective masks were not standard practice in the dental field, and the health risk involved in polishing silver-mercury amalgam fillings was not recognized. When dental fillings are polished, they emit small amounts of mercury, which can be both absorbed through the skin and inhaled by the dentist or hygienist, as well as the patient. Mercury is a known neuro- and immunotoxin.

In 1983, I developed alarming symptoms that rapidly worsened and multiplied until I was completely disabled. What began as mild dizziness and fatigue progressed to extreme symptoms similar to multiple sclerosis (MS): visual disturbances, pain, tremors, jerky movements in my limbs, constant low-grade fever, weight loss of 50 pounds, and extreme exhaustion. I went from one M.D. to another in an attempt to obtain a diagnosis, but no one could determine what was going wrong or how to treat me.

Through my own search in medical journals and textbooks, I discovered that my symptoms matched those of mercury poisoning. I consulted a naturopath who ran a hair analysis. My suspicions were confirmed—I had an extremely high level of mercury in my body. Only after years of perseverance and a variety of therapeutic measures (including removal of all of my mercury-amalgam fillings, colon and liver detoxification, and specific nutritional supplements) was I able to reclaim my health.

My experience created a passion in me for investigating healing modalities, especially in the area of heavy metal detoxification and nutritional supplements. I pursued further education in the nutrition field and embarked on research that led me to an understanding of the connections between toxins



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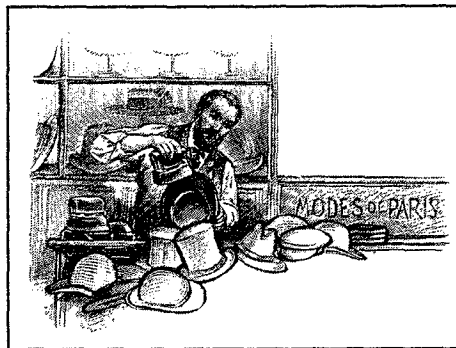
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(particularly heavy metals) in our environment and food and water supply, nutritional deficiencies, and health problems, including degenerative conditions such as heart disease.

I have specialized for the last seven years in an oral chelation program targeting toxic heavy metals along with cardiovascular / circulatory health issues. The blessing in my misfortune came with this path of investigation, which enabled me to formulate a program to help people recover from heavy metal toxicity and restore and maintain their cardiovascular health. The program, formulated for ExtremeHeath.usa (1-800-800-1285), is based on oral chelation and nutritional replenishment formulas proving effective in numerous clinical studies. [See biography, end of article, for more information.]

THE HEAVY METAL HAZARD

Some metals are naturally found in the body and are essential to human health. Iron, for example, prevents anemia, and zinc is a cofactor in over 100 enzyme reactions. They normally occur at low concentrations and are known as trace metals. In high doses, they may be toxic to the body or produce deficiencies in other trace metals; for example, high levels of zinc can result in a deficiency of copper, another metal required by the body.



Heavy or toxic metals are trace metals with a density at least five times that of water. As such, they are stable elements (meaning they cannot be metabolized by the body) and bio-accumulative (passed up the food chain to humans). These include: mercury, nickel, lead, arsenic, cadmium, aluminum, platinum, and copper (the metallic form versus the ionic form required

by the body).¹ Heavy metals have no function in the body and can be highly toxic.

Once liberated into the environment through the air, drinking water, food, or countless human-made chemicals and products, heavy metals are taken into the body via inhalation, ingestion, and skin absorption.² If heavy metals enter and accumulate in body tissues faster than the body's detoxification pathways can dispose of them, a gradual buildup of these toxins will occur.³ High-concentration exposure is not necessary to produce a state of toxicity in the body, as heavy metals accumulate in body tissues and, over time, can reach toxic concentration levels.

Heavy metal exposure is not an entirely modern phenomenon: historians have cited the contamination of wine and grape drinks by lead-lined jugs and cooking pots as a contributing factor in the "decline and fall" of the Roman Empire;⁴ and the Mad Hatter character in *Alice in Wonderland* was likely modeled after nineteenth-century hat makers who used mercury to stiffen hat material and frequently became psychotic from mercury toxicity.

Human exposure to heavy metals has risen dramatically in the last 50 years, however, as a result of an exponential increase in the use of heavy metals in industrial processes and products. Today, chronic exposure comes from

mercury-amalgam dental fillings, lead in paint and tap water, chemical residues in processed foods, and "personal care" products (cosmetics, shampoo and other hair products, mouthwash, toothpaste, soap). In today's industrial society, there is no escaping exposure to toxic chemicals and metals.

In addition to the hazards at home and outdoors, many occupations involve daily heavy metal exposure. Over 50 professions entail exposure to mercury alone. These include physicians, pharmaceutical workers, any dental occupation, laboratory workers, hairdressers, painters, printers, welders, metalworkers, cosmetic workers, battery makers, engravers, photographers, visual artists, and potters.⁵

THE EFFECTS OF HEAVY METAL TOXICITY

Studies confirm that heavy metals can directly influence behavior by impairing mental and neurological function, influencing neurotransmitter production and utilization, and altering numerous metabolic body processes. Systems in which toxic metal elements can induce impairment and dysfunction include the blood and cardiovascular, detoxification pathways (colon, liver, kidneys, skin), endocrine (hormonal), energy production pathways, enzymatic, gastrointestinal, immune, nervous (central and peripheral), reproductive, and urinary.⁶

Breathing heavy metal particles, even at levels well below those considered nontoxic, can have serious health effects. Virtually all aspects of animal and human immune system function are compromised by the inhalation of heavy metal particulates.⁷ In addition, toxic metals can increase allergic reactions, cause genetic mutation, compete with "good" trace metals for biochemical bond sites, and act as antibiotics, killing both harmful and beneficial bacteria.⁸

Much of the damage produced by toxic metals stems from the proliferation of oxidative free radicals they cause. A free radical is an energetically unbalanced molecule, composed of an unpaired electron, that "steals" an electron from another molecule to restore its balance. Free radicals result naturally when cell molecules react with oxygen (oxidation), but with a heavy toxic load or existing antioxidant deficiencies, uncontrolled free-radical production occurs. Unchecked, free radicals can cause tissue damage throughout the body; free-radical damage underlies all degenerative diseases. Antioxidants such as vitamins A, C, and E curtail free-radical activity.

Heavy metals can also increase the acidity of the blood. The body draws calcium from the bones to help restore the proper blood pH. Further, toxic metals set up conditions that lead to inflammation in arteries and tissues, causing more calcium to be drawn to the area as a buffer. The calcium coats the inflamed areas in the blood vessels like a bandage, patching up one problem but creating another, namely the hardening of the artery walls and progressive blockage of the arteries. Without replenishment of calcium, the constant removal of this important mineral from the bones will result in osteoporosis (loss of bone density leading to brittle bones).

Current studies indicate that even minute levels of toxic elements have negative health consequences; however, these vary from person to person. Nutritional status, metabolic rate, the integrity of detoxification pathways (ability to detoxify toxic substances), and the mode and degree of heavy metal exposure all affect how an individual responds. Children and the elderly,

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whose immune systems are either underdeveloped or age-compromised, are more vulnerable to toxicity.⁹

COMMON HEAVY METALS: SOURCES AND SPECIFIC EFFECTS

Aluminum, arsenic, cadmium, lead, mercury, and nickel are the most prevalent heavy metals. The specific sources of exposure, body tissues in which the metal tends to be deposited and health effects of each metal are identified below.

1. Aluminum

Sources of exposure: Aluminum cookware, aluminum foil, antacids, antiperspirants, baking powder (aluminum containing), buffered aspirin, canned acidic foods, food additives, lipstick, medications and drugs (anti-diarrheal agents, hemorrhoid medications, vaginal douches), processed cheese, "softened" water, and tap water.

Target tissues: Bones, brain, kidneys and stomach.

Signs and symptoms: Colic, dementia, esophagitis, gastroenteritis, kidney damage, liver dysfunction, loss of appetite, loss of balance, muscle pain, psychosis, shortness of breath, and weakness.

Many times high aluminum exposure is due to the chronic consumption of aluminum-containing antacid products. Research shows that aluminum builds up in the body over time; thus, the health hazard to older people is greater.

D. R. McLaughlin, M.D., F.R.C.P. (C), professor of physiology and medicine and director of the Centre for Research in Neurodegenerative Diseases at the University of Toronto, states, "Concentrations of aluminum that are toxic to many biochemical processes are found in at least ten human neurological conditions."¹⁰ Recent studies suggest that aluminum contributes to neuro-

logical disorders such as Alzheimer's disease, Parkinson's disease, senile and presenile dementia, clumsiness of movements, staggering when walking, and inability to pronounce words properly.¹¹ Behavioral difficulties among school-children have also been correlated with elevated levels of aluminum and other neurotoxic heavy metals.

2. Arsenic

Sources of exposure: Air pollution, antibiotics given to commercial livestock, certain marine plants, chemical processing, coal-fired power plants, defoliants, drinking water, drying agents for cotton, fish, herbicides, insecticides, meats (from commercially raised poultry and cattle), metal ore smelting, pesticides, seafood (fish, mussels, oysters), specialty glass, and wood preservatives.

Target tissues: Most organs of the body, especially the gastrointestinal system, lungs, and skin.

Signs and symptoms: Abdominal pain, burning of the mouth and throat,

Many times high aluminum exposure is due to the chronic consumption of aluminum-containing antacid products. Research shows that aluminum builds up in the body over time; thus, the health hazard to older people is greater

cancer (especially lung and skin), coma, diarrhea, nausea, neuritis, peripheral vascular problems, skin lesions, and vascular collapse.

The greatest dangers from chronic arsenic exposure are lung and skin cancers and gradual poisoning, most frequently from living near metal smelting plants or arsenic factories.

3. Cadmium

Sources of exposure: Air pollution, art supplies, bone meal, cigarette smoke, food (coffee, fruits, grains, and vegetables grown in cadmium-laden soil, meats [kidneys, liver, poultry], or refined foods), freshwater fish, fungicides, highway dusts, incinerators, mining, nickel-cadmium batteries, oxide dusts, paints, phosphate fertilizers, power plants, seafood (crab, flounder, mussels, oysters, scallops), sewage sludge, "softened" water, smelting plants, tobacco and tobacco smoke, and welding fumes.

Target tissues: Appetite and pain centers (in brain), brain, heart and blood vessels, kidneys, and lungs.

Signs and symptoms: Anemia, dry and scaly skin, emphysema, fatigue, hair loss, heart disease, depressed immune system response, hypertension, joint pain, kidney stones or damage, liver dysfunction or damage, loss of appetite, loss of sense of smell, lung cancer, pain in the back and legs, and yellow teeth.

4. Lead

Sources of exposure: Air pollution, ammunition (shot and bullets), bathtubs (cast iron, porcelain, steel), batteries, canned foods, ceramics, chemical fertilizers, cosmetics, dolomite, dust, foods grown around industrial areas, gasoline, hair dyes and rinses, leaded glass, newsprint and colored advertisements, paints, pesticides, pewter, pottery, rubber toys, soft coal, soil, solder, tap water, tobacco smoke, and vinyl "mini-blinds."

Target tissues: Bones, brain, heart, kidneys, liver, nervous system, and pancreas.

Signs and symptoms: Abdominal pain, anemia, anorexia, anxiety, bone pain, brain damage, confusion, constipation, convulsions, dizziness, drowsiness, fatigue, headaches, hypertension, inability to concentrate, indigestion, irritability, loss of appetite, loss of muscle coordination, memory difficulties, miscarriage, muscle pain, pallor, tremors, vomiting, and weakness.

The toxicity of lead is widely acknowledged. The greatest risk for harm, even with only minute or short-term exposure, is to infants, young children, and pregnant women. A federal study conducted by the Centers for Disease Control and Prevention (CDCP) in 1984 estimated that three to four million American children have an unacceptably high level of lead in their blood. Dr. Suzanne Binder, a CDCP

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official, stated, "Many people believed that when lead paint was banned from housing [in 1978], and lead was cut from gasoline [in the late 1970s], lead-poisoning problems disappeared, but they're wrong. We know that throughout the country, children of all races and ethnicities and income levels are being affected by lead [already in the environment]."¹² In their book, *Toxic Metal Syndrome*, Dr.'s R. Casdorph and M. Walker report that over 4 million tons of lead are mined each year and existing environmental lead levels are at least 500 times greater than pre-historic levels.

In 1989, the U.S. Environmental Protection Agency (EPA) reported that more than one million elementary schools, high schools, and colleges are still using lead-lined water storage tanks or lead-containing components in their drinking fountains.¹³ The EPA estimates that drinking water accounts for approximately 20% of young children's lead exposure.¹⁴ Other common sources are lead paint residue in older buildings (as in inner cities) and living

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in proximity to industrial areas or other sources of toxic chemical exposure, such as commercial agricultural land. All children born in the U.S. today have measurable traces of pesticides, a source of heavy metals and chlorine-based chemicals, in their tissues.¹⁵

Lead is a known neurotoxin (kills brain cells), and excessive blood lead levels in children have been linked to learning disabilities, attention deficit disorder (ADD), hyperactivity syndromes, and reduced intelligence and school achievement scores.¹⁶

5. Mercury

Sources of exposure: Air pollution, batteries, cosmetics, dental amalgams, diuretics (mercurial), electrical devices and relays, explosives, foods (grains), fungicides, fluorescent lights, freshwater fish (especially large bass, pike, and trout), insecticides, mining, paints, pesticides, petroleum products, saltwater fish (especially large halibut, shrimp, snapper, and swordfish), shellfish, and tap water.

Target tissues: Appetite and pain centers in the brain, cell membranes, kidneys, and nervous system (central and peripheral).

Signs and symptoms: Abnormal nervous and physical development (fetal and childhood), anemia, anorexia, anxiety, blood changes, blindness, blue line on gums, colitis, depression, dermatitis, difficulty chewing and swallowing, dizziness, drowsiness, emotional instability, fatigue, fever, hallucinations, headache, hearing loss, hypertension, inflamed gums, insomnia, kidney damage or failure, loss of appetite and sense of smell, loss of muscle coordination, memory loss, metallic taste in mouth, nerve damage, numbness, psychosis, salivation, stomatitis, tremors, vision impairment, vomiting, weakness, and weight loss.

The primary source of exposure to mercury is "silver" dental fillings (approximately 50% mercury when placed); over 225 million Americans have these fillings in their teeth.¹⁷ Mercury fillings release microscopic particles and

vapors of mercury every time a person chews. Vapors are inhaled while particles are absorbed by tooth roots, mucous membranes of the mouth and gums, and the stomach lining.

In people with mercury amalgam fillings, measurements of the mercury level in the mouth range between 20 and 400 mcg/m³. Keep in mind that this is continuous exposure. The National Institute of Occupational Safety and Health places the safe limit of environmental exposure to mercury at 20 mcg/m³, but that is assuming a weekly exposure of 40 hours (the workweek) and the mercury involved is outside the body.¹⁸ The Environmental Protection

Agency's allowable limit for continuous mercury exposure is 1 mcg/m³ but, again, that is based on mercury sources outside the body.¹⁹ Neither figure addresses 24-hour-a-day exposure from mercury in one's mouth.

Hal Huggins, D.D.S., a specialist in the effect of mercury amalgams on health, reports that 90% of the 7,000 patients he tested showed immune system reactivity from exposure to low levels of mercury. In 1984, the American Dental Association (ADA), without providing scientific evidence, claimed that only 5% of the U.S. population is reactive to mercury exposure, and that this figure is insignificant. Meanwhile, the ADA mandates that dentists alert all dental personnel to the potential hazards of inhaling mercury va-

pors.²⁰ The Environmental Protection Agency (EPA) goes further, instructing dentists to treat mercury amalgam as a toxic material while handling before insertion, and as toxic waste after removal.²¹

6. Nickel

Sources of exposure: Appliances, buttons, ceramics, cocoa, cold-wave hair permanent, cooking utensils, cosmetics, coins, dental materials, food (chocolate, hydrogenated oils, nuts, food grown near industrial areas), hair spray, industrial waste, jewelry, medical implants, metal refineries, metal tools, nickel-cadmium batteries, orthodontic appliances, shampoo, solid-waste incinerators, stainless steel kitchen utensils, tap water, tobacco and tobacco smoke, water faucets and pipes, and zippers.

Target tissues: Areas of skin exposure, larynx (voice box), lungs, and nasal passages.

Signs and symptoms: Apathy, blue-colored lips, cancer (especially lung, nasal, and larynx), contact dermatitis, diarrhea, fever, headaches, dizziness,

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THE INFINITY THAT IS THERE

"Physicists decide that anything that doesn't show up in the instruments is of no concern to physics. They decide to subtract off this infinity and say it is not there." —David Bohm, Ph.D., in dialogue with Renée Weber (The Enfolding-Unfolding Universe, Re-Vision, Summer/Fall 1978).

"In its simplest aspect the universe expresses wholeness, or unity, because it is the expression of a single creative consciousness. The unitary principle is the fundamental one from which all other law proceeds. It is at the root of, and precedes, all things, and as a result of the underlying unity, all differentiated beings strive to return to wholeness and harmony." —Corona Trew, Ph.D., D. Sc., in This Dynamic Universe, ed. by E. Lester Smith, D.Sc., and Corona Trew, 1983.