



Micro Trace Minerals Laboratory

40+ years of clinical & environmental
laboratory diagnostics

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MTM Newsletter

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Laboratory News

■ **Gadolinium in Drinking Water**

We are now testing gadolinium in water, either as a single element or as extension of our multielement water profiles, with surcharge. As early as 2014, German research indicated that:

Groundwater is getting more and more polluted. In rivers and lakes, the concentration of unwanted substances increases. Studies by Jacobs University Bremen have shown an abnormally high concentration of the contrasting agent gadolinium in the waters of Berlin, in the Rhine and the Ruhr region.

The metal is used as a contrast agent for magnetic resonance imaging (MRI). After administration, gadolinium is excreted in the patient's urine, ending up in wastewater. Treatment plants can neither adequately filter nor completely degrade this constituent, so gadolinium, as well as many other pharmaceutical residues, can enter the water supply.

For more information:

<https://www.sciencedirect.com/science/article/pii/S0883292714000791>

■ **Metals in Soil**

Deficiencies and toxicities of micronutrients adversely affect plant and animal health, cause reductions in growth rate (and yield), overt symptoms of physiological stress and, in extreme cases, the death of the plant or animal. Human and animal health issues are contributed to toxicities arising from soil contamination. Heavy metals such as arsenic, cadmium, or lead may be found in the soil near industry or in otherwise polluted remote areas, affecting plants, animals and humans.

Metals such as copper, iron, manganese, zinc and even nickel are essential for higher plants. In recent months, we have evaluated information from environmental agencies for metal limits applying to soil. Valid information is presented in Brian J. Alloway's book, Heavy Metals in Soil.

For more information:

<https://link.springer.com/book/10.1007%2F978-94-007-4470-7>

Our updated mineral and toxic metal report for soil is now available.



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■ What you Should Know Metals in Erythrocytes

We are also testing red blood cells, but need to point out that blood must be drawn into metal-free tubes before red and white cells are separated.

Contaminated Blood Tubes

Our internal laboratory tests of empty regular EDTA tubes showed aluminum and barium contamination. Please request metal-free EDTA tubes for whole blood metal tests.

Gadolinium in Urine or Blood

You can also request gadolinium as a single element test in urine and blood. Gadolinium is included in our Toxic Profiles.

■ Reference Ranges and Orientation Ranges - What is the difference?

Reference Ranges are generally obtained from a so-called healthy population and are statistical values representing a 95% range, meaning 95% of the population fall within this range, and 5% will have values outside the reference range.

For urines and blood, government agencies such as the Environmental Protection Agency (EPA) or the Centers for Disease Control and Prevention (CDC) provide reference ranges for blood, urine, water and other samples. These ranges are generally obtained under optimum conditions and are guidelines for laboratories.

Our laboratory evaluates and uses provided guidelines. For some tests, no guidelines are provided, meaning the laboratory develops its own reference ranges, following laboratory rules and regulations. Reference Ranges (RR) may vary from country to country, even from laboratory to laboratory, depending on the analytical instrumentation involved.

Urine reference ranges are based on unprovoked specimen, also called Baseline Urine.

If a patient is treated with a chelating agent, the urine collected for testing is called a Provocation or Mobilization Urine.

Synthetic chelating agents are chemicals used for their ability to bind metals. As a result of this metal-binding ability, a urine sample collected after administration of such a chelating agent, will show high metal concentrations. Since each chelator has a special affinity to certain metals, the type of chelator used will largely determine the metal concentration found in the provocation urine.

DMPS, for instance, is known for its strong ability to bind arsenic, mercury and copper. We can rightly assume that a DMPS Provocation will show higher concentrations of these metals than a (unprovoked) baseline urine.

To compare a mercury test result from a DMPS provocation to the reference range that has been developed for an unprovoked baseline urine would lead to misinterpretation of the test result, because the DMPS urine test value for mercury would expectedly and considerably exceed the baseline reference range. We have thus followed the recommendation of the (deceased) German toxicologist Dr. Daunerer who was the first to develop a DMPS reference ranges for urine. Interestingly, his statistical RR still applies. We call it "Orientation Ranges" or OR.



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Result Assessment

Many physicians are now using combination treatments. As a result, we have developed Orientation Ranges (OR) for the intravenous administration of CaEDTA + DMPS. Comparing the analytical test value with the appropriate OR will aid you in assessing results.

Before results are released to you, we have a multi-step process to validate results. The final evaluation is done by myself and if I notice unusual or atypical results, notes are made, also on the report that is released to you.

Just recently, I evaluated baseline and a DMPS provocation test results. The urine metal concentration was unusually low for the DMPS i.v. application, and a note was made accordingly. I suggested that protocol was not followed. In talking with the physician, I learned that

- protocol was followed, and
- that the patient was a 125kg female.

It must be noted that existing protocols were designed for normal weight people. For protocol details, please refer to the latest edition of our Toxic Metals and Antidotes. **The Chelation Therapy Handbook**, also available as e-book.

More details can be found there:

<https://microtraceminerals.com/en/books-by-eblaurock-busch/chelation-handbook>



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■ Data Protection

When submitting samples, we kindly ask you to enclose the respective submission forms. These must be signed by the patient. If there is no signature, we are not able to process the sample.

We now include stickers with our test kits (see picture) that should be filled out with the patient name or Initials and DOB (not mandatory), this is only to serve for laboratory identification. Please attach the sticker to the corresponding tube for identification. DO NOT apply the sticker to the protective cover.



We are extremely careful when we take the sample tube out of the protective cover, but an unidentified sample can get lost. It hasn't happened yet, but helps us to remain efficient.

If the sticker is applied to the plastic protective cover, it cannot be reused and thus ends up in plastic waste. Please help us to be environmentally conscious.

■ Inactive Clients

If you have not been working with us for some time, you will not receive our newsletter much longer, but you can always view it on our website:

<https://microtraceminerals.com/en/news>



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■ In Memoriam

We are dismayed by the death of Prof. Vera Stejskal, who attended some of our congresses. We appreciated her dedicated lectures on metal sensitivity. Together with John Ionescu, we worked on the research project on metals in breast cancer.

For more information:

<https://microtraceminerals.com/en/metals-and-disease-research/cancer/breast-cancer>

The British Society of Ecological Medicine is organizing a conference in memory of Prof. Dr. Vera Stejskal: Systemic Effects of Metal Exposure in Clinical Practice: Protecting Patients and Optimising Outcomes. The meeting is open to medical doctors, dentists, oral implantologists, oral and maxillofacial surgeons, orthopaedic surgeons and all other allied healthcare professionals. 6 CPD points applied for.

To attend, please contact info@melisa.org.

Medical Workshops and Conferences

■ International Conferences & Workshops 2018

11/02/2018 **Medical Congress Baden-Baden**
9:30 AM - **How absolute are laboratory data? Facts that influence the metal diagnostic.**
10:00 AM **(German lecture)**
Baden-Baden, Germany (German)

For future workshops and updates, please visit:

<https://microtraceminerals.com/en/workshops>

■ Webinars

At present, no current webinars, if you are interested, please contact us.

For registration and further information, please visit:

<https://www.edudip.com/academy/e.blaurock-busch>



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Studies and Analyses

■ The Environmental Health Significance of Aluminum

Greater than 95% of aluminum is eliminated by the kidney; about 2% in bile. Occupational aluminum exposure increases the urinary aluminum concentration above their normal levels and older people show higher aluminum levels in hair and other tissue. According to the Federal Environment Agency, the environmental health significance of aluminum is essentially based on three aspects. These would be:

1. Unavoidable human exposure, because Al is the third most common element of the earth's crust. (Note: Aluminum is found in plant food in various concentration, depending on the soil and water concentration, pH and other aspects)
2. Clear neurotoxicity in humans, which has been shown in dialysis patients due to high Al exposure
3. its possible role in the pathogenesis of Alzheimer's disease.

To monitor internal exposure, the USA Federal Drug Administration (FDA) discusses three laboratory diagnostics (blood, urine, hair), plus the Deferoxamin (DFO) test. Since DFO is a prescription item chelator that is said to cause considerable side effects, caution is needed.

For details, see:

<https://www.atsdr.cdc.gov/phs/phs.asp?id=1076&tid=34>

Also:

https://www.researchgate.net/publication/19258369_Deferoxamine_and_Aluminum_Removal

■ Do Autistic Children Have A Greater Metal Burden?

The research findings of our Nigerian study are now available online at the International Research Journal of Public Health.

Title: **Heavy Metals and Trace Elements in Blood, Hair and Urine of Nigerian Children with Autistic Spectrum Disorder.**

The Niger-Delta region of Nigeria is widely known for its petroleum industry and pollution, and with this study we aimed to evaluate if Nigerian children diagnosed with ASD carry a greater burden of toxic metals compared to healthy Nigerian children living in the same region. While the ASD group shows a higher metal concentration in blood and hair, combined with low blood zinc levels, we also determined an unusual metal burden in the healthy group but no zinc deficiency.

One question comes to mind: why are healthy children, burdened with toxic metals, are neurologically unaffected? Are health affects not yet apparent? Or do they have other health issues associated with metal intoxication?

For more information:

<http://escipub.com/irjph-2018-07-2201>



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I hope to see you or hear from you soon.

And all the best

Your

E. Blaurock-Busch and Team