Micro Trace Minerals Laboratory

environmental & clinical laboratory

Röhrenstrasse 20, 91217 Hersbruck, Germany
P.O.Box 4613; Boulder, CO 80306-4613, USA

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http://www.microtrace.de
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MINERAL ANALYSIS — Whole Blood

		Lab Number		1W120522a	
Doctor	Dr. X			Test Date	1/23/2012
Patient Name	Patient A	Sex	m	Age	46
Clinical Information	Depression			Page	1/4

	Acceptable Range	Test Value		
Essential Trace Elements in mcg/l				
Chromium	< 5.60	0.75		
Cobalt	< 1.50	0.20		
Iodine	15.00 --- 132.00	118.29		
Manganese	7.10 --- 20.00	9.29		
Molybdenum	0.30 --- 1.80	0.57		
Selenium	70.00 --- 130.00	94.87		
Vanadium	< 0.80	0.08		
Essential Macro- & Trace elements (mg/l)				
Copper	0.76 --- 1.50	0.61	↓	
Magnesium	30.00 --- 55.00	50.51		
Zinc	4.00 --- 7.50	8.77	↑	
Potentially Toxic Elements in mcg/l				
Aluminum	< 30.00	18.32		
Antimony	< 3.50	0.17		
Arsenic-total	< 10.00	0.59		
Beryllium	< 4.00	0.01		
Bismuth	< 1.00	n.n.		
Cadmium	< 1.00	0.18		
Lead	< 70.00	18.16		
Mercury	< 2.00	2.26	↑	
Nickel	< 2.00	3.73	↑	
Platinum	< 0.40	0.11		

n.n. = not detected
These 95percentile Reference Ranges listed above are representative for a healthy population. All elements are tested quantitatively.
Accreditation: DIN EN ISO 17025; Quality control: Dipl. Ing. Friedle, Ing. J. Merz, Dr. Rauland; Validation: Dr. E.Blaurock-Busch PhD, Laboratory physician: Dr. med. A. Schönberger

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MINERAL ANALYSIS — Whole Blood

Patient Name	Patient A	Lab Number	1W120522a	Page	2/4

	Acceptable Range	Test Value	
Potentially Toxic Elements in mcg/l			
Silver	< 1.00	0.14	
Thallium	< 0.60	0.03	
Tin	< 2.00	0.18	
Uranium 238	< 1.00	0.01	
Zirconium	< 55.00	1.93	

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MINERAL ANALYSIS		Whole Blood			
Patient Name	Patient A	Lab Number	1W120522a	Page	3/4

Blood is a transport medium and the concentrations of essential elements found in blood reflect the body's immediate nutritional status, and factors influencing uptake and distribution. The presence of toxic metals in blood suggests immediate exposure and indicates the need for medical attention. The information contained in this elemental analysis report is designed as an interpretive adjunct to normally conducted diagnostic procedures. The findings are best viewed in the context of a medical examination and history.
Reference ranges listed are obtained, if available, from the CDC (Center for Disease Control), the WHO (World Health Organisation) and Environmental Agencies and are updated accordingly. If a reference range is not given by those agencies, general laboratory procedures are utilized to obtain a statistical reference range in the 95percentile.
For more information, please contact us: service@microtrace.de or www.microtrace.de

COPPER (Cu) is an essential metalloenzyme needed for hemoglobin synthesis. It readily complexes with L-amino acids, which facilitate its absorption from the stomach and duodenum. There are three distinct syndromes of deficiency: The first is characterized by anemia and hypoprotenemia and is easily corrected with combined copper and iron supplementation. The second occurs in malnourished infants, receiving high-calorie, low copper diets. Neutropenia, anemia, diarrhea, bone changes and hypocupremia respond to copper therapy. The third is the genetic defect, Menke's syndrome, in which copper is not absorbed from the intestinal mucosa. Results are low blood, liver and hair copper levels.
DEFICIENCY SYMPTOMS: reduced hemoglobin synthesis, impaired iron metabolism, hypochromia, microcytic anemia, Kwashiorkor, heart and liver disease, poor growth and development, infertility, pancreatic dysfunction, progressive mental deterioration and defective keratinization of hair.
RECOMMENDED DAILY ALLOWANCE (USA) : Adults (18 years and older):
900mcg for adults; 1000mcg for pregnant women; 1300mcg for nursing women; 890mcg for adolescents 14-18 years old. Surveys suggest that most Americans consume less than the RDA for copper each day. Vegan diets appear to provide adequate amounts of copper.
SOURCES: liver, shellfish, kidneys, egg yolk, legumes and nuts.
THERAPEUTIC CONSIDERATION: deficiency may be due to a lack of metalloenzymes in the liver. Tyramine (tyrosine + amine) increases copper absorption. Citrus fruits increase the absorption in the small intestine, and glutamine increases copper transport into blood and tissues.

MERCURY (Hg): Elemental mercury is easily converted to organic mercury by living systems. Symptoms of poisoning include inactivation of enzyme function, birth defects, brain damage and other central nervous system disorders. Early symptoms of mercury overexposure include insomnia, dizziness, fatigue, drowsiness, weakness, depression, tremors loss of appetite, loss of memory, nervousness, headache, dermatitis, numbness, and tingling of lips and feet, emotional instability and kidney damage. Symptoms of acute toxicity: loss of teeth, extreme tremor, mental and emotional disorders, kidney failure. Neurological ailments may be linked to chronic mercury exposure.
SPECIFICS: Mercury remains in the blood stream for 24 to a maximum of 72 hours and high levels confirm immediate and acute exposure.
SOURCES: overexposure may stem from paints, explosives, electrical apparatus, batteries, mercurial diurectics, fungicides, fluorescent lamps, cosmetics, hair dyes, amalgams in dentistry, contaminated seafood, petroleum products, and vaccines containing thiomersal. Improper disposal of broken mercury thermometers and other apparatuses that use mercury including button cells and tube lights may also result in mercury exposure.
NUTRITIONAL RECOMMENDATION: increase intake of cysteine and antioxidant intake, esp selenium and vitamin E and cysteine.
CHELATION INFORMATION: Chelating agents such as DMPS and DMSA are known to bind mercury, resulting in increased urinary excretion. DTPA and EDTA do not bind mercury in any significant way- A comparison of pre and post urine Hg levels, allows observation of the patient’s response to provocation treatment. Hair mercury levels reflect on longterm exposure.

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NICKEL (Ni): the function of nickel is not totally clear, however nickel contact allergies are well known, generally resulting in skin reactions and exzemas. Exposure has been associated with dermatitis and an increased cancer risk.
COMMON SOURCES: Nickel-cadmium batteries, jewelry, cold wave permanents, welding, and smoke. Nickel carbonyl found in cigarette and cigar smoke is a strong carcinogen. Smokers and children of smokers often exhibit higher nickel tissue levels than nonsmokers. Other sources are chromium/nickel/steel cookware (Chromargan), unglazed pottery, and dental braces. Burning fossil materials (coal, oil) releases nickel and other toxic metals into the air.
SYMPTOMS OF NICKEL OVEREXPOSURE: Early symptoms are apathy, diarrhea, skin problems, insomnia, vertigo, injury to cerebral blood vessels, and vomiting. Toxicity symptoms include frontal headaches, gastroenteritis, eczema, cancer of the lung and nasal cavity:
THERAPEUTIC CONSIDERATION: sulfur-bearing amino acids, pectin and antioxidants support natural elimination of nickel; in more severe cases of overexposure, chelation therapy may be recommended.

ZINC (Zn) is an important metalloenzyme that is needed for enzyme function and insulin synthesis. It is a co-factor in the absorbtion and metabolism of many vitamins, is needed for the production of sex and growth hormones, wound and burn healing, and DNA and RNA synthesis. Absorption of dietary zinc occurs mainly in the small intestine, and zinc uptake can be competitive with that of iron and copper. Zinc is excreted in feces, urine and sweat. Copper or iron deficiency, anemia, bone and joint pathology, loss of hair color may be present.The RDA is 3-30mg/day, depending on age and status. Zinkvergiftungen sind sehr selten. Longterm use of oral zinc supplementation or environmental exposure near smelter sites can contribute to zinc overload. THERAPEUTIC CONSIDERATION: Haemolysis raises zinc levels. Symptoms of zinc overload are similar to zinc deficiency symptoms, causing immune dysfunction. Check iron, copper and manganese levels. Due to the circadian rhythm, zinc levels are higher in the morning and lower in the evening.

NUTRITIONAL RECOMMENDATIONS

The following nutritional program is aimed at providing optimum health. The program is suitable for patients 12 years and older.

To optimize health, it is recommended for 3-4 months. To repeat the test, either before or after dental work, check with your doctor. A follow-up test would evaluate the stability of your dental materials. Other tests, such as a blood or hair mineral analysis test may be needed to determine your body's ability to digest and absorb nutrients.

The following nutritional and medical recommendations are based on present clinical knowledge, and do not replace medical treatment. The nutrients listed below have been selected based on their quality, and because they are easily digested and absorbed by sensitive patients. These products are available without prescription, and can be ordered at your doctor’s office.

If any questions or problems arise, consult your doctor or health care provider.

Cu

COPPER, Vita/Minera UltraFemPak, 1-3xday or Copper chelate, 2mg/day

Hg

To reduce high mercury levels, check selenium levels. Supplementation of free amino acids and antioxidants may be helpful. Or ask your physician about chelation.

Elevated blood mercury levels indicate elevated exposure. 95% of asymptomatic normal people have blood levels of <3mcg/L (=.003ppm). Mercury toxicitt has been linked to anemia, anorexia, immunodepression, emotional instability, fatique, hypertension and other problems. Ref. Wallach J MD Interpret. Of Diagn.Tests, Little, Brown & Co., 1996; Werbach M.W., MD, Nmutr. Influences on Illness, Keats 187

Zn

ZINC: reduce intake

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