



InterClinical Laboratories Newsletter

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InterClinical Laboratories
Pty Limited ACN 076 386 475

PO Box 6474
Alexandria NSW 2015
Australia

Unit 6, 10 Bradford Street
Alexandria NSW 2015

Phone
(02) 9693 2888

Fax
(02) 9693 1888

Email
lab@interclinical.com.au

Web
www.interclinical.com



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2011 is becoming a busy year for practitioners!

We are seeing more and more everyday people seeking to use natural medicines to support their health due to an increase in ill-health and disease and factors that are affecting our diet, lifestyle and general wellbeing.

InterClinical Laboratories is proud to provide continual and ongoing educational and technical support with our quality products and services to our referring practitioners. With this in mind, we are about to begin our 2011 Seminar Series; **Toxins in the 21st Century** - How to Identify, Treat, Protect & Chelate using Natural Medicine. This is an informative and very topical seminar where you will learn not only how to identify correlations between toxins and disease, but also how to use your clinical tools to treat your patients more effectively. For more information, including locations and

dates, please see the back of this newsletter, or our website www.interclinical.com.au.

We have been receiving fantastic feedback regarding our new antioxidant product **Acai Premium Fresh** as well as our new **in-house test kits** for Heavy Metals and Free Radicals. We are pleased that there have been such good results in your clinics, and we thank you for your continued support.

Hair Analysis Promotional Poster

We are offering **FREE** Hair Tissue Mineral Analysis clinic posters for any practitioner who is using our HTMA services. Let your clients know that your practice includes this useful and professional health screening tool. Call or email us today for your poster.

Clinical updates for the health professional

HTMA and Myocardial Infarct

A study conducted in the US has found a correlation between heavy metals in scalp hair and myocardial infarction (MI). 130 subjects were tested at different stages of MI (first, second and third) and the findings were that those who died from MI had significantly higher levels of arsenic, cadmium, nickel and lead than those who survived. Heavy metals are being increasingly recognised as mediators or actors in the development and progression of cardiovascular disease.

Afridi, H.L., et al. Evaluation of Toxic Elements in Scalp Hair Samples of Myocardial Infarction Patients at Different Stages as Related to Controls. *Biol. Trace Elem. Res.* 134, 1, 2010.

Magnesium and Type II Diabetes

Chronic magnesium deficiency has been found to be associated with insulin resistance and ultimately in the development of type II diabetes. Magnesium is involved in hundreds of enzymes that affect energy metabolism, carbohydrate oxidation, glucose transport, insulin secretion, insulin binding and insulin activity. The authors of this study highlight the importance of testing magnesium status.

Chaudhary, D.P. et al. Implications of Magnesium Deficiency in Type 2 Diabetes: A Review. *Biol. Trace Elem. Res.* 134, 2, 2010.



Calcium and Vascular Events in Older Women

A randomised placebo controlled study in New Zealand assessed the effect of calcium supplementation on the incidence of stroke, myocardial infarction (MI) and sudden death in early healthy postmenopausal women. There were over 700 women in this trial and it was found that the group with calcium supplementation experienced more MI's than the control group.

According to HTMA reports, many women in this age group have parasympathetic mineral dominance, excess calcium intake and often other mineral deficits. This imbalance could contribute to increased calcium deposition into soft tissues, including arteries. The form of calcium used is very important. Monobasic ionic calcium phosphate is highly bioavailable, and therefore avoids some of the problems associated with other forms of calcium. There is therefore great importance for hair analysis testing to be carried out before supplementation programs are commenced.

BBolland, M.J., et al. Vascular Events in Healthy Older Women Receiving Calcium Supplementation: Randomised Controlled Trial. *BMJ*, 336, 2008. Reid, I.R., et al. Calcium Supplementation and Vascular Disease. *Climacteric*. 11, 4, 2008.

continued overleaf

Hair Tissue Mineral
Analysis Pathology

In-House Test Kits

Nutritional, Herbal and
Natural Medicines

Practitioner Education

Research and
Development

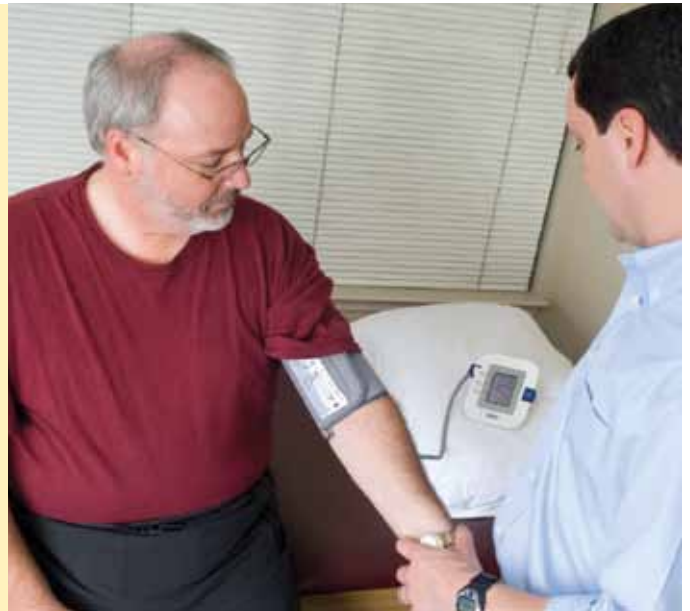
Carbohydrates and Heart Disease

The Scientific American writes that since 1970, the obesity rate has more than doubled, diabetes has tripled and heart disease is still the biggest killer. The percentage of daily calories from saturated fats has been reduced, but several studies indicate that the reason for rising rates of lifestyle disease is from the increased consumption of processed carbohydrates.

A study in the American Journal of Nutrition (with 300,000 participants) reported that no association was found between the amount of saturated fat intake and the risk of heart disease.

Studies have shown that the groups who consumed a low carbohydrate diet had the healthiest ratio of HDL to LDL cholesterol levels, even though they consumed more saturated fat compared to those on low fat diets.

Moyer, MW. Carbs Against Cardio. More data that refined carbohydrates, not fats, threaten the heart. Sci. Amer. May, 2010. Siri-Tarino, PW, et al. Saturated fat, carbohydrate, and cardiovascular disease. Am. J. Clin. Nutr. 91, 3, 2010.



Sugar and Cardiovascular Health



The American Heart Association stated in their journal Circulation that "High intakes of dietary sugars in the setting of a worldwide pandemic of obesity and cardiovascular disease has heightened concerns about the adverse effects of excessive consumption of sugars." In this study, the mean intake of sugar across the participants was over 22 teaspoons per day. Within the age group of 14 to 18 years olds, the average intake was 34 teaspoons per day.

Johnson, RK, et al. Dietary Sugars Intake and Cardiovascular Health. A scientific statement from the American Heart Association. Circulation. Circ. ahajournals.org. June 2010.

Diabetic Drugs and B12 Deficiency

Metformin is a drug commonly used in the treatment of patients with type II diabetes. A study of 155 diabetic patients found that B12 deficiency was significantly associated with dose and duration of metformin use.

Published in Physician's First Watch October 11, 2006.

Thyroid Hormones and minerals

We all know that selenium is important for thyroid health. It is involved in the selenium-containing group of enzymes called iodothyronine deiodinases. These enzymes are involved in maintaining serum levels of T3. Research is now focussed on deiodinase D2 and D3, as these seleno-enzymes have been found to locally increase or decrease thyroid hormone signalling in tissues independent of serum thyroid hormone levels.

Many practitioners have patients who are showing hypothyroid symptoms, but their T3 and TSH are normal. The above information helps to explain that 'cellular hypothyroidism' may be taking place in these patients (i.e. there is a cellular, localised change that is not yet present in the blood). This highlights the importance of mineral balancing for optimal thyroid functioning, particularly regarding selenium, zinc and copper and the impact of heavy metals.

Gereben, B. et al. Cellular and Molecular Basis of Deiodinase Regulated Thyroid Hormone Signaling. Endocrin. Rev. 29, 7, 2008.

Magnesium Might Improve Outcomes after Subarachnoid Haemorrhage

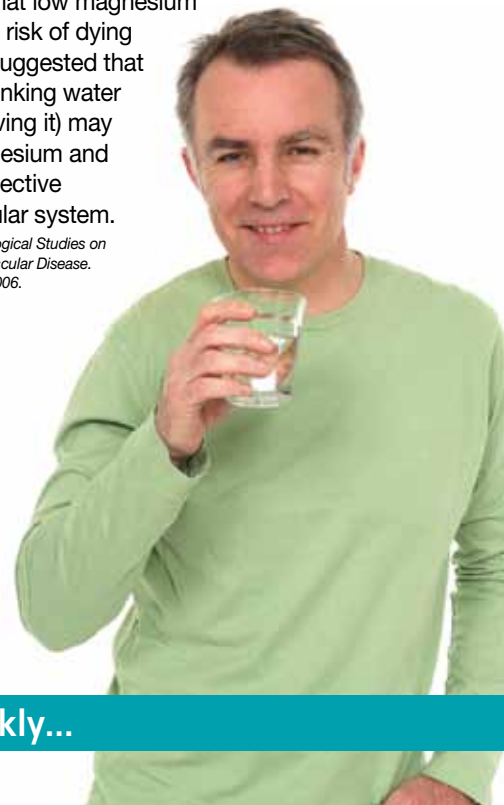
Patients who initially survive aneurysmal subarachnoid hemorrhage (SAH) are at risk for death from delayed cerebral ischemia caused by vasospasm. To determine whether treatment with magnesium sulfate reduces these events, researchers randomized 107 patients with acute SAH who were admitted to a neurosurgical intensive care unit in Germany to receive intravenous magnesium sulfate or placebo. Patients then received tapering oral doses for 12 days. The incidence of delayed ischemic infarction was significantly lower in the magnesium group than in the control group (22% vs. 51%). Likewise, the incidence of vasospasm was significantly lower in the magnesium group (67% vs. 85%).

Kristi L. Koenig, MD, FACEP. Published in Journal Watch Emergency Medicine April 30, 2010.

Drinking Water and Heart Disease

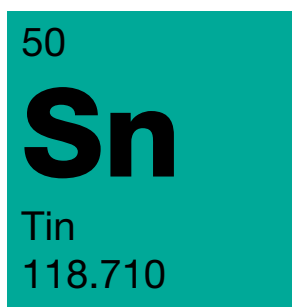
Many studies have shown a protective effect of hard (mineralised) water on cardiovascular disease mortality. Hard water contains greater amounts of the minerals calcium (ionic) and magnesium when compared to soft water. As many epidemiological studies support the hypothesis that low magnesium intake could increase the risk of dying from heart disease, it is suggested that adding magnesium to drinking water (or at the least, not removing it) may be beneficial. Both magnesium and ionic calcium have a protective effect on the cardiovascular system.

Monarco, S. et al. Review of Epidemiological Studies on Drinking Water Hardness and Cardiovascular Disease. Eur. J. Cardiovas. Prev. Rehab. 13, 4, 2006.



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

Part Three of HTMA and the Lesser Known Trace Minerals



Tin

Chemical Structure

Tin is a soft, pliable, silvery-white metal that is not easily oxidized and resists corrosion. It possesses a highly crystalline structure and is classified as a transitional metal with other notable metals such as aluminium and lead. It has the

advantageous combinations of a low melting point, malleability, resistance to corrosion and fatigue, and the ability to alloy with other metals.¹ Tin is a trace or micro mineral, and has an atomic number of 50 in the periodic table of elements. It is resistant to attack by sea, distilled, or soft tap water, but it will corrode in strong acids, alkalis, and acid salts and the presence of oxygen in a solution accelerates the rate of corrosion.²

Sources

Cassiterite (SnO_2) is by far the most important tin ore, although small amounts of tin are recovered from sulphide minerals such as stannite ($\text{Cu}_2\text{FeSnS}_4$).³ Tin occurs in both primary and secondary deposits with the concentration of tin in soil and water is relatively low ranging from 1 – 4ppm (parts per million).⁴

The main sources of tin entering the human body tends to be from canned foods, cereal grains, dairy, meats, fruits, vegetables, seaweed, soil, water, environmental pollution, cosmetics, dental care products and toothpastes. Natural sources of tin can be found in various vegetables and fruits (amount contained may vary according to soil in region grown), herbal plants (liquorice, bilberry, milk thistle, juniper, valerian, nettle, couch grass, senna and others). Other main sources come from industry in the form of environmental pollution, food packaging and metallic coatings.

Absorption and Excretion

The estimated daily intake of tin from food and water (excluding canned food) is 1 – 4mg per day, mainly from organic forms.⁵ Tin is not believed to be an essential mineral for nutrition and there is no established RDI (Recommended Daily Intake). The main cellular interactions with tin include; synergists: nickel, iodine, B1, Vit C and antagonists: iron, calcium, copper, chloride, B2, Vit E, zinc and bismuth. In humans, ingestion of tin has been shown to lower the net retention of zinc and can also alter the excretion of selenium.⁶

Tin is found in human tissues and in the greatest amounts in the supra-renal glands, lymph nodes, bone, liver, brain, spleen, kidneys and thyroid gland.⁷ Target organs include: eyes, skin and respiratory system. Levels in humans show: Blood: 0.38 mg dm⁻³, Bone: 1.4ppm, Liver: 0.23-2.4ppm, Muscle: 0.33-2.4ppm, Daily Dietary Intake: 0.2-3.5 mg, Total mass in an average 70kg human is approximately 20 mg.⁸ The gastrointestinal absorption of tin is low, and the solubility and bioavailability of inorganic tin compounds varies and is dependent on the oxidation state.⁹ The majority of ingested inorganic tin is excreted in the faeces (95-99%) with the remainder in urine.

Functions and Applications

One of the oldest and traditional uses of tin is in combination with copper to make bronze. There are many important uses

for tin from industry. Most is used to produce tinplate, or steel coating with tin which is used for food packaging. Tin and tin alloys are used also for solder, especially in the electronics industry. It is commonly used as an alloy for bearing metal and as an alloy in metallic coatings. Another large application for tin is corrosion-resistant tin plating of steel. Because of its low toxicity, tin-plated metal is also used for food packaging, giving the name to tin cans, which are made mostly of steel. Electro-plating is also an important application of tin used in kitchen utensils, spray recipients and shaving foam, ink cans, electronic components, integrated circuits, clips, pins.

Inorganic compounds of tin are used in ceramics and glazes. Organic compounds of tin are used in plastics, wood preservatives, pesticides and in fire retardants. Some of the tin organic compounds have several applications as fungicides and insecticides for the agriculture and still as wood, textile and paper preservers.

Tin salts sprayed onto glass are used to produce electrically conductive coatings. Most window glass is made by floating molten glass on molten tin to produce a flat surface. The more important tin compound is the tin dioxide (SnO_2), used in electric resistors and dielectrics, and the tin monoxide that it is used in the production of tin salts for electroplating and as chemical reagents. The tin compounds that contain lead, barium, calcium and copper are indispensable in the production of electric capacitors. Tin fluoride also called stannous fluoride is used as an additive in commercial toothpastes.

There is no proven biological function for tin in the human body.⁹ In animal studies, it has been shown that a deficiency of tin contributes to poor growth and hearing loss and may have cancer prevention properties.¹⁰ In a two year study with humans, tin appeared to show some positive benefits for depression, fatigue, pain, skin problems, and digestion.¹¹

Toxicity and Excess

Tin as organic compounds exhibit varying degrees of toxicity, with Triethyltin considered to be the most dangerous form for humans.¹² The effects of organic tin substances can vary depending on the kind of substance that is present and the level of exposure to the organism. Humans can absorb tin bonds through food, inhalation through breathing and through the skin.¹³ The uptake of tin can cause acute and long term chronic effects. Acute effects may include; eye and skin irritations, headaches, gastrointestinal upsets (vomiting, diarrhoea, cramps), dizziness, severe sweating, breathlessness and urination problems.¹⁴ Long term effects may include; depression, liver damage, immune dysfunction, cognitive dysfunction (anger, sleeping disorders, forgetfulness), shortage of red blood cells and chromosomal damage.¹⁵

Analysis in HTMA

Tin is measured as an additional element in a HTMA. As tin is biologically inert in the body, it does not serve any main biological function. Low levels of tin in a HTMA are considered to be 0.09 ppm or below and any reading above 0.09ppm up to 0.30ppm is considered to be in the high reference range and may be of more clinical significance. The levels in the body may correlate with previous exposure from various sources and may indicate residual build up over time if there has not been an acute exposure.

Hair Tissue Mineral Analysis 2011 Practitioner Seminar Series

A COMPREHENSIVE OVERVIEW OF ...

TOXINS IN THE 21ST CENTURY

How to Identify, Treat, Protect & Chelate using Natural Medicines

SUMMARY SEMINAR OUTLINE:

HTMA Primary Course (Saturday)

Introduction to HTMA in Clinical Practice

- Importance of mineral ratios
- Mineral synergists and antagonists
- Metabolic Typing
- Case studies

HTMA Advanced Course (Sunday)

Toxins in the 21st Century

- Heavy metals, PCBs, BPA, toxins in the home
- Foods, lifestyle and endogenous toxins
- How to treat and chelate toxins in the body
- Case studies

PRESENTED BY:



Zac Bobrov
Technical Director,
InterClinical Laboratories



Brad McEwen MHS, BHSc
Naturopath, Herbalist,
Lecturer and Researcher

SEMINAR DATES & VENUES:

Adelaide:	21st & 22nd May 2011	Crowne Plaza
Melbourne:	28th & 29th May 2011	Park View Hotel
Perth:	11th & 12th June 2011	Seasons of Perth
Sydney:	18th & 19th June 2011	Vibe Hotel
Brisbane:	25th & 26th June 2011	Diana Plaza
Auckland:	6th & 7th August 2011	Mercure Hotel

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this seminar.

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