



# InterClinical Laboratories Practitioner Newsletter

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## 2013 SEMINAR SERIES ANNOUNCEMENT

Autumn is here and we are excitedly preparing for our annual upcoming Seminar Series starting in Perth on the 19th of May and ending in Sydney in July. We are excited to announce our guest lecturer Gary Moller, a renowned Nutritional and Sports Medicine consultant, blogger and athlete. Gary and our very own Mr Zac Bobrov are touring around Australia and New Zealand for full-day seminars for the 2013 series; **Adrenals, Thyroid and Important Nutritional Endocrine Relationships** – *Advanced Hair Tissue Mineral Analysis Seminar and Workshop*.

This year, we have taken all your feedback and are hosting a full-day seminar to really focus on improving practitioner skills at utilising HTMA in your clinic. This year, by including an interactive workshop component, we hope to address any individual concerns you may have about this testing. We are proud of our highly professional and unparalleled 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 brochure and Registration Form, or you can register through our website; under the 'Events' tab. Hurry and register early to receive our early bird discount on registration!

In this newsletter, Gary Moller gives us a small taste of what to expect from his lecture in regard to patients, adrenals and *Running on empty: why athletes eventually run out of gas!* Also in the newsletter is an extension of our educational monographs on the Additional Elements, this time with Tungsten. 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 to thank you for your ongoing support and hope that we can see you soon in person at one of our 2013 seminars.

Yours in health,  
*The Team at InterClinical Laboratories.*

## Practitioner Clinical Updates

### Running On Empty **WHY ATHLETES EVENTUALLY RUN OUT OF GAS**

**W**hy is it that elite athletes have roughly ten years of peak performance in them after which the slow decline begins?

If an athlete starts training hard at 16, he or she will peak several years later, then slowly decline from their late 20's. If they start at 30, they will peak 5-10 years later and then begin their slow decline. Veteran New Zealand runners like Jack Foster and John Campbell are good examples. Despite being late-comers to the international running scene, both set several world class times in their late 30's and 40's. Both had a good ten to fifteen years at the top before gradually losing form.

While some of this decline is due to the inexorable processes of ageing, this is not entirely the case as is indicated by the extraordinary careers of late starters such as Foster and Campbell.

Let me explain what I think happens as athletes get older by referring to the case of former national level runner, Alastair Leslie (Alastair has given permission for his personal information to be used in writing this article).

*Continued overleaf*



*Alastair Leslie*

Hair Tissue Mineral  
Analysis Pathology

Nutritional, Herbal and  
Natural Medicines

Practitioner Education

Research and  
Development

As a 16 year old, Alastair Leslie was one of New Zealand's most promising middle distance track athletes. Coached by the legendary Arthur Lydiard, Alastair turned out a number of impressive performances between 1975 and 1990:

- 100m - 11.6s
- 400m - 50.5s
- 500m - 1:51.07
- 1500m - 3:44.60
- Mile - 4:02.28
- 5,000m - 14.11
- Half marathon - 1hr 7minutes.

He raced John Walker, Rod Dixon and other international stars of the 80's before beginning the inevitable slow decline into exhaustion from which he has never recovered. Now 52 years old, Alastair is still feeling distinctly tired - "burned out" - and struggling to exercise enjoyably. Rest has not made the problem go away.

Alastair looks remarkably fit and healthy. However, he has tell-tale signs that all is not well - such as not handling stress quite as well as he might have in the past, insomnia, dry thin skin, poor exercise capacity and constantly tired. He feels like he is "Running on Empty".

Alastair's Hair Tissue Mineral Analysis (HTMA) highlights several nutrition factors, other than ageing, that may be contributing to his "Tired Athlete" condition.

Alastair's HTMA (below) is typical of those for tired athletes - he really is running on empty - most nutrients appear to be precariously low - ideally, each being within the "Reference Range".

Low magnesium (Mg) and calcium (Ca) may compromise muscle and nerve function. Low sodium (Na) and potassium (K) indicate poor adrenal function and possibly thyroid and blood pressure problems. Low copper (Cu) relative to zinc (Zn) and low manganese (Mn) may lead to weak connective tissue, brittle bones and an unhealthy cholesterol profile. High chromium (Cr) to manganese is associated with insulin resistance and problems with blood sugar regulation. There is more; but I am sure you get the point: there's a lot going on!

Of interest is the presence of mercury (Hg) and lead (Pb). This is a common finding, presumably due to the contamination of our environment and food chain through the increasing use of chemicals, metals and the burning of fossil fuels. Mercury, in this case, is probably due to eating canned tuna most days, rather than via dental amalgam. Lead contamination can be from many sources, including stripping off old paint during home renovations. Low adrenal and thyroid function may turn a person into an "accumulator" of toxins, rather than being an "excretor".

Lead and mercury bind with nutritional elements such as zinc, iron, calcium, selenium and magnesium, rendering them unavailable for biological use. Mercury's effect on selenium (Se) and zinc, for example, interferes with their role of protecting skin cells from UV damage and preventing chronic inflammation. This process may be a precursor to many cancers, including breast and prostate cancer.

My experience with the HTMA is that people in New Zealand and Australia who work with their hands tend to have elevated arsenic, presumably from working with arsenic treated timber. This may partially explain soaring rates of prostate cancer which seems to be affecting tradesmen and farmers more than others.

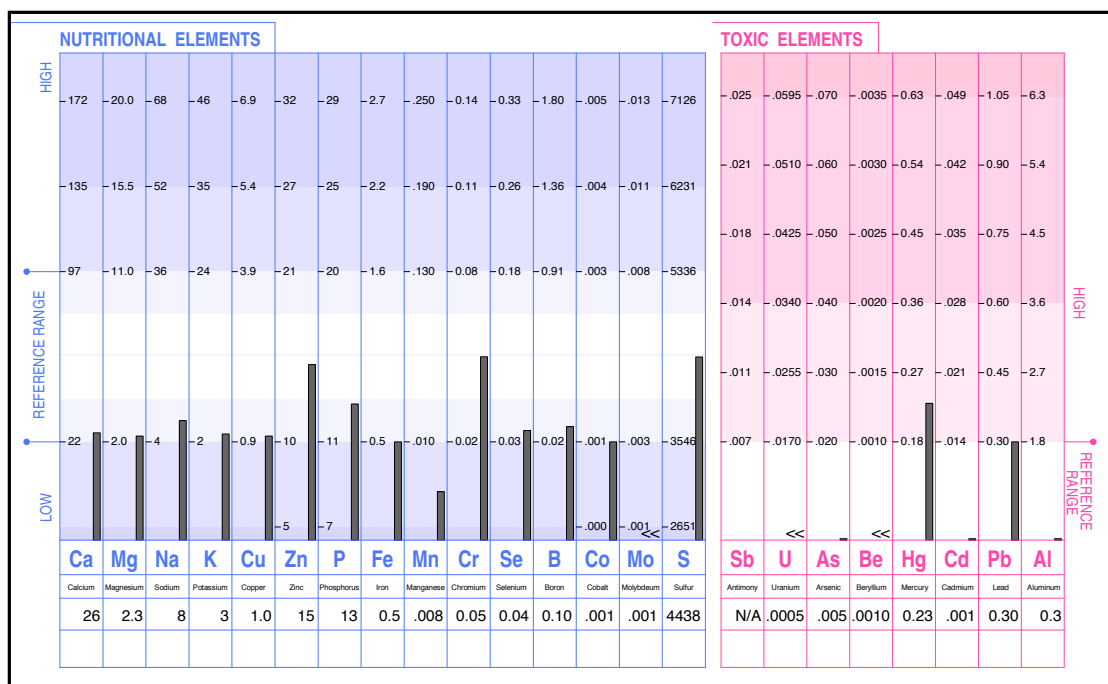
Alastair's HTMA profile is indicative of trends towards depression and fatigue. It is hardly a surprise if a person is tired and grumpy when they are running on empty.

We can conclude from Alastair's HTMA that a good deal of what he may be attributing to ageing is actually somewhat controllable.

Alastair is gradually restoring his health and running "mojo" through a personalised programme of nutritional balancing. His HTMA helps to take out the guessing of what foods and nutrients to include or exclude. It will be repeated at regular intervals to monitor his progress and to fine tune the programme.

Thanks Alastair for allowing us to share your story.

By **Gary Moller**  
(DipPhEd, PGDipRehab, PGDipSportMed (Otago) Nutritional Specialist)



High HTMA zinc and chromium relative to low manganese and molybdenum, may actually be losses of these minerals (Zn and Cr) from the body stores and therefore indicate deficiency.

# Part Nine of HTMA and the Lesser Known Trace Minerals

## Tungsten

74

W

Tungsten  
183.84

### Chemical Structure

Tungsten is a very hard, dense, silvery-white, lustrous metal. It belongs to the transitional group of mineral elements. It is also known as Wolfram (hence the anatomical symbol of W), meaning heavy stone. Tungsten tarnishes in air, forming a protective oxide coating that is very resistant to corrosion.

It is one of the five major refractory metals (metals with very high resistance to heat and wear). The other refractory metals are niobium, molybdenum, tantalum, and rhenium. Tungsten has the highest melting point and lowest vapour pressure of all metals, and at temperatures over 1650°C has the highest tensile strength.<sup>1</sup> Tungsten oxidises in air and has excellent corrosion resistance and is attacked only slightly by most mineral acids.<sup>2</sup>

### Sources

#### Environment

Tungsten is not found free in nature. It occurs naturally in the environment, in minerals, but not as the pure metal.<sup>3</sup> Tungsten occurs in the natural state only in the form of chemical compounds with other elements. Although more than twenty tungsten bearing minerals are known, only two of them are important for industrial use, namely wolframite (an iron manganese tungstate) and scheelite (calcium tungstate,  $\text{CaWO}_3$ ). Commercially, the metal is obtained by reducing tungsten oxide with hydrogen or carbon. You can be exposed to low levels of tungsten by breathing air, drinking water, or eating food that contains tungsten. Although very limited data are available, exposure to tungsten from air, drinking water, and food is expected to be insignificant.<sup>4</sup> The average ambient concentration of tungsten in air has been reported to be less than 10nanograms in a cubic meter of air (1nanogram is 1 billionth of a gram).<sup>5</sup>

#### Diet

There are no known food sources of tungsten. Ingestion of tungsten may occur in foods through environmental industrial contamination or from soil. The amount of tungsten found in foods is generally not known, in plants it may be taken up as a component of the soil.

### Absorption and Excretion

Tungsten can enter your body from the food you eat or the water you drink, from the air you breathe, or from contact with the skin. Approximately 55 to 92% of ingested tungsten is absorbed through the gastrointestinal tract.<sup>6</sup> Once absorbed, tungsten is distributed throughout the body with the highest

concentrations initially in the bone and kidneys, with long term retention mainly in bone. Tungsten is not metabolised, and is eliminated mainly through faeces or urine. Most absorbed tungsten is eliminated several days after exposure, however, tungsten stored in bone is slowly released and excreted.<sup>7</sup> Normal human levels of Tungsten blood and urine levels of 1–6 µg/L and 0.085 µg/L, respectively, have been measured in the general population.<sup>8</sup>

### Functions and Applications

Tungsten, at atomic number 74 on the periodic table, is the heaviest element known to be biologically functional.<sup>9</sup> Tungsten has been studied as a biological copper metabolic antagonist, in a role similar to the action of molybdenum.<sup>10</sup> Although not in eukaryotes, tungsten is used by some bacteria.<sup>11</sup> For example, enzymes called oxidoreductases use tungsten similarly to molybdenum by using it in a tungsten-pterin complex with molybdopterin (molybdopterin, despite its name, does not contain molybdenum, but may complex with either molybdenum or tungsten in use by living organisms).

Tungsten and its alloys are widely used for filaments in older style (not energy saving) electric bulbs and electronic tubes and as the filament in halogen tungsten lamps. These lamps use halogens like bromine and iodine to prevent the tungsten filament from degrading and are therefore more energy efficient than standard incandescent light bulbs. High speed steel (which can cut material at higher speeds than carbon steel), contains up to 18% tungsten. Tungsten is used in heavy metal alloys because of its hardness and in high-temperature applications such as welding. Tungsten carbide (WC or W2C) is extremely hard and is used to make drills. It is also used for jewelry because of its hardness and wear resistance.

### Toxicity and Excess

Tungsten is not considered toxic for humans, within tolerable amounts from environmental exposure.<sup>12</sup> Acute health effects from exposure may include; irritation to the skin and eyes on contact that will cause watering and redness.<sup>13</sup> Inhalation will cause irritation to the lungs and mucus membrane.<sup>14</sup> There have been no known chronic health effects from tungsten.<sup>15</sup>

### Analysis in HTMA

Tungsten is analysed and measured in HTMA as an additional mineral element. In HTMA, low levels below 0.001ppm, may not be of any clinical significance. The presence of elevated levels above 0.017ppm may correlate with previous exposure from an external or environmental source. This may be of some clinical significance with its possible interactions with molybdenum and copper.

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

#### SEMINAR DATES & VENUES:

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

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for group  
bookings

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## Do your patients require Adrenal support?

Aden Complex is specially formulated to assist optimal adrenal function. With a rich blend of botanical extracts, vitamins and essential minerals, Aden Complex utilizes the best of nature's ingredients to support healthy adrenal activity.

This synergistic blend of nutrients and herbs act by encouraging healthy adrenal function and neuroendocrine activity. With Vitamins B1, B5, B6, C and sodium, potassium, zinc, liquorice, ginseng and ginger, this robust formula has always been one of our most popular nutritional support products.

May be of assistance in both over active and under active adrenal function.

**Support your patients' needs better by using  
"Trace Nutrients" in your practice today!**

**Always read the label. Use as directed.**

Formulated by Dr David L. Watts for professional recommendation.

For more information, please contact:



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