

## HEAVY METALS

We are exposed to heavy metals from our environment: from the air, the water, our food, and from various objects we are exposed to. Most people are aware of the use of lead in paint, which has been banned, but did you also know that it is still commonly used as solder which holds metals together, such as that used in jewelry? Some professions have an increased risk of exposure such as: electronics manufacturing, construction workers, pottery/ceramic production, car repair, home restoration/remodeling, wood preservation. It is important to identify possible sources of environmental exposure and avoid further contamination in the future.

## HEAVY METAL TESTING

It is important to test for possible exposures. These are the tests available to evaluate for your exposure:

- Water testing for heavy metals and pesticides. [www.ETRLabs.com](http://www.ETRLabs.com)
- Hair analysis for heavy metals measures the amount of heavy metals deposited into your hair.
- Provocative testing involves using a chelator to pull the heavy metals in your body out of storage to be excreted into the urine. There are two forms used: oral and intravenous chelation therapy.

## HEAVY METALS AND THEIR SYMPTOMS

ALUMINUM	Headache, fatigue, bone pain, dementia. Low hemoglobin, hypophosphatemia, hyperammonemia.
ANTIMONY	Antimony spots (from vapor), ocular conjunctivitis. Chronic exposure can lead to: antimony pneumoconiosis, alterations in lung function, chronic bronchitis, chronic emphysema, inactive tuberculosis, lung adhesions, and irritation. High blood pressure, myopathy, angina, altered EKG readings. Stomach & intestinal disorders, metallic taste, gout-like symptoms, anorexia and fatigue.
ARSENIC	Hair loss, white-streaked nails, muscle pain, garlic odor, anorexia, hypopigmentation, hypotension, chest pain, nausea, diarrhea.
BARIUM	Difficulties in breathing, increased blood pressure, changes in heart rhythm, stomach irritation, brain swelling, muscle tingling/weakness. May damage heart, liver, kidneys, and spleen.

BISMUTH	Confusion, decreased appetite, weight loss, weakness, joint pain, skin rash, tremors, diarrhea, staining on gums.
CADMIUM	Hypotension, hypertension, fatigue, anemia, proteinuria, osteomalacia, nausea, vomiting, diarrhea, emphysema. Target organs are the liver, placenta, kidneys, lungs, brain, and bones.
CESIUM	Fatigue, muscle weakness, palpitations, and arrhythmia.
GALLIUM	Hyperexcitability, sensitivity to light, rapid weight loss (anorexia), mucosal irritation, stomach and bowel irritation.
GERMANIUM	Wheezing, anemia, skin or eye irritation (from airborne exposure).
LEAD	Microcytic anemia, glycosuria, poor brain function, anorexia, loss of appetite, metallic taste, insomnia, change in white blood cells. Target organs include the brain, bone, blood, kidneys, and thyroid gland.
MERCURY	Headache, fine tremor, increased salivation, excitability, hypertension, skin rash, poor mental concentration, metallic taste. Target organs are the brain and kidneys.
NICKEL	Skin rash, allergies, increased inflammation
NIOBIUM	Lethargy, muscle weakness, glycosuria
PLATINUM	Runny nose, wheezing, skin inflammation & rash, shortness of breath
TELLURIUM	Garlic-odor breath, inflammation, peripheral neuropathy, metallic taste, nausea, insomnia, decreased perspiration.
THALLIUM	Anorexia, hair loss, poor muscle coordination, mental confusion, tremor, high blood pressure, polyneuropathy, immune changes.
THORIUM	Thorium is odorless and tasteless. Excessive exposure has been linked to diseases of the lung, liver, bone, kidney, pancreas, and blood.
TIN	Hyperglycemia, poor muscle coordination, headache, vision changes, liver pain.
TITANIUM	Lung fibrosis, inflammation.
TUNGSTEN	Shortness of breath, coughing, headache, dizziness, nausea, impaired sense of smell, asthma.
URANIUM	Chronic fatigue, increased sugar and amino acids in urine.

### NUTRIENT ELEMENTS

IRON	Microcytic anemia occurs late in deficiency. Plasma ferritin a good early indicator. Hemochromatosis and liver damage with toxic levels.
LITHIUM	Low levels associated with Gastrointestinal disorders, low stomach acid, heartburn, bloating, Bipolar/manic-depressive

(Lithium continued)	disorder. Excessive doses can cause nausea, vomiting, diarrhea, weight gain, staggering gait, hypothyroidism/goiter, tremors, renal and liver disease.
MAGNESIUM	Deficiency results in muscle weakness/spasm. May be related to depression, hypertension, and heart attack risk.
MANGANESE	Toxicity: Rare, by inhalation or mining activities. Poor bone/connective tissue growth. Impaired glucose tolerance and lipid metabolism, skin dryness, hair changes, allergies, behavioral problems.
MOLYBDENUM	High molybdenum along with low copper intake may cause copper deficits and anemias. Low molybdenum may impair sulfation detoxification pathways.
PHOSPHORUS	Phosphorus is adequately controlled by the kidneys so that deficiencies or toxicities are rare. Malabsorptive diseases may cause low levels leading to weakness, muscle changes, and neurologic changes. Excesses affect calcium and magnesium.
BORON	Deficiency: Growth retardation, osteoporosis, higher calcium, magnesium excretion in urine. Excess: Higher B2 excretion impaired digestive enzyme function.
CALCIUM	Rickets, tetany, and osteoporosis can result from deficient intake. High blood pressure and colon cancer may relate to chronic low intake.
CHROMIUM	Hypoglycemia and hyperglycemia improve with chromium supplementation. May be deficient in cardiovascular disease and prolonged stress.
COBALT	Anemias may respond to administration of cobalt chloride. Heart, thyroid, and pancreatic damage result from toxic levels of cobalt. High alcohol use worsens toxicity.
COPPER	Hypochromic, normocytic anemia, low white blood cells. Depigmentation of hair and skin can occur with deficiency. Toxic levels cause nausea, behavior problems, vomiting and diarrhea.
IODINE	Goiter is found with frank deficiency or high intake of goitrogenic foods. High intake over time can also impair thyroid function.
POTASSIUM	Deficiency: Irregular/rapid heart beat, high blood pressure, kidney disease, infrequent menstrual cycles, ovarian cysts, muscle spasms/cramps, joint pains, weakened immune system, hyperglycemia. Excess: low blood pressure, urinary tract infection, reactive hypoglycemia, increased risk for cancer. Toxicity is possible via supplements at doses near 18g or in kidney dysfunction.

RUBIDIUM	Excessive exposure may trigger weakness, hypotension, muscle twitching and other symptoms of potassium deficiency. May also interfere with thyroid uptake of iodine.
SELENIUM	Increased susceptibility to cardio-vascular disease and diminished thyroid function are possible results of deficiency. Impaired resistance to oxidative stress also occurs. Extremely low levels are associated with increased cancer risk and cardiomyopathy.
SODIUM	High levels associated with; edema, high blood pressure, stroke, dizziness, gout, headaches, kidney damage, kidney stones, stomach problems, nausea, vomiting, coma. Kidneys and sweat losses promote sodium removal when dietary intake is high.
STRONTIUM	Tooth decay, rickets, abdominal spasms, diarrhea are associated with excessive intake/exposure.
SULFUR	Deficiency: Alzheimer's disease, nerve degeneration, memory loss, arthritis/cartilage degeneration, lupus, scleroderma, reduced insulin production collagen diseases affecting hair skin and nails. Excess: Crohn's disease, nerve degeneration, ALS/Lou Gehrig's disease, asthma from sulfites, inflammatory vascular/joint degeneration.
VANADIUM	Toxicity at high levels is reported and can occur via inhaled vapors as products of combustion. Symptoms can include: arthritis, aching bones, jaw, teeth, tonsils, ears, weakened immune system, chronic colds, gastrointestinal problems, trabecular bone loss, green tongue coloration.
ZINC	Deficiency may result in decreased growth, loss of taste and smell, sterility, poor wound healing, skin rash, hair loss, heart disease, liver disease, kidney disease, muscle weakness, arthritis, benign prostatic hyperplasia, infertility, impotence, toxemia of pregnancy, low stomach acid, diabetes, night blindness, cataracts, and immune dysfunction.

DISCLAIMER: The information contained in these pages should not be used as a basis for treatment which can only be provided by a qualified medical practitioner. You should consult a medical provider or the appropriate health professional for specific personal advice if you have concerns about your health or general well-being.

