



Micro Trace Minerals Laboratory

35+ years of clinical & environmental
laboratory diagnostics

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Laboratory News

■ Why do we use Chelator-specific Ranges?

If you practice in the US, you may be familiar with the website of Quackwatch.org, which accuses some laboratories of supplying physicians with urine metal reports that 'defraud patients'. Quackwatch.org complains that laboratories compare provocation test results with reference ranges of unprovoked urine tests. Micro Trace Minerals does not do this, but we were on the Quackwatch list along with US laboratories. In our recent e-mail communication with Dr. Stephen Barrett, the head instigator, we explained that we established chelator-specific ranges several years back, and have been using them ever since. The reason for this practice is simple: a chelating agent is expected to bind (chelate) metals, hence urine excretion values of a provocation urine are expected to be higher than those of an unprovoked urine. It is only logical to compare a provocation test result with a chelator-specific reference ranges of unprovoked urine. Laboratory science specifies that we cannot 'compare apples with oranges'. We asked to be removed from the Quackwatch listing, and we were.

■ Sample Submission Forms

We are grateful to all those medical assistants filling out submission forms correctly. Clear sample information provides us with important facts that:

- Support analytical processes by providing specifics about provocation urines. If we know that you submitted a ZnDTPA sample, we can properly 'batch' it with same samples. This simple practice speeds up our analytical process and the delivery of your reports.
- If you inform us about the type(s) of chelators used, orally or iv. you help us with quality control, data evaluation and report interpretations.
- Like oral DMSA, the bioavailability of oral DMPS is 50% at best, hence its effectivity depends to a great deal on GI function. Presently, we are working on the development of ranges for oral DMPS, but need more data. To properly develop chelator-specific ranges, we need to know the amount of oral DMPS given (i.e. 100 or 300mg) and the urine collection time. The oral dose of 100mg will cause less metal binding than a 500mg dose, but it would be wrong to assume that 500mg bind 5x more than 100mg.
- To improve oral chelation, it is important to first improve digestive function before administering an oral substance. It could be useful to initiate diarrhea for one day, followed by a schedule of daily probiotic administration. A successful digestive 'cleanse' generally increases the oral chelators effectiveness in removing metals from other organ systems other than the digestive tract.



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- A less toxic GI tract is also less acidic. Chelating agents seem to be more effective in a slightly alkaline environment.
- Fecal testing can be used to demonstrate how oral chelation detoxified the GI tract. We routinely test 12 metals in fecal material.
We are extending our fecal testing profile and need to point out that there is no time requirement for testing metals in feces. For more information please contact us.

■ Report validation

If values of any given sample are considerably above the expected range, we make a note on the report. Such a note may say 'values confirmed' or 'Hg confirmed', meaning that we confirmed the reported value through multiple testing. This means that we start the analytical process from the very beginning i.e. start with a new sample preparation (provided we have enough of the sample left), followed by a new spectroscopic analysis.

■ Chelation Protocols and Sample Collection Information

There are various chelation protocols for EDTA, DMPS or DMSA available. Some are more logic-based (and safer) than others. We can provide protocols that have been established for chronic exposure.

Contact us if you need a chelation protocol. For the most part, sampling information for blood, hair, urine, saliva or stool can be downloaded from our website:

<http://www.microtraceminerals.com/en/submission-forms>

Medical Workshops and Conferences

■ International Conferences & Workshops 2015

- | | |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 02/28/2015 -
03/01/2015 | IBCMT (International Board of Clinical Metal Toxicology) Workshop at the NIIC (National Institute of Integrative Medicine)
Melbourne, Australia (English) |
| 03/07/2015 | Medical Seminar, Diagnosis and Treatment of a Chronic Multiple Metal Burden
Nuremberg, Germany (German) |
| 03/14/2015 | Nonmedical Seminar, Diagnosis and Treatment of a Chronic Multiple Metal Burden
Nuremberg, Germany (German) |
| 05/19/2015 -
05/21/2015 | 28th International meeting of Orthomolecular Medicine, nutrigenomics and longevity
Sao Paulo, Brazil (English/Portuguese) |

Details under:

<http://www.microtraceminerals.com/en/workshops>



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Studies and Analyses

■ The Tissue Metal Burden of Indians and Europeans

Over the past 10 years, we have evaluated the toxic metal burden of healthy and ill Indian people, living in Punjab, India. At the VIII Indian Workshop of Advanced Clinical Metal Toxicology & The VIII National ISSMTCT Conference, held Sept. 12-14, 2014 at the Heritage Village Club in Arrossim, GOA, we presented a summary of our results, including the latest which compared the metal burden of healthy Punjabis and Europeans. Over the years, we tested hair, urine and recently, nail samples. Every time, we found significantly elevated metal concentrations in Punjab populations. Our recent study on metals in nails supports previous research results.

	# tests	Al	As	Ba	Cd	Mn	Ni	Pb	Sr	Ti	U
Punjab - All healthy	83	81	5	63	13	96	23	19	88	51	99
European random	83	4	0	2	5	7	7	4	1	2	13

Table 1: Comparison of percent pathological values in nails of healthy populations

The research report is published in the British Journal of Medicine and Medical Research.

And can be read or downloaded under:

<http://www.sciencedomain.org/issue.php?iid=663&id=12>

<http://www.microtraceminerals.com/en/diagnostic-humans/nailanalysis/nail-analysis-research>

Previous reports:

- Metal Exposure in the physically and mentally challenged children of Punjab, India
- Comparing the metal concentration in the hair of cancer patients and healthy people living in the Malwa region of Punjab, India

Further reports can be viewed at:

<http://www.microtraceminerals.com/en/metals-and-disease-research>

■ Evaluating the metal burden in blood and cerebral spinal fluid of children living in polluted urban cities compared to those living in rural areas

The research publication **Air Pollution and Children: Neural and Tight Junction Antibodies and Combustion Metals, the Role of Barrier Breakdown and Brain Immunity in Neurodegeneration**, published in the Journal of Alzheimer's Disease, indicates that children living in polluted areas such as Mexico City show considerable side effects from metal pollution. Exposure to toxins causes damage to the body's natural barriers including the blood brain barrier. This sheds a new light on the rise in neurological ailments seen in people of all ages. The main researcher and instigator Prof. Lillian Calderón-Garciduenas of the University of Montana, USA, asks governments and us all to act more distinctly in the fight against environmental pollution. The report is in press at the Journal of Alzheimer Disease.

Read full article here:

<http://www.j-alz.com/node/391>



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■ NIH study links high levels of cadmium, lead in blood to pregnancy delay

Higher blood levels of cadmium in females, and higher blood levels of lead in males, delayed pregnancy in couples trying to become pregnant, according to a study by researchers at the National Institutes of Health and other academic research institutions.

Cigarette smoke is the most common source of exposure to cadmium. This toxic metal is used in batteries, pigments, metal coatings and plastics. Smokers are estimated to have twice the levels of cadmium as do non-smokers. Exposure also occurs in work places where cadmium-containing products are made, and from the air near industrial facilities that emit cadmium. Airborne cadmium particles can travel long distances before settling on the ground or water. Soil levels of cadmium vary with location. Fish, plants, and animals absorb cadmium from the environment, and all foods contain at least low levels of the metal.

Read full article here:

<http://www.nih.gov/news/health/feb2012/nichd-08.htm>

■ Blood cadmium is elevated in iron deficient U.S. children: a cross-sectional study

Monica K Silver, Betsy Lozoff and John D Meeker Environmental Health 2013, 12:117

Cadmium (Cd), a widespread environmental contaminant, and iron deficiency (ID), the most common nutrient deficiency in the world, are known risk factors for neurodevelopmental delays, as well as other disorders, in infants and children. This study found elevated blood and urine Cd levels in ID children compared to non-ID children.

Note:

Cadmium (Cd) contamination causes serious environmental problems for plant life and human health. It is one of the most toxic and non-essential heavy metals. Due to its chemical similarity to certain essential mineral elements, e.g., Zn, Fe and Ca, cadmium toxicity rises from displacement of these essential elements from a number of essential metalloproteins. Prolonged cadmium exposure can affect a variety of organs, with the kidneys and bones being the principal targets. Moreover, cadmium negatively affects cell life and hormone receptors. Evidence strongly suggests that environmental contamination and human exposure have dramatically increased during the past 100 years.

Reference:

Järup L, Berglund M, Elinder CG, et al.
Health effects of cadmium exposure - a review of the literature and a risk estimate.
Scand J Work Environ Health 1998; 24 Suppl 1:1.

Read full article here:

<http://www.ehjournal.net/content/12/1/117>

Contact us for more information.

We wish you all the best.

Your

E.Blaurock-Busch and Team