



InterClinical Laboratories Practitioner Newsletter

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2013 SEMINAR SERIES ANNOUNCEMENT

A fresh, New Year has arrived and we are thrilled to start it off with a seminar announcement. From May to July, we are touring around Australia and New Zealand for our one-day, 2013 Seminar Series; **Running on Empty: Burnout, stress and fatigue –Adrenals, Thyroid and Important Nutritional Endocrine Relationships.**

This year, we have taken all of your feedback and are hosting a full-day seminar to really focus on using Hair Tissue Mineral Analysis (HTMA) as an essential health screening tool in the clinic. We receive a lot of feedback about how to best utilise our HTMA reports and so we have constructed a seminar series which will address this. By including an interactive workshop component, we hope to better train and address any individual concerns you may have about our testing. We are proud of our highly professional and reliable service, so we hope we can help you and your clinic move forward this year confidently and successfully.

For further information about this Seminar Series, please see the enclosed Seminar Information and Registration Form, or you can register through our website; under the 'Events' tab.

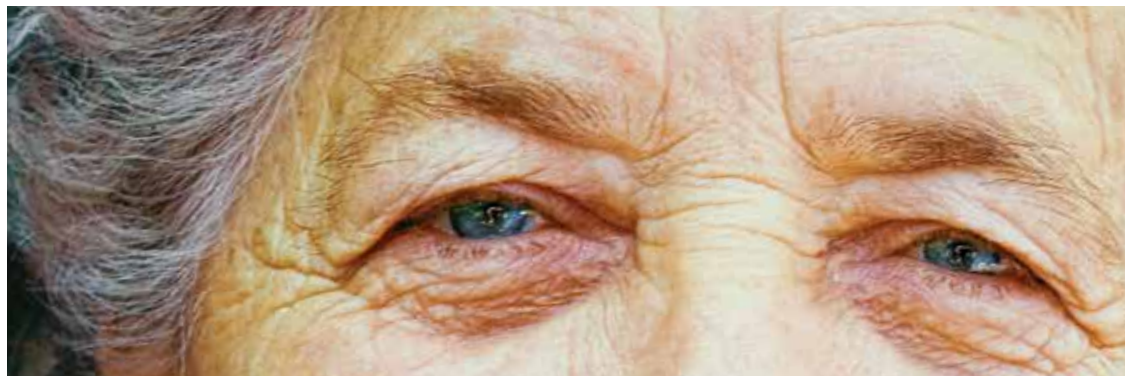
To whet your appetite for this upcoming seminar series, please read on in this newsletter for the latest Practitioner Clinical Updates, including a special article on Potassium and The Adrenals.

In this newsletter, we are also continuing our series on the Additional Elements; with Thallium. If you wish to see any previous Additional Element articles, please visit our website and click on the 'Newsletters/Publications' tab, or contact us for past editions.

We wish you all the best for this year and hope that we can see you soon in person at our 2013 Seminar.

Yours in health,
The Team at InterClinical Laboratories.

Practitioner Clinical Updates



Antioxidants Supplements for Slowing Progression of Macular Degeneration

A review of thirteen trials involving 6150 participants was conducted by the Cochrane Eyes and Vision Group to assess whether antioxidant supplementation was of benefit to age-related macular degeneration. They found that there was support for antioxidant supplementation, with beneficial effects found from beta-carotene, vitamin C, vitamin E and zinc. It was found that participants who used these forms of antioxidants were less likely to lose 15 or more letters of visual acuity, and in general had slower progression of the disease.

Evans, J.R., Lawrenson, J.G., Cochrane Eyes and Vision Group, ICEH, London School of Hygiene & Tropical Medicine, London, UK, 2012 Nov 14;11:CD000254.

Comment: Antioxidants have become a large area of treatment in natural medicine practice as they help to reduce free radical damage and gently detoxify body systems, often whilst still protecting the individual against further harm. We know that natural beta-carotene is recommended for good eye health. Antioxidant super-foods like *Dunaliella salina* (found in Algotene) and *Euterpe oleracea* (found in Acai berries) help to combat the damaging effects from inflammation, ageing, vision issues, sun-damage and general toxicity. Many other situations will call for antioxidant supplementation, including fertility support, heavy metals and immunity. In these cases, vitamin C, vitamin E and zinc may be more useful.

Hair Tissue Mineral
Analysis Pathology

Nutritional, Herbal and
Natural Medicines

Practitioner Education

Research and
Development

Cholesterol and Female Fertility

Dr Annabelle Rodriguez, an endocrinologist at Johns Hopkins University became interested in earlier research by Monty Krieger a geneticist at M.I.T. who discovered a cell membrane protein scavenger receptor named type I (SRB1). This receptor binds high-density lipoprotein (HDL) and clears it from the circulation. Krieger found that mice not having the SRB1 receptor had higher HDL levels compared to those with the receptor. Krieger found that even though the affected mice had high levels of HDL, they also had severe heart disease and the female mice were also found to be infertile. Rodriguez decided to study this in humans and found similar findings. She also found that women who had the SRB1 receptor deficiency and elevated HDL levels also had low progesterone levels. Further research is needed to determine the full meaning of her studies and to determine the relationship between HDL cholesterol and fertility.

Couzin-Frankel, J. Mice Prompt Look at Cholesterol's Role in Female Fertility. Sci. 332, 2011.



Comment: This study illustrates the importance of cholesterol for the synthesis of hormones including oestrogen and progesterone. However, the balance of cholesterol is also important since high HDL levels may actually lower progesterone and impact fertility in women. Balance of hormones is also important for a normal pregnancy and can be influenced by mineral levels. Oestrogen is known to enhance HDL production, therefore it should not be a surprise that high HDL goes along with low progesterone. From HTMA studies we see a relationship between progesterone and the mineral zinc. Zinc is necessary for the production of progesterone and the mineral copper is greatly influenced by the hormone oestrogen. When viewing the zinc to copper relationship or ratio we can see an approximation of the progesterone/oestrogen levels in HTMA results. An elevated zinc/copper ratio would indicate a dominance of progesterone, while a low zinc/copper ratio would indicate oestrogen dominance. It is well known that an abnormality in the tissue zinc/copper ratio is related to abnormalities in HDL/LDL ratios as well. From a cholesterol standpoint, very low levels of total cholesterol can contribute to infertility in women. From a hormonal standpoint a major disturbance in the oestrogen/progesterone relationship can lead to infertility, and from a mineral perspective a major imbalance in the tissue zinc/copper relationships can reflect and even contribute to infertility. HTMA has today become one of the most effective screening tools for evaluating the nutritional status of women with infertility.

POTASSIUM AND THE ADRENALS

It is very common to see HTMA reports with a picture of under-functioning adrenals. Usually this is characteristic in a Slow metabolic type and is often indicated with low tissue levels of sodium and potassium. Correctly approaching the adrenal minerals can really help turn around an HTMA and potassium is a key mineral for adrenal health.

A number of factors can cause changes in tissue levels of potassium. Potassium has a very close association with sodium. In hair tissue mineral analysis, we often see these two minerals moving in-sync with each other. In our body, sodium is concentrated outside of tissue cells (extracellular) and potassium is mainly concentrated inside (intracellular). Together, they provide an electrical potential across the cell which is responsible for nerve conduction, muscle contraction, fluid balance and acid-alkali balance. The kidneys are the organs which regulate sodium and potassium and both external and internal changes will impact on respective levels.

The sodium and potassium ratio is often more important than potassium levels alone. In HTMA, sodium and potassium is a major indicator of adrenal status. If they are low, generally this is an under-functioning adrenal system. In some cases, we see a spike in potassium and sodium and this is often caused by a recent stressor to the body; be it physical or emotional. In a physical sense, it may be due to an immune system challenge, an acute inflammatory issue, or perhaps detoxification of heavy metals in a short period of time. If emotional, there would be a number of reasons for acute adrenal stress; anxiety, work

stress, a loss in the family, a health scare and the list goes on. It is important to differentiate which area may be most relevant to your patient, as this will help you choose the most effective mode of treatment (supplementation, dietary changes, herbal medicine, homeopathy or emotional support through counselling or similar).

Another area which practitioners will enquire about is the situation where the potassium is low in the HTMA report, but it is not always recommended on the supplement suggestion page. HTMA reports prioritise ratios above most other situations. In the afore-mentioned scenario, the sodium levels may also be low, so the report suggests that both sodium and potassium are treated together (usually the Aden Complex will be recommended here). Potassium is a low-dose mineral, i.e. not a lot is required in supplemental form when treating someone for low potassium in the tissues. In fact, too much potassium can put a patient into a picture of cardiac arrhythmias, putting them at risk of tachycardia.

So if your patient has low potassium, firstly check their levels (and ratio) with sodium. Perhaps they are both requiring support. For any HTMA pattern or result that you are not sure of, we ask that you call our free, professional, technical support team anytime Monday to Friday, 9am – 5pm (Sydney-time).

Dr D. Watts, Trace Elements and Other Essential Nutrients; Clinical Application of Tissue Mineral Analysis, Writer's B-L-O-C-K-, USA, 2010.

Get to the root of your patients health problems more quickly...

Part Eight of HTMA and the Lesser Known Trace Minerals

THALLIUM

81

Tl

Thallium
204.38

Chemical Structure

Thallium (Tl) is a very soft, malleable, lustrous low-melting, silvery heavy metal that tarnishes in air to the bluish-gray oxide. Thallium is a member of the aluminium family, Group 13 (IIIA) on the periodic table. Thallium is also a member of the heavy metals, along with gold, platinum, and lead. In its

appearance it resembles lead, it is very soft and melts easily. In the presence of water, the poisonous thallium hydroxide (TlOH) is formed. Thallium dissolves slowly in hydrochloric acid and dilute sulfuric acid and dissolves rapidly in nitric acid.

Sources

The main minerals containing thallium are crookesite (TlCu₇Se₄), hutchinsonite (TlPbAs₅S₉), and lorandite (TlAs₂S₂). Thallium also occurs in manganese nodules on the ocean floor. Commercially, the metal is recovered as a by-product of sulfuric acid production as thallium is also present in pyrites (iron sulfide). Thallium can also be obtained from the smelting of lead and zinc ores. Thallium is not a rare element; it is 10 times more abundant than silver.¹ As a mineral element, it is widely dispersed, mainly in potassium minerals such as sylvite and pollucite.

Although this metal is reasonably abundant in the Earth's crust at a concentration estimated to be about 0.7ppm (part per million).² It exists mostly in association with potassium minerals in clays, soils, and granites and, thus, is not generally considered to be commercially recoverable from those forms. The major source of commercial thallium is the trace amounts found in copper, lead, zinc, and other sulfide ores.³

Environment

Thallium occurs in the environment naturally in small amounts and is not applied widely by humans, merely as rat poison and as a substance in electro-technical and chemical industries. These applications can cause human exposure to thallium substances. Thallium is partially water-soluble

and consequentially it can spread with groundwater when soils contain large amounts of the component. Thallium can also spread by adsorption on sludge. There are indications that thallium is fairly mobile within soils. There has been no significant contamination of the environment by thallium from industry, unlike that caused by its neighbours in the periodic table, mercury and lead.⁴

Diet

Sources of dietary intakes of thallium are estimated to be about 0.005 mg/day.⁵ It is considered that Brassicae vegetables are likely to be the main source of dietary exposure to thallium in food produced on contaminated land.⁶ It has been suggested that food (particularly green vegetables) is probably the major source of thallium exposure.⁷ The thallium concentration in food is generally very low, with concentrations in plants less than 0.1 mg/kg dry weight. However, the thallium content of food depends directly on the thallium concentrations in the soil, therefore food grown in thallium-contaminated soils can be a significant source of thallium exposure.⁸

Absorption and Excretion

The human body absorbs thallium very effectively, especially through the skin, the breathing organs and the digestive tract.⁸ Thallium poisoning is mainly caused by accidental uptake of rat poison, which contains large amounts of thallium sulphate. Consequently, stomach aches may appear and may cause damage to the nervous system.⁹ Thallium is considered a cumulative poison that can cause adverse health effects and degenerative changes in many organs. The effects are the most severe in the nervous system. When a human survives thallium poisoning often consequences of disturbances of the nervous system, such as trembling, paralysis and behavioural changes may remain.¹⁰ With unborn children, thallium poisoning may cause congenital disorders.¹¹

Due to accumulation of thallium in the bodies of humans, chronic effects may occur, such as; tiredness, headaches, depressions, lack of appetite, leg pains, hair loss and disturbances of the sight.¹² Further effects that can be related to thallium poisoning are nerve pains and joint pains.¹³ These are consequences of thallium uptake through food.



Trace Nutrients: Potassium Plus is a readily bio-available mineral supplement combined with synergistic nutrients Vitamin B6 and natural beta-carotene. It is an excellent source of nutritional potassium. It aids and supports energy production, neuromuscular coordination, healthy heart function, protein metabolism, water balance and growth. Helps relieve muscular aches, pains, cramps and spasms.

Pack size: 90 tablets

Each tablet contains 100mg potassium (gluconate) with 180mcg synergistic beta-carotene (natural, from *Dunaliella salina*) and 5mg vitamin B6 (pyridoxine hydrochloride)⁷

...with reliable, clinical HTMA pathology from InterClinical Laboratories.

RUNNING ON EMPTY: *Burnout, stress and fatigue*

ADRENALS, THYROID AND IMPORTANT NUTRITIONAL ENDOCRINE RELATIONSHIPS

Helping the tired patient and burnt out athlete regain their mojos

Advanced Hair Tissue Mineral Analysis Seminar and Workshop.

All physiological activity affects the endocrine system and thus has an impact on nutritional requirements. Having tested hundreds of thousands of patient's hair samples for Hair Tissue Mineral Analysis (HTMA), we have found that a large number of reports show a picture of weakened adrenals and thyroid function; resulting in a 'tired/burnt-out' patient.

SEMINAR OUTLINE:

- Overview of essential nutrients
- Heavy and toxic minerals
- Important mineral ratios and metabolic typing
- Better understanding of the neuro-endocrine system
- Adrenal and thyroid function
- Improving stamina and athletic performance
- Real patient HTMA case studies
- Identifying and treating burn-out, fatigue and stress in the tired patient and/or athlete

PRESENTED BY:



Zac Bobrov
Technical Director,
InterClinical Laboratories



Gary Moller DipPhEd, PGDipRehab,
PGDipSportMed (Otago), Nutritional Specialist
Sports Health Practitioner
and Nutritional Medicine
Consultant.

SEMINAR DATES & VENUES:

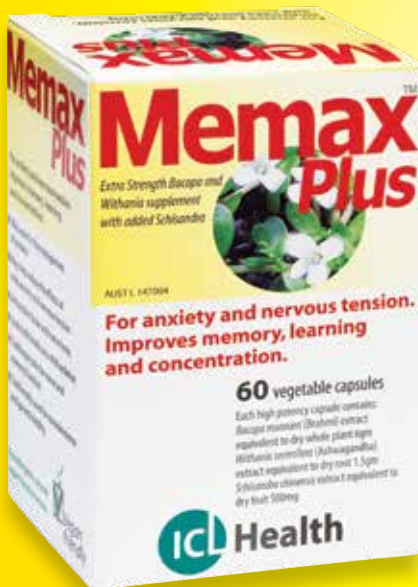
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|------------------|----------------|-------------------|
| Perth | 19th May 2013 | Ibis Styles |
| Brisbane | 2nd June 2013 | Traders Hotel |
| Auckland | 9th June 2013 | Novotel Ellerslie |
| Melbourne | 23rd June 2013 | Oaks on Collins |
| Adelaide | 21st July 2013 | Crowne Plaza |
| Sydney | 28th July 2013 | Vibe Hotel |

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bookings

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- Enhance cognitive function
- Relieve nervous tension, stress and mild anxiety

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For more information, please contact:

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