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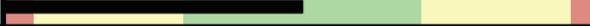
Powering Natural Health®

BLOOD SPOT CARD METALS GUIDE

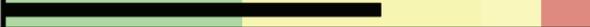
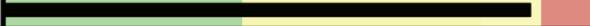
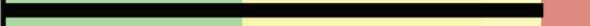
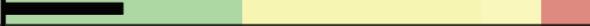
Blood Spot Card Sample Report

Elemental Analysis - Whole Blood
Inductively Coupled Plasma/Mass Spectrometry
 Lab Director: Christopher W. Shade, PhD

BLOOD METALS PANEL

Patient										
Practitioner	Practitioner	Dates	Taken	Arrived	Analyzed					
Date Of Birth	mm/dd/yyyy	Present	mm/dd/yyyy	mm/dd/yyyy	1/0/1900					
		Previous	NA	NA	NA					
Nutrient Elements										
Element	Results	Prior	Recommended Limit	Units	Percentile Rank by Quintile					Percentile
					10	20	30	40	50	
Copper (Cu)	64	NA	59 - 108	µg/dL						9%
Selenium (Se)	210	NA	85 - 318	µg/L						56%
Zinc (Zn)	509	NA	358 - 664	µg/dL						50%

Blood Spot Element Ratios										
Element	Results	Prior	Recommended Limit	Units	Percentile Rank by Quintile					Percentile
					10	20	30	40	50	
Cu/Zn Ratio	0.126	NA	0.09-0.21	NA						23%

Toxic Elements										
Element	Results	Prior	Recommended Limit	Units	Percentile Rank by Quintile					Percentile
					10	20	30	40	50	
Antimony (Sb)	4.0	NA	< 4.75	µg/L						63%
Arsenic (As)	4.0	NA	< 4.15	µg/L						88%
Cadmium (Cd)	0.7	NA	< 0.65	µg/L						90%
Lead (Pb)	0.50	NA	< 1.67	µg/dL						20%
Mercury (Hg)	2.0	NA	< 5.8	µg/L						46%

These test results are not intended for the diagnosis of disease. They are intended for interpretation by qualified healthcare professionals with a full knowledge of patient history to assist in their administration of an appropriate healthcare regimen.

Toxic Element	Exposure	Signs and Symptoms
Antimony	Antimony is a toxic element widely used in alloys to increase hardness or strength. SOURCES: Solders, metal type (printing), antifriction alloys, ammunition and powders, lead batteries, paints, enamels, glass and pottery glazes, flame retardants, tobacco, rubber agents, mines/smelting operations.	Antimony interferes with cellular metabolism, commonly deposits in erythrocytes and the liver and is mostly excreted via bile and liver. Symptoms are variable and may include metallic taste, anorexia, fatigue, myopathy, gout-like symptoms, MAO dysfunction, hypertension, erythrocyte fragility and angina. Inhalation of Sb may result in nosebleeds, rhinitis, and pneumonitis.
Arsenic	Arsenic is a natural component of the earth's crust and is widely distributed throughout the environment in the air, water and land. It is highly toxic in its inorganic form. SOURCES: Drinking contaminated water, using contaminated water in food preparation and irrigation of food crops, industrial processes, eating contaminated food and smoking tobacco, rodent poisons, contaminated seafood (especially shellfish), treated wood products, some fungicides and pesticides, fireworks, leather tanning and taxidermy, and lead/copper alloys.	Arsenic deposits quickly in liver, kidney, spleen, skin, bone and muscle. In tissues, it binds to selenium, phospholipids or phosphatides, and to sulfur in sulfhydryl groups on proteins, peptides and metabolic cofactors. Excessive arsenic symptoms include garlic breath and increased salivation, fatigue, chest pain, diarrhea, and hypotension. Chronic signs may include hair loss, skin hypopigmentation, white-streaked fingernails, anorexia, peripheral neuropathy.
Cadmium	Cadmium is a cumulative toxin with a biological half-life of 10 to 30 years for the whole body. It is synergistic with lead and mercury and may worsen the toxic effects of either. It may also interfere with zinc functions (as an activator of enzymes). SOURCES: CD-plated hardware (nuts and bolts), electroplating processes, Nickel-Cd batteries, brazes and solders, Cd pigments (paints, inks, glazes), cigarettes, old copy machine drums, plastics containing Cd-compounds as heat stabilizers, photographic and engraving chemicals, sewage sludge and power plant exhaust plumes, metal costume jewelry.	Glucosuria, proteinuria, beta2-microglobulinuria, fatigue, hypertension, sexual impotency (males), and microcytic-hypochromic anemia. Increased aging and reduced telomeres. Acute Cd contamination may include increased salivation, nausea, abdominal pain, vomiting, diarrhea, and choking sensations. Acute inhalation leads to tightness of chest, dyspnea and cough, and pulmonary edema.
Lead	Lead toxicity is a particularly insidious hazard with the potential of causing irreversible health effects. It interferes with several body functions primarily affecting the central nervous, hematopoietic, hepatic and renal system producing serious disorders. Acute toxicity is related to occupational exposure and is quite uncommon. Chronic toxicity on the other hand is much more prevalent. SOURCES: Water pipes and systems, chips from old lead paint, art supplies, colored glass kits, bullets, fishing sinkers, balance weights, radiation shields, lead-acid batteries, bearing alloys, contaminated herbal preparations and teas, certain ceramic glazes or pigments.	Calcium, zinc and/or iron deficiency conditions enhance uptake of ingested lead. In the body, absorbed lead rapidly leaves the blood plasma and accumulates in erythrocytes where it binds to hemoglobin and thiols and to the cell membrane. It can deposit in bone tissue, the aorta, kidneys and other organs. Lead interferes with enzymes that form heme, shortens erythrocyte lifespan, disrupts iron transport in erythropoietic cells, affects renal transport of uric acid, reduces cytochrome P-450 activity in children, and is synergistically toxic with cadmium and mercury. Adults and children may present with anorexia, metallic taste, insomnia, headaches, fatigue, anemia, reticulocytosis, and uricemia.

Blood Spot Card Nutrient & Toxic Element Levels & Symptoms Guide

Nutrient Element	Cause of Imbalance	Signs and Symptoms
Copper	LOW LEVELS: May occur secondary to malnutrition or intestinal malabsorption. Measurement of ceruloplasmin is a mandatory prerequisite to supplementation of copper when it is low in erythrocytes. HIGH LEVELS: Wilson's disease (a genetic disease where the accumulation of copper in tissues leads to liver and brain damage). High levels may occur during inflammatory responses, with redistribution of copper from the liver to peripheral tissues. In females, some increase may result from estrogen therapy or use of oral or copper IUD contraceptives.. Copper excess can occur when zinc is displaced from functional binding sites. It may also displace molybdenum. Conversely, zinc or molybdenum deficiencies may allow accumulation of copper as does liver disease or biliary insufficiency/obstruction. Most copper is excreted via bile and biliary dysfunction may cause excessive red blood cell copper.	LOW: Copper insufficiency signs include fatigue, maldigestion, hair loss, poor night vision and reduced taste. HIGH: Fatigue, anemia, dermatitis, metallic taste and loss of appetite, and discoloration of teeth. Decreased zinc and molybdenum serum levels.
Selenium	LOW LEVELS: Poor quality diet, intestinal malabsorption, or urinary wasting of selenium. HIGH LEVELS: Contaminated drinking water and electronic components including photovoltaic cells, batteries and semiconductors. Some inorganic pigments and glazes and vulcanized rubber, metal blueing solutions (gun blues). Dithiocarbamate insecticides and insect repellents may contain selenium. Incorrectly formulated nutritional supplements.	LOW: Muscle aches, hypothyroid function, sclerosing of tissue, anemia, increased dental caries, inflammatory response, oxidative stress due to lowered antioxidant activity of glutathione. HIGH: Mild elevations of selenium are usually of no clinical significance. Very excessive selenium can have toxic effects and include the following symptoms: fatigue, garlic-like breath, metallic taste, yellowish-to-pink-red discoloration of nails, skin, teeth and eyelids, unstable blood pressure, irregular menses, hair loss, anorexia, or lymphocytosis.
Zinc	LOW LEVELS: Intestinal malabsorption, alcoholism, chronic ingestion of highly-processed foods, chronic diarrhea, overuse of diuretics, and nephrotic syndrome. Excess copper interferes with zinc binding in blood plasma and reduces zinc retention. Excess iron intake may impair zinc absorption in the small intestine. HIGH LEVELS: Overuse of nutritional zinc supplements, eating or drinking from galvanized containers, zinc-contaminated water or food, continual diet of high-zinc foods (mostly shellfish, mushrooms, yeasts), and industrial exposures.	LOW: Incomplete digestive proteolysis, food reactivities, reduced taste, reduced night vision, muscle aches, slowed wound healing, hair loss, dermatitis or sexual impotency. In children, slow growth or stunted growth may occur. May cause increase in serum copper. HIGH: Weakness, lethargy and fatigue, impaired fine motor skills, and signs of iron or copper deficiency. Anemia.



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Rev. 003