



**InterClinical Laboratories Pty Limited**  
 ABN 89 076 386 475  
 PO Box 6474, Alexandria NSW 2015 Australia  
 Ph: 02 9693 2888 Fax: 02 9693 1888  
 Email: lab@interclinical.com.au

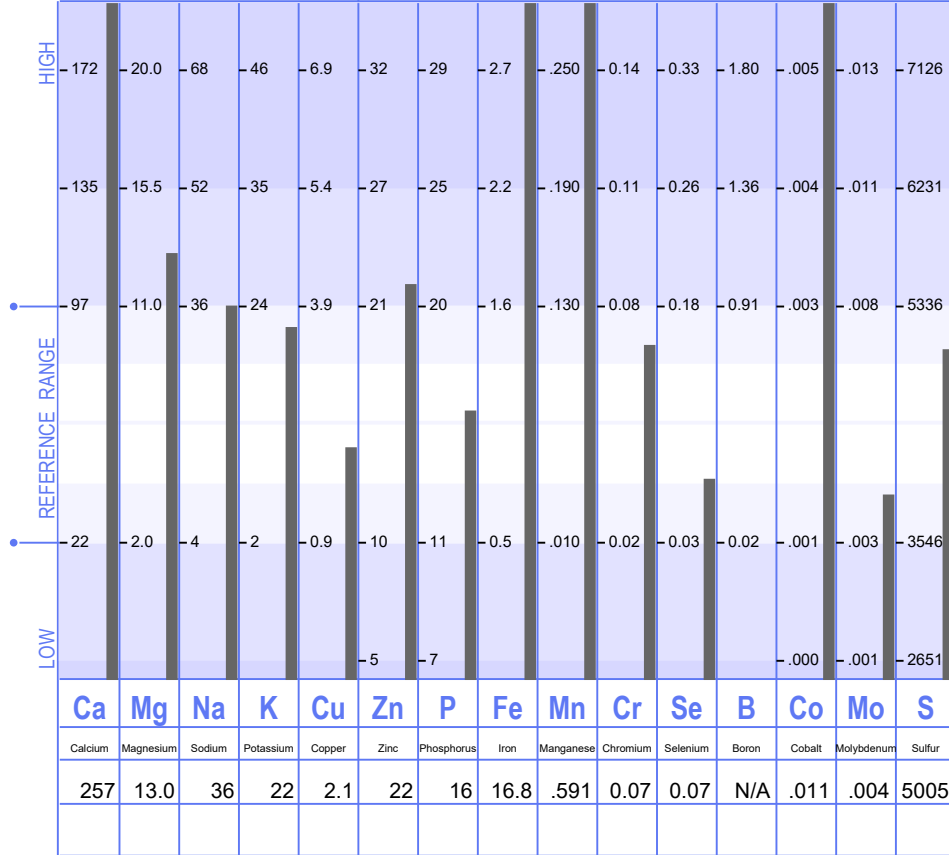
LABORATORY NO.: **999999**

PROFILE NO.: **2** SAMPLE TYPE: **SCALP**

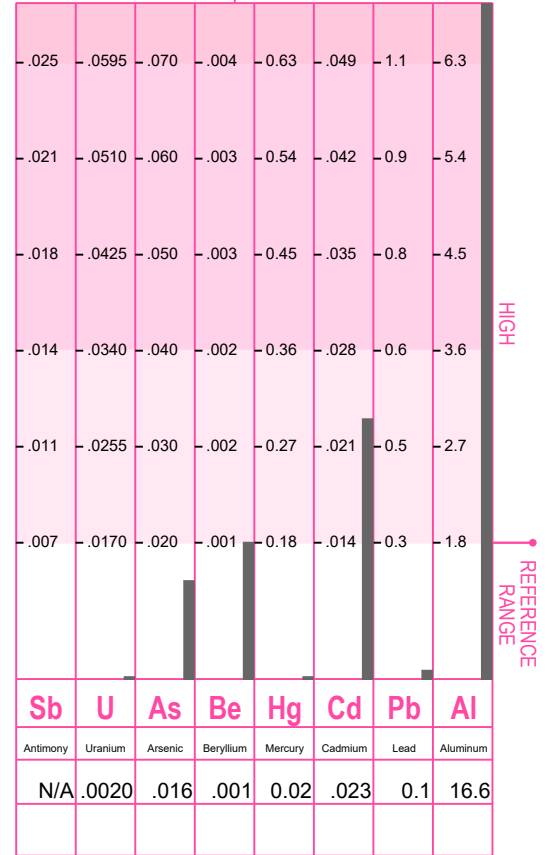
PATIENT: **XXXXXXXXXX** AGE: **45** SEX: **M** METABOLIC TYPE: **SLOW 1**

REQUESTED BY: **XXXXXXX** ACCOUNT NO.: **2216** DATE: **21/10/2019**

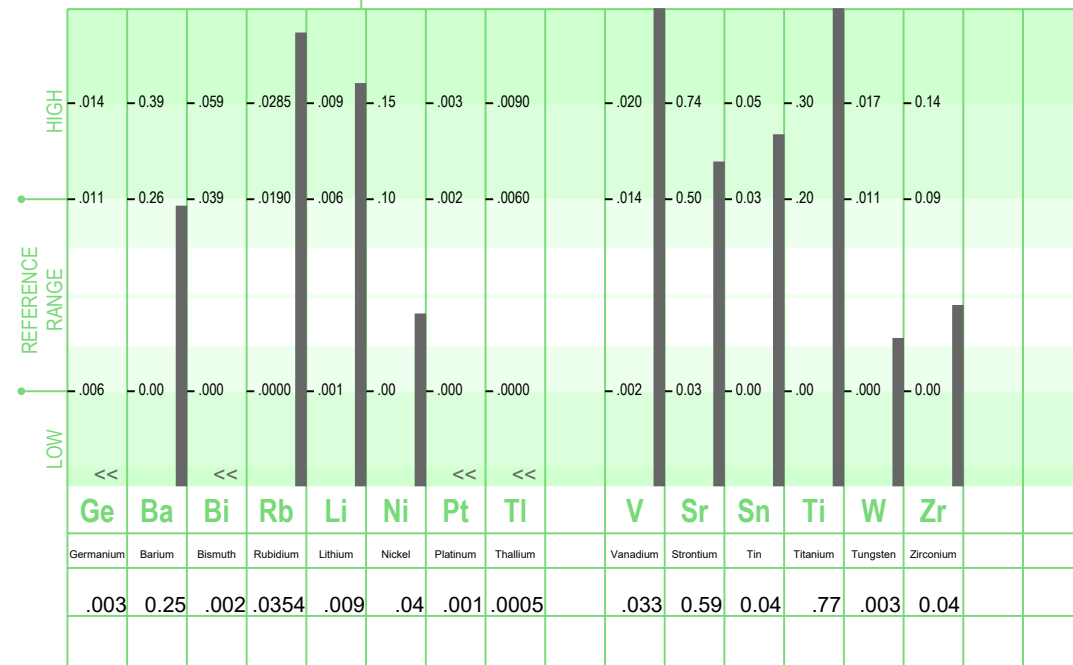
**NUTRITIONAL ELEMENTS**



**TOXIC ELEMENTS**



**ADDITIONAL ELEMENTS**

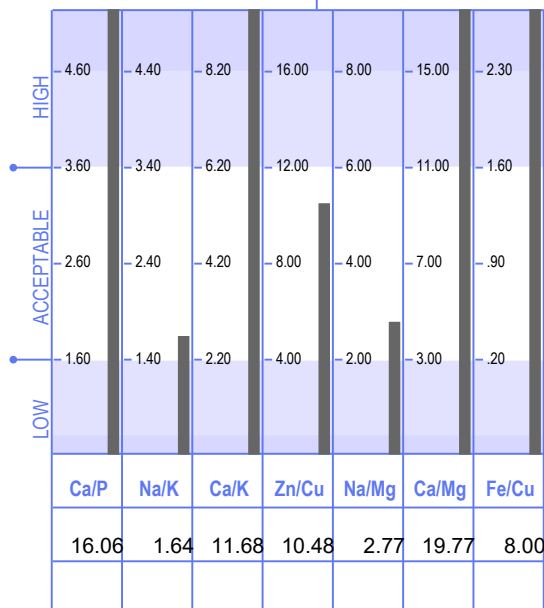


"<<": Below Calibration Limit; Value Given Is Calibration Limit  
 "QNS": Sample Size Was Inadequate For Analysis.  
 "N/A": Currently Not Available  
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.  
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory. No. 45 D0481787

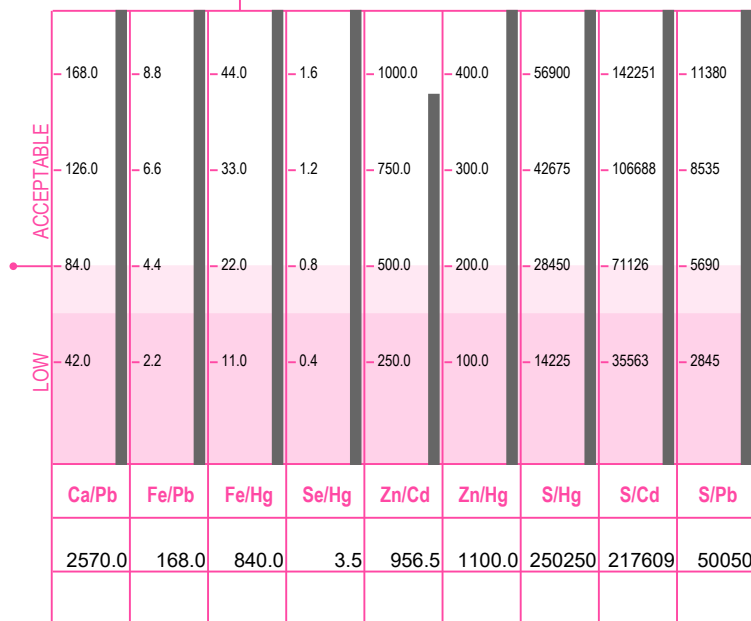
21/10/2019  
 CURRENT TEST RESULTS

PREVIOUS TEST RESULTS

### SIGNIFICANT RATIOS



### TOXIC RATIOS



### ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	435.59		131/1
Cr/V	2.12		13/1
Cu/Mo	525.00		625/1
Fe/Co	1527.27		440/1
K/Co	2000.00		2000/1
K/Li	2444.44		2500/1
Mg/B	N/A		40/1
S/Cu	2383.33		1138/1
Se/Tl	140.00		37/1
Se/Sn	1.75		0.67/1
Zn/Sn	550.00		167/1

### LEVELS

All mineral levels are reported in milligrams percent (milligrams per one-hundred grams of hair). One milligram percent (mg%) is equal to ten parts per million (ppm).

### NUTRITIONAL ELEMENTS

Extensively studied, the nutrient elements have been well defined and are considered essential for many biological functions in the human body. They play key roles in such metabolic processes as muscular activity, endocrine function, reproduction, skeletal integrity and overall development.

### TOXIC ELEMENTS

The toxic elements or "heavy metals" are well-known for their interference upon normal biochemical function. They are commonly found in the environment and therefore are present to some degree, in all biological systems. However, these metals clearly pose a concern for toxicity when accumulation occurs to excess.

### ADDITIONAL ELEMENTS

These elements are considered as possibly essential by the human body. Additional studies are being conducted to better define their requirements and amounts needed.

### RATIOS

A calculated comparison of two elements to each other is called a ratio. To calculate a ratio value, the first mineral level is divided by the second mineral level.

EXAMPLE: A sodium (Na) test level of 24 mg% divided by a potassium (K) level of 10 mg% equals a Na/K ratio of 2.4 to 1.

### SIGNIFICANT RATIOS

If the synergistic relationship (or ratio) between certain minerals in the body is disturbed, studies show that normal biological functions and metabolic activity can be adversely affected. Even at extremely low concentrations, the synergistic and/or antagonistic relationships between minerals still exist, which can indirectly affect metabolism.

### TOXIC RATIOS

It is important to note that individuals with elevated toxic levels may not always exhibit clinical symptoms associated with those particular toxic minerals. However, research has shown that toxic minerals can also produce an antagonistic effect on various essential minerals eventually leading to disturbances in their metabolic utilization.

### ADDITIONAL RATIOS

These ratios are being reported solely for the purpose of gathering research data. This information will then be used to help the attending health-care professional in evaluating their impact upon health.

### REFERENCE RANGES

Generally, reference ranges should be considered as guidelines for comparison with the reported test values. These reference ranges have been statistically established from studying an international population of "healthy" individuals.

Important Note: The reference ranges should not be considered as absolute limits for determining deficiency, toxicity or acceptance.

## INTRODUCTION TO HAIR TISSUE MINERAL ANALYSIS (HTMA)

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Hair is used for mineral testing because of its very nature. Hair is formed from clusters of specialized cells that make up the hair follicle. During the growth phase the hair is exposed to the internal environment such as blood, lymph and extra-cellular fluids. As the hair continues to grow and reaches the surface of the skin its outer layers harden, locking in the metabolic products accumulated during the period of formation. This biological process provides a blueprint and lasting record of mineral status and nutritional metabolic activity that has occurred during this time.

The precise analytical method of determining the levels of minerals in the hair is a highly sophisticated technique: when performed to exacting standards and interpreted correctly, it may be used as a screening aid for determining mineral deficiencies, excesses, and/or imbalances. HTMA provides you and your health care professional with an economical and sensitive indicator of the long-term effects of diet, stress, toxic metal exposure and their effects on your mineral balance that is difficult to obtain through other clinical tests.

It is important for the attending healthcare professional to determine your mineral status as minerals are absolutely critical for life and abundant health. They are involved in and are necessary for cellular metabolism, structural support, nerve conduction, muscular activity, immune functions, anti-oxidant and endocrine activity, enzyme functions, water and acid/alkaline balance and even DNA function.

Many factors can affect mineral nutrition, such as; food preparation, dietary habits, genetic and metabolic disorders, disease, medications, stress, environmental factors, as well as exposure to heavy metals. Rarely does a single nutrient deficiency exist in a person today. Multiple nutritional imbalances however are quite common, contributing to an increased incidence of adverse health conditions. In fact, it is estimated that mild and sub-clinical nutritional imbalances are up to ten times more common than nutritional deficiency alone.

*The laboratory test results and the comprehensive report that follows should not be construed as diagnostic. This analysis is provided only as an additional source of information to the attending doctor.*

*Test results were obtained by a licensed clinical laboratory adhering to analytical procedures that comply with governmental protocol and standards established by Trace Elements, Inc. U.S.A. The interpretive data based upon these results is defined by research conducted by David L. Watts, Ph.D.*

## UNDERSTANDING THE GRAPHICS

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### **NUTRITIONAL ELEMENTS**

This section of the cover page graphically displays the test results for each of the reported nutritional elements and how they compare to the established population reference range. Values that are above or below the reference range indicate a deviation from "normal". The more significant the deviation, the greater the possibility a deficiency or excess may be present.

### **TOXIC ELEMENTS**

The toxic elements section displays the results for each of the reported toxic elements. It is preferable that all levels be as low as possible and within the lower white section. Any test result that falls within the upper dark red areas should be considered as statistically significant, but not necessarily clinically significant. Further investigation may then be warranted to determine the possibility of actual clinical significance.

### **ADDITIONAL ELEMENTS**

This section displays the results of additional elements for which there is limited documentation. These elements may be necessary for biochemical function and/or may adversely effect biochemical function. Further study will help to reveal their function, interrelationships and eventually their proper therapeutic application or treatment.

### **SIGNIFICANT RATIOS**

The significant ratios section displays the important nutritional mineral relationships. This section consists of calculated values based on the respective elements. Mineral relationships (balance) is as important, if not more so, than the individual mineral levels. The ratios reflect the critical balance that must be constantly maintained

between the minerals in the body.

**TOXIC RATIOS**

This section displays the relationships between the important nutritional elements and toxic metals. Each toxic metal ratio result should be in the white area of the graph, and the higher the better. Toxic ratios that fall within the darker red area may indicate an interference of that toxic metal upon the utilization of the nutritional element.

**ADDITIONAL RATIOS**

The additional ratios section provides calculated results on some additional mineral relationships. At this time, there is limited documentation regarding these ratios. For this reason, these ratios are only provided as an additional source of research information to the attending health-care professional.

**METABOLIC TYPE**

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This section of the report will discuss the metabolic profile, which is based on research conducted by Dr. D. L. Watts. Each classification is established by evaluating the tissue mineral results and determining the degree to which the minerals may be associated with a stimulating and/or inhibiting effect upon the main "energy producing" endocrine glands. These glands regulate nutrient absorption, excretion, metabolic utilization, and incorporation into the tissues of the body: the skin, organs, bone, hair, and nails. How efficiently each nutrient is utilized depends largely upon proper functioning of the endocrine glands.

**SLOW METABOLISM (TYPE #1)**

- \*\* Parasympathetic Dominant
- \*\* Tendency Toward Decreased Thyroid Function (reduced secretion of hormones)
- \*\* Tendency Toward Decreased Adrenal Function (reduced secretion of hormones)

The mineral pattern obtained from these test results is indicative of a slow metabolic (Type #1) pattern. This particular profile can be related to a number of contributing factors, such as;

- \* Diet - Dietary factors such as low protein intake, high carbohydrate intake and eating refined carbohydrates, especially those containing appreciable amounts of sugar have an indirect yet significant suppressing effect on the metabolic rate.
- \* Endocrine Function - Low thyroid activity as well as low adrenal gland function will contribute to a lowering of the metabolic rate.
- \* Digestion - Poor absorption and utilization of nutrients found in the foods that are consumed will result in decreased energy production on a cellular level, thereby, affecting metabolism. In turn, a lowered metabolic rate will have an adverse effect upon the digestion process, thereby, creating a vicious cycle.
- \* Viral Infections - A past occurrence of a severe or chronic viral infection can contribute to a decrease in the metabolic rate, due to the body's neuro-immunological response to infection.

After a prolonged period of time, a significantly reduced metabolic rate, such as indicated in these test results, has been correlated with the following characteristics:

- |  |                                |
|--|--------------------------------|
| Fatigue                                      | Dry Skin                       |
| Lethargy                                     | Water Retention                |
| Depression                                   | Cold Hands                     |
| Cold Feet                                    | Weight Gain in Thighs and Hips |
| Tendencies Toward Recurring Viral Infections |                                |

It should be noted that even though this patient may not be overweight at this time, he can still have a lowered metabolic rate, as overweight and underweight tendencies may not always be reflective of metabolism on the cellular level.

**NUTRIENT MINERAL LEVELS**

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This section of the report may discuss those nutritional mineral levels that reveal moderate or significant deviations from normal. The light blue area's of each graph section represent the reference range for each element based upon statistical analysis of apparently healthy individuals. The following section, however, is based upon clinical data, therefore an element that is moderately outside the reference range may not be commented on unless determined to be clinically significant.

**NOTE:**

For those elements whose levels are within the normal range, it should be noted that nutritional status is also dependent upon their critical balance with other essential nutrients. If applicable, discussion regarding their involvement in metabolism may be found in the ratio section(s) of this report.

**CALCIUM (Ca)**

The tissue calcium level is significantly higher than the ideal. This does not necessarily indicate that there is too much calcium, but rather the calcium is not being utilized properly.

**CONDITIONS ASSOCIATED WITH ELEVATED TISSUE CALCIUM**

Over 90% of the calcium in the body is stored in the bones and teeth. This reserve of calcium can be drawn upon by the body as the need arises. However, if the calcium is not being properly utilized, it may accumulate in tissue other than the bones and teeth. If this metabolic pattern has been present over a long period of

time excess accumulation may contribute to:

\* Joint Stiffness - If calcium accumulates in ligamentous structures surrounding the joints, stiffness may develop. This may be noticed especially in the mornings or after being in one position for an extended period. Stiffness may also be aggravated by cold weather. This type of stiffness will often improve after exercise or a warming-up movement.

\* Low Energy Levels - Calcium is considered a sedative mineral and when found to be excessive in the body is usually associated with decreased metabolism and energy levels.

Other trends for a man of this age with this calcium profile may include fatigue, depression, anemia, muscle cramps, insomnia, premature aging of the skin, osteoporosis (Type II), kidney and gallstones.

**SOME FACTORS THAT MAY CONTRIBUTE TO HIGH CALCIUM LEVELS**

There are a number of factors that are related to improper calcium utilization and which may lead to elevated tissue levels, even if dietary calcium intake is low.

\* Endocrine - Low thyroid and adrenal activity in conjunction with a relative increase in parathyroid function can contribute to an excessive deposition of tissue calcium.

\* Nutritional - Inadequate protein intake, excessive sugar and refined carbohydrate intake, high vitamin D intake, and increased requirements of other vitamins and minerals, such as; vitamin E and phosphorus.

**HYPOGLYCEMIA PROFILE**

According to this laboratory's research, slow metabolizers are prone to hypoglycemia (low blood sugar). This condition has become relatively common in modern society due to a number of factors, one of which is an improper diet. Hypoglycemia can be contributed to by dietary factors other than the commonly known factors of eating excess refined carbohydrates and sugars. Dairy products, fruit juices and foods high in fat content may also produce hypoglycemic symptoms. For this reason, observance of the dietary recommendations is of special importance for individuals at risk of hypoglycemic episodes.

The most common symptoms associated with hypoglycemia include, headaches, mood swings, lethargy, loss of concentration, and mid-afternoon loss of energy.

**MAGNESIUM (Mg)**

Magnesium is essential for muscle relaxation, protein synthesis, nerve excitability and energy production on a cellular level. However, when magnesium is in excess, it may contribute to (1) Fatigue, (2) Depression, (3) Somnolence, (4) Decreased Mental Alertness.

**SOME FACTORS THAT MAY CONTRIBUTE TO HIGH TISSUE MAGNESIUM LEVELS**

Some factors that may have contributed to elevated magnesium, other than possible excessive magnesium intake, include;

Low Protein Intake  
 Vitamin E Deficiency  
 Low Adrenal Activity

Vitamin B6 Deficiency  
 Elevated Tissue Calcium  
 Low Thyroid Function

**IRON (Fe)**

Elevation of tissue iron within the body is not unusual. Excess iron is stored in the liver, but if accumulation becomes too great, storage will then begin in other tissues of the body such as the kidneys, pancreas, joints, and eventually the brain.

**CONDITIONS ASSOCIATED WITH HIGH IRON**

Headaches  
 Pancreatic Disturbance  
 Allergies  
 Hives  
 Cardiac Irregularities

High Blood Pressure  
 Arthritis  
 Blood Sugar Disturbance  
 Liver Dysfunction

**ENVIRONMENTAL FACTORS CONTRIBUTING TO HIGH IRON LEVELS**

Excess iron accumulation within the body is most often due to excess intake or occupational exposure.

**SOURCES OF IRON**

High Iron Foods  
 High Iron Soils  
 Auto Shops  
 Welding Environment

Iron Cooking Utensils  
 Iron Water Pipes  
 Iron Nutritional Supplements

**SOURCES OF IRON (HERBS)**

Some herbs naturally contain significant levels of iron. At this time, the following herbs should be discontinued if presently being consumed.

Peppermint  
 Black Cohosh  
 Comfrey  
 Chamomile  
 Valerian Root  
 Cascara Sagrada

Chickweed  
 Goldenseal  
 Licorice Root  
 Alfalfa  
 Catnip  
 Chaparral

**FACTORS THAT MAY CONTRIBUTE TO IRON ACCUMULATION**

The following metabolic factors may contribute to iron accumulation, even in the absence of excessive iron exposure or intake:

- \* Copper Deficiency
- \* Excessive Alcohol Intake
- \* Cirrhosis
- \* Vitamin B6 Deficiency
- \* Infections (chronic)
- \* Excessive Vitamin C Intake

**MANGANESE (Mn)**

Your current manganese level is elevated. If manganese accumulation reaches extremely high levels, and becomes chronic, it may eventually give rise to:

Headaches  
 Tremors

Dizziness  
 Hyperactivity

Note: When manganese is found high in the hair tissue, it is frequently elevated along with iron or aluminum.

NOTE: A unusually high level of manganese may be from continued exposure, ingestion or inhalation from an environmental or external contaminating source, such as:

Electronics Industry  
 Steel Industry  
 Medications (some)

Gasoline (additives)  
 Fertilizers  
 Glass Manufacturing

**HERBAL SOURCES OF MANGANESE**

Some herbs contain significant levels of manganese. These may include:

Peppermint	Cascara Sagrada
Chickweed	Comfrey
Goldenseal	Black Cohosh

**COBALT (Co)**

The current cobalt level is elevated. Studies have found that industrial exposure to cobalt is associated with allergy symptoms and contact dermatitis. If this pattern becomes chronic, potential sources of this element should be evaluated and reduced.

**Sources of Cobalt:**

Cobalt metal and its compounds are used extensively for the production of:

High Temperature Alloys	Hard Metals
Diamond Tools	Drying Agents in Paints
Additives in Animal Feeds and Pigments	Salts Used for Electroplating

**GERMANIUM (Ge)**

Your germanium level of 0.003 mg% is below the established reference range for this trace element. However, deficiency signs and conditions have not yet been documented in humans. Therefore, clinical significance cannot be placed on a low germanium level at this time.

**RUBIDIUM (Rb)**

The current level of rubidium is elevated above the established reference range. Rubidium is a non-toxic element and is known to be associated with lithium. It is also frequently found to be elevated with potassium, however, its biological function remains to be seen. Therefore, significance of an elevated HTMA level is unknown at this time.

Sources include; fertilizers, corn and cereals. Rubidium is more commonly found in areas with acidic soils.

**VANADIUM (V)**

Your vanadium level of 0.033 mg% is above the established reference range for this element. Vanadium is antagonistic to the sulfur amino acids; cystine, cysteine and methionine. In human studies, excess vanadium intake inhibited cholesterol synthesis by way of squalene synthetase enzyme inhibition. However, it was also found that vanadium had no beneficial effect in lowering existing lipid levels in patients suffering from hypercholesterolemia or ischemic heart disease. Elevated vanadium is also antagonistic to vitamin C, and hemoglobin synthesis. Decreased hormone production, selective protein deficiencies and blood sugar disturbance could occur with excessive intake or exposure to this element. Environmental and occupational sources of vanadium include:

Petroleum Refining	Metal Refining
Boiler Cleaning	

**SYMPTOMS OF TOXICITY**

Excessive levels of vanadium can produce symptoms similar to respiratory tract infections. Acute toxicity can produce a greenish discoloration of the tongue.

**TITANIUM (Ti)**

The titanium level is above the established reference range for this element. Currently, there are no reported indications for the necessity of titanium, and additionally, there is no documentation for elevated levels of titanium. However, elevation in the hair should be viewed as an unnecessary exposure since high levels are not commonly found in the general population.

Note: Some sunscreens and hair treatments contain titanium which could be a source of artificially elevated

levels.

## NUTRIENT MINERAL RATIOS

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This section of the report will discuss those nutritional mineral ratios that reveal moderate or significant deviations from normal.

Continuing research indicates that metabolic dysfunction occur not necessarily as a result of a deficiency or excess of a particular mineral level, but more frequently from an abnormal balance (ratio) between the minerals. Due to this complex interrelationship between the minerals, it is extremely important that imbalances be determined. Once these imbalances are identified, corrective therapy may then be used to help re-establish a more normal biochemical balance.

NOTE: The "Nutritional Graphic" developed by researchers at Trace Elements, and presented on the cover of this report shows the antagonistic relationships between the significant nutrients, including the elements (arrows indicate antagonistic effect upon absorption and retention).

### HIGH CALCIUM/POTASSIUM (Ca/K) RATIO

High calcium relative to potassium will frequently indicate a trend toward hypothyroidism (underactive thyroid). The mineral calcium antagonizes the retention of potassium within the cell. Since potassium is necessary in sufficient quantity to sensitize the tissues to the effects of thyroid hormones, a high Ca/K ratio would suggest reduced thyroid function and/or cellular response to thyroxine. If this imbalance has been present for an extended period of time, the following symptoms associated with low thyroid function may occur.

Fatigue	Depression
Dry Skin	Over-weight Tendencies
Constipation	Cold Sensitivity

### HIGH CALCIUM/MAGNESIUM (Ca/Mg) RATIO

Calcium and magnesium should always be in a proper balance to one another. If this normal equilibrium is upset, one mineral will become dominant relative to the other. In this case, calcium is high relative to magnesium (see high Ca/Mg ratio), which may be indicative of abnormal calcium metabolism, resulting in excessive deposition of calcium into the soft tissues. In addition, even though the magnesium level is not low at this time, excess calcium relative to magnesium will suppress magnesium function within the body.

### MUSCULAR TENSION

Calcium and magnesium are important elements whose roles include involvement in muscular response. When not in a normal balance, an excess of tissue calcium relative to magnesium will frequently lead to constant muscular tension and contraction. If the muscles surrounding the urinary bladder are in a state of tension due to this error in mineral metabolism, the volume capacity within the bladder will be reduced. This condition may contribute to an increased frequency of urination due to the restricted size of the bladder.

### CALCULUS

A deficiency of magnesium relative to calcium (see high Ca/Mg ratio) may allow calcium to precipitate out of solution, which can contribute to calcium deposition into the urinary tract and gallbladder. Over an extended period of time, this profile has been correlated with increased tendencies toward kidney and gallstones.

### MINERAL METABOLISM AND VITAMIN B6

A deficiency of, or increased requirement for vitamin B6 (pyridoxine) leads to alterations in the metabolism, utilization and balance between calcium and magnesium. Calcium retention will increase and the excretion of magnesium will also increase when vitamin B6 is lacking. Therefore, an increased need for vitamin B6 may be indicated by your current HTMA pattern.

## TOXIC METAL LEVELS

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Hair is used as one of the tissue's of choice by the Environmental Protection Agency in determining toxic metal exposure. A 1980 report from the E.P.A. stated that human hair can be effectively used for biological monitoring of the highest priority toxic metals. This report confirmed the findings of other studies which concluded that human hair may be a more appropriate tissue than blood or urine for studying community exposure to some trace metals.

A heavy metal may be elevated in this HTMA and yet no known environmental exposure can be ascertained at this time. This is not unusual, as exposure may have originated years earlier. Additionally, research has found that heavy metals can be inherited by the fetus during pregnancy. Heavy metals can be found in the body for years following the original exposure and will remain in body tissues until removal is initiated. For example, the half-life of cadmium in some tissues will range from ten to thirty years.

**CADMIUM (Cd)**

The cadmium level is within the cautionary range. The following are some fairly common sources of cadmium:

- |                            |                        |
|----------------------------|------------------------|
| Tobacco                    | Zinc Smelters          |
| Burning Plastics           | Galvanized Water Pipes |
| Superphosphate Fertilizers | Auto Exhaust           |
| Electronics Industry       |                        |

**ALUMINUM (Al)**

As aluminum is the third most abundant element in nature, the body is continually exposed to this potentially toxic element. Once the aluminum exposure exceeds the body's own natural ability to eliminate the compound, it will begin to accumulate internally. Aluminum will accumulate in the lungs, brain, liver and the thyroid gland. When in excess, aluminum will have an adverse effect upon metabolism, often being associated with memory loss, confusion and depression.

Since aluminum is omnipresent in soils and waters, virtually all foods contain measurable amounts of natural aluminum. However, a much larger amount of aluminum compounds are typically ingested in the form of intentional additives, such as; preservatives, coloring agents, leavening agents, etc. Other sources include processed cheeses, spices, pickles and baked goods.

**SOME ADDITIONAL SOURCES OF ALUMINUM**

- |                         |                        |
|-------------------------|------------------------|
| Antacids (most)         | Treated Water          |
| Salt (some)             | Baking Powder (some)   |
| Aluminum Cookware       | Antiperspirants (some) |
| Buffered Aspirin (some) | Aluminum Cans          |
| White Flour (some)      | Vaccines (some)        |

**AVOID:**

- \* Antacids containing aluminum as hydroxide. This is a major source of ingested aluminum.
- \* Cooking acidic foods in aluminum cookware.
- \* Inhaling antiperspirant spray, especially those containing aluminum chlorohydrate.
- \* Nutritional supplements that contain Vanadium, which can enhance the adverse effects of elevated aluminum.

**POSSIBLE HERBAL SOURCES OF ALUMINUM**

Some herbs contain a significant amount of aluminum and therefore may be a source of your high level. For the time being, the following herbs should be discontinued if they are being taken.

- |            |               |
|------------|---------------|
| Peppermint | Black Cohosh  |
| Goldenseal | Chickweed     |
| Comfrey    | Licorice      |
| Alfalfa    | Valerian Root |
| Chamomile  |               |

**ALUMINUM (Al) RETENTION**

Aluminum retention can be affected by other mineral relationships, especially the calcium to magnesium relationship or ratio. Even though aluminum intake may not be excessive, small amounts may accumulate over

time leading to a build-up in the body. The current level of aluminum reported on your analysis may not be due to excessive aluminum exposure, but rather an inability to excrete it adequately. The current elevated Ca/Mg ratio indicates a predisposition toward enhanced aluminum retention. As this particular mineral ratio improves, aluminum excretion should ensue.

**NOTE:**

At this time, further confirmation of heavy metal toxicity using a blood test may or may not reveal an elevated level. This is due to the protective response of the body, in which following a toxic metal exposure, the element is sequestered from the blood and stored in various other tissues. Therefore, if the exposure is not ongoing or chronic, elevated levels in the blood may not be present. It is recommended that another analysis be performed in at least one year to monitor any changes in toxic metal accumulation.

## **TOXIC METAL RATIOS**

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**ALL CURRENT TOXIC METAL RATIOS ARE WITHIN THE ACCEPTABLE RANGE**

## **DIETARY SUGGESTIONS**

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The following dietary suggestions are defined by several factors: the individual's mineral levels, ratios and metabolic type, as well as the nutrient value of each food including protein, carbohydrate, fat, and vitamin and mineral content. Based upon these determinations, it may be suggested that foods be avoided or increased temporarily to aid in the improvement of your biochemistry.

**SLOW METABOLISM**

Dietary habits may contribute to slow metabolism. Low protein, high carbohydrate, high fat intake and the consumption of refined sugars and dairy products have an excessive slowing-down effect upon metabolism and energy production.

**GENERAL DIETARY GUIDELINES FOR THE SLOW METABOLIZER**

\* EAT A HIGH PROTEIN FOOD AT EACH MEAL...Lean protein is recommended and which should constitute at least 40% of the total caloric value of each meal. Recommended sources are fish, fowl and lean beef. Other good sources of protein include bean and grain combinations and eggs. Increased protein intake is necessary in order to increase the metabolic rate and energy production.

\* INCREASE FREQUENCY OF MEALS...while decreasing the total caloric intake for each meal. This is suggested in order to sustain the level of nutrients necessary for energy production, and decrease blood sugar fluctuations.

\* EAT A MODERATE AMOUNT OF UNREFINED CARBOHYDRATES...Carbohydrate intake should not exceed 40% of total daily caloric intake. Excellent sources of unrefined carbohydrates include whole grain products, legumes and root vegetables.

\* AVOID ALL SUGARS AND REFINED CARBOHYDRATES...This includes white and brown sugar, honey, candy, soda pop, cake, pastries, alcohol and white bread.

\* AVOID HIGH PURINE PROTEIN...Sources of high purine protein include: liver, kidney, heart, sardines, mackerel and salmon.

\* REDUCE OR AVOID MILK AND MILK PRODUCTS...Due to elevated fat content and high levels of calcium, milk and milk products including "low-fat" milk should be reduced to no more than once every three to four days.

\* REDUCE INTAKE OF FATS AND OILS...Fats and oil include fried foods, cream, butter, salad dressings, mayonnaise, etc... Fat intake should not exceed 20% of the total daily caloric intake.

\* REDUCE FRUIT JUICE INTAKE...until the next evaluation. This includes orange juice, apple juice, grape juice and grapefruit juice. Note: Vegetable juices are acceptable.

\* AVOID CALCIUM AND/OR VITAMIN D SUPPLEMENTS...unless recommended by physician.

**FOOD ALLERGIES**

In some individuals, certain foods can produce a maladaptive or "allergic-like" reaction commonly called "food allergies". Consumption of foods that one is sensitive to can bring about reactions ranging from fatigue or drowsiness to rashes, migraine headaches and arthritic pain.

Sensitivity to foods can develop due to biochemical (nutritional) imbalances, and which can be aggravated by stress, pollution and medications. Nutritional imbalance can further be contributed to by restricting food variety, such as eating only a small group of foods on a daily basis. Often a person will develop a craving for the food they are most sensitive to and may eat the same food or food group more than once a day.

The following section may contain foods that are recommended to be avoided. These foods should be considered as potential "allergy foods" or as foods that may impede a rapid and effective response. Consumption of these foods should be completely avoided for four days. After which, they should not be eaten more frequently than once every three days during course of therapy.

**FOODS THAT MAY AFFECT THYROID ACTIVITY**

The following list of foods belongs to a family of foods that are known to decrease thyroid activity when eaten in appreciable quantities. If an under-active condition is present, excessive consumption can contribute to symptoms associated with hypothyroidism, such as; fatigue, cold sensitivity, depression, weight gain, dry skin and hair, and constipation.

Intake of the following foods should be reduced considerably until the next evaluation:

- |            |                   |
|------------|-------------------|
| Cabbage    | Kale              |
| Rutabagas  | White Turnips     |
| Cole Slaw  | Flourides         |
| Sauerkraut | Horseradish       |
| Soybeans   | Chlorinated Water |
| Mustard    | Walnuts           |

**FOODS THAT CONTRIBUTE TO A REDUCTION IN METABOLIC RATE**

The following foods should be temporarily avoided or reduced until the next evaluation. They may contribute to a further lowering of an already low metabolic rate. Unlimited intake can contribute to fatigue, headaches, joint stiffness, water retention, and weight gain.

- |                   |                 |
|-------------------|-----------------|
| Swiss Cheese      | Turnip Greens   |
| Kale              | Blue Cheese     |
| Monterey Cheese   | Soybean Flour   |
| Mustard Greens    | Yogurt          |
| Mozzarella Cheese | American Cheese |
| Tortilla Roll     | Brewers Yeast   |
| Almonds           | Cheddar Cheese  |
| Sardines          | Kelp            |
| Hazelnuts         | Carob Powder    |
| Torula Yeast      | Pancake Mix     |
| Parmesan Cheese   | Cream           |
| Dulse             | Collards        |
| Dandelion Greens  | Broccoli        |

**THE FOLLOWING FOODS SHOULD BE AVOIDED UNTIL THE NEXT EVALUATION**

- |               |           |
|---------------|-----------|
| Sardines      | Mushrooms |
| Herring       |           |
| Enriched Milk |           |

**AVOID DIETARY FATS AND OILS UNLESS NOTIFIED OTHERWISE BY ATTENDING DOCTOR**

The handling of fats is difficult during a reduced metabolic state, and can contribute to a further reduction in the

metabolic rate. It is suggested that all sources of high dietary fat and oil be avoided until the next evaluation.

Salad Dressings	Cheese (most)
Cream	Butter
Hazelnuts	Walnuts
Margarine	Pork
Bockwurst	Milk
Salami	Peanut Butter
Bologna	Pork Links
Corn Chips	Almonds
Bacon	Knockwurst
Duck	Goose
Avocado	Braunschweiger
Cocoa Powder	Peanuts
Sardines (canned)	Tuna (canned in oil)
Avocado Oil	Liverwurst
Coconut Oil	

#### **VITAMIN B-1 AND THYROID HORMONE**

The following foods high in Vitamin B-1 may be increased in the diet until the next evaluation. Vitamin B-1 has been associated with increasing the effectiveness of thyroid hormone (thyroxine) upon metabolism.

Wheat Germ	Rice Bran
Pinto Beans	Lobster
Pike (broiled)	

#### **SPECIAL NOTE:**

This report contains only a limited number of foods to avoid or to increase in the diet. FOR THOSE FOODS NOT SPECIFICALLY INCLUDED IN THIS SECTION, CONTINUED CONSUMPTION ON A MODERATE BASIS IS ACCEPTABLE UNLESS RECOMMENDED OTHERWISE BY YOUR DOCTOR. Under some circumstances, dietary recommendations may list the same food item in the "TO EAT" and the "TO AVOID" categories at the same time. In these rare cases, always follow the avoid recommendation.

## **CONCLUSION**

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This report can provide a unique insight into nutritional biochemistry. The recommendations contained within are specifically designed according to metabolic type, mineral status, age, and sex. Additional recommendations may be based upon other supporting clinical data as determined by the attending health-care professional.

#### **OBJECTIVE OF THE PROGRAM:**

The purpose of this program is to re-establish a normal balance of body chemistry through individually designed dietary and supplement suggestions. Properly followed, this may then enhance the ability of the body to more efficiently utilize the nutrients that are consumed, resulting in improved energy production and health.

#### **REMOVAL OF HEAVY METALS:**

Re-establishing a homeostatic balance or equilibrium of body chemistry will enhance the body's ability to remove heavy metals naturally. The elimination of a heavy metal involves an intricate process of attachment of the metal to proteins, removal from storage areas, and transport to the eliminative organs for excretion. Improvement in one's nutritional balance will improve the capability of the body to perform these tasks and eliminate toxins more easily.

However, the mobilization and elimination of metals may cause temporary discomfort. As an example, if an excess accumulation of iron or lead is contributing to arthritic symptoms, a temporary flare-up of the condition may occur from time to time. This discomfort can be expected until removal of the excess metal is complete.

NO PART OF THIS INTERPRETIVE REPORT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR

BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR ANY INFORMATION STORAGE OR RETRIEVAL SYSTEM WITHOUT PERMISSION IN WRITING FROM TRACE ELEMENTS, INC., U.S.A.

InterClinical Laboratories Pty Limited

Unit 6/10 Bradford Street, Alexandria, N.S.W. 2015, Sydney, Australia

Ph: (02) 9693-2888 Fax: (02) 9693-1888

Email: [lab@interclinical.com.au](mailto:lab@interclinical.com.au)

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Authorized Representative for Australia and New Zealand

THE FOLLOWING RECOMMENDATIONS SHOULD BE TAKEN ONLY WITH MEALS IN ORDER TO INCREASE ABSORPTION AND TO AVOID STOMACH DISCOMFORT. IF DISCOMFORT OCCURS SUPPLEMENTATION CAN BE REDUCED TO A MINIMUM THEN INCREASED GRADUALLY.

RECOMMENDATION	AM	NOON	PM
PARA-PACK VEGAN	1	1	2
ADEN COMPLEX	2	2	2
MAGNESIUM PLUS	1	1	1
ACTIVATED B6 PLUS (Vitamin B6)	1	1	1
CHROMIUM PLUS	2	2	2
MANGANESE PLUS	1	0	1
VITAMIN C PLUS	1	0	0
HCL SUPPORT	1	1	1
SEL-E PLUS	1	1	1

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THESE RECOMMENDATIONS ARE BASED UPON THE MINERAL LEVELS FOUND IN THE HAIR TISSUE MINERAL ANALYSIS AND MAY AT TIMES NEED MODIFICATION AS PER SPECIFIC NEED AND/OR INDIVIDUAL CIRCUMSTANCES. THESE RECOMMENDATIONS ARE PROVIDED ONLY AS A PROFESSIONAL GUIDE TO SUPPLEMENTAL ASSISTANCE.

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THESE RECOMMENDATIONS MAY NOT INCLUDE MINERALS WHICH APPEAR BELOW NORMAL OR IN TURN MAY RECOMMEND MINERALS WHICH APPEAR ABOVE NORMAL ON THE HTMA GRAPH. THIS IS NOT AN OVERSIGHT. SPECIFIC MINERALS WILL INTERACT WITH OTHER MINERALS TO RAISE OR LOWER TISSUE MINERAL LEVELS, AND THIS PROGRAM IS DESIGNED TO BALANCE THE PATIENT'S MINERAL LEVELS THROUGH THESE INTERACTIONS.

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THESE RECOMMENDATIONS SHOULD NOT BE TAKEN OVER A PROLONGED PERIOD OF TIME WITHOUT OBTAINING A RE-EVALUATION. THIS IS NECESSARY IN ORDER TO MONITOR PROGRESS AND MAKE THE NECESSARY CHANGES IN THE NUTRITIONAL RECOMMENDATIONS AS REQUIRED.

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SPECIAL NOTE: NUTRITIONAL SUPPLEMENTS DO NOT TAKE THE PLACE OF A GOOD DIET. THEY ARE BUT AN ADDITIONAL SOURCE OF NUTRIENTS, AND THEREFORE, MUST NOT BE SUBSTITUTED FOR A BALANCED DIET.

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## INTRODUCTION

THE FOLLOWING REPORT SHOULD NOT BE CONSIDERED AS DIAGNOSTIC, BUT RATHER AS A SCREENING TOOL THAT PROVIDES AN ADDITIONAL SOURCE OF INFORMATION. THIS REPORT SHOULD ONLY BE USED IN CONJUNCTION WITH OTHER LABORATORY TESTS, HISTORY, PHYSICAL EXAMINATION AND THE CLINICAL EXPERTISE OF THE ATTENDING HEALTHCARE PROFESSIONAL.

TEST RESULTS WERE OBTAINED BY A LICENSED\* CLINICAL LABORATORY ADHERING TO TESTING PROCEDURES THAT COMPLY WITH GOVERNMENTAL PROTOCOL AND STANDARDS ESTABLISHED BY TRACE ELEMENTS, INC., U.S.A. THE FOLLOWING INTERPRETATION IS BASED UPON INTERNATIONAL DATA AND DEFINED BY EXTENSIVE CLINICAL RESEARCH CONDUCTED BY DAVID L. WATTS, PH.D.

This analysis including levels, ratios, ranges and recommendations are based upon the sample and sampling technique meeting the following requirements:

- \*\* Sample obtained from the mid-parietal to the occipital region of scalp.
- \*\* Sample is proximal portion of hair length (first 1" to 2" of hair closest to scalp.
- \*\* Sufficient sample weight (minimum of 150 mg.)
- \*\* High grade stainless steel sampling scissors.
- \*\* Untreated virgin hair (no recent perms, bleaching, or coloring agents).

\* Clinical Laboratory License

U.S. Department of Health and Human Services, State of Texas Department of Health,

Clinical Laboratories Improvement Act, 1988 No. 45-D0481787

## METABOLIC TYPE

### SLOW METABOLISM, TYPE #1

This patient is classified as a SLOW METABOLIZER TYPE # 1. Generally speaking, the Slow Metabolizer is experiencing the following endocrine and CNS activity. However, in those cases involving endocrine replacement therapy, such as; thyroid, insulin, adrenal steroids (anti-inflammatory drugs), etc., as well as endocrine antagonists and in extreme cases of surgical removal of a gland, tissue mineral patterns can be significantly affected. In these cases, the following reported indications of endocrine status should not be considered as representative of endocrine activity. Additional clinical tests and patient history should be taken into consideration.

Para-Sympathetic Nervous System Dominance	Parathyroid Activity Increased
Tissue Alkalinity	Thyroid Activity Decreased
Pancreatic Activity Increased	Hypochlorhydria
Adrenal Medullary Insufficiency	

Physical Characteristics May Include:

Fatigue	Orthostatic Hypotension
Low Body Temperature	Pear-Shaped Body Structure
Low Blood Pressure	Cold Extremities

There are several sub-classifications of each metabolic type, ranging from Type #1 to Type #4. This is taken into consideration on their supplement and dietary recommendations. The extent to which the patient is manifesting these metabolic characteristics depends upon the degree and chronicity of the mineral patterns.

### RE-EVALUATION

A re-evaluation is suggested at three months from the beginning of implementation of the TEI supplement program. However, if major symptomatic changes occur (other than from toxic metal removal), a retest can be submitted sooner.





**CALCULUS FORMATION:**

When the calcium to magnesium ratio is high, a relative magnesium deficiency exists. Magnesium is important for normal calcium metabolism. A magnesium deficiency relative to calcium may cause calcium to precipitate out of solution contributing to calcium deposition in the urinary tract and gall bladder. Vitamin B-6 along with magnesium aids in preventing calculus formation as a result of calcinosis.

**CARDIOVASCULAR IRREGULARITIES:**

An imbalance between the normal calcium to magnesium relationship can lead to cardiac irregularities such as arrhythmia, bradycardia, or tachycardia. This is especially true if potassium metabolism is disturbed leading to ECG abnormalities.

**COLITIS:**

Calcium and magnesium are necessary in a proper balance for normal muscular function. An elevation of calcium to magnesium is associated with a colitis-like condition. If calcium is elevated relative to magnesium, it may contribute to muscular tension.

**DERMATITIS AND COBALT:**

Excessive cobalt is known to produce skin reactions and dermatitis.

**DIVERTICULOSIS:**

A disturbance in the normal balance of calcium and magnesium can result in abnormal muscular contraction and relaxation. The present pattern indicates a possible disturbance in intestinal motility, and inflammation. This may be associated with some form of intestinal disturbance, such as, diverticulosis.

**DRY SKIN AND ELEVATED CALCIUM:**

Moisture of the skin is dependent upon adequate fluid retention in the cells. Excess calcium can cause a loss of cell fluid content or dehydration, thereby contributing to dry skin.

**HEADACHES AND IRON:**

Excess accumulation of iron and manganese in the tissues can produce migraine headaches. Iron induced headaches are often characterized by pressure sensations and may accompany dizziness and nausea.

**HIVES AND ELEVATED IRON:**

Excessive tissue accumulation of iron has been associated with skin problems similar to hives. The hives are usually round and reddish in color. They may occur as a result of ingesting food or water high in iron content.

**HYPOTHYROID:**

High calcium relative to potassium indicates a tendency toward a low thyroid function. It has been found that an elevated TSH, even when circulating T-3 and T-4 are normal, is an early indication of hypothyroidism.

**INSOMNIA:**

Two types of insomnia should be distinguished in order to determine effective treatment.

**INSOMNIA AND MAGNESIUM:**

Insomnia characterized by going to sleep but awakening frequently is associated with an increased magnesium requirement. The person who tosses and turns at night, even though he may be unaware of it, could be suffering from an increased need for magnesium.

**IRRITABILITY AND MAGNESIUM:**

Magnesium is considered a sedative mineral. This patient's magnesium level, although within the normal range, is indicative of a relative magnesium deficiency in relation to calcium. Therefore, a relative increase in its requirement may develop, resulting in occasional nervous irritability.

**OSTEOPOROSIS AND CALCIUM:**

Even though high tissue calcium is present in the slow metabolizer, an osteoporotic condition can still be a potential risk. Increased parathyroid activity will increase bone resorption and decrease calcium solubility. Therefore, calcium that is removed from the bone may not be entirely eliminated, resulting in a trend toward osteoporosis and calcinosis of soft tissues.

**PREMATURE AGING OF THE SKIN AND CALCIUM:**

Excess calcium deposition into soft tissue can reduce the normal fluid content of cells. This can then produce dryness, thickening and wrinkling of the skin, which is related to signs of premature aging.

**TOXIC METALS****CADMIUM (Cd):**

The cadmium level is within the cautionary range. The following are some fairly common sources of cadmium:

Tobacco	Zinc Smelters
Burning Plastics	Galvanized Water Pipes
Superphosphate Fertilizers	Auto Exhaust
Electronics Industry	

**ALUMINUM (Al):**

Aluminum will accumulate in the lungs, brain, liver and the thyroid gland. When in excess, aluminum will have an adverse effect upon metabolism, often being associated with memory loss, confusion and depression.

Aluminum is omnipresent in soils and waters, therefore, virtually all foods contain measurable amounts of natural aluminum. However, a much larger amount of aluminum compounds are typically ingested in the form of intentional additives, such as; preservatives, coloring agents, leavening agents, etc. Other sources include processed cheeses, spices, pickles and baked goods.

**POTENTIAL HERBAL SOURCES OF ALUMINUM:**

Some herbs contain a significant amount of aluminum and therefore may be a source of high levels. For the time being, the following herbs should be discontinued if they are being taken.

Peppermint	Black Cohosh
Goldenseal	Chickweed
Comfrey	Licorice
Alfalfa	Valerian Root
Chamomile	

**ADDITIONAL SOURCES OF ALUMINUM THAT MAY BE INVESTIGATED:**

Baking Powders (some)	Antiperspirants (some)
Antacids (some)	White Flour (some)
Cigarette Smoke	Industrial Pollution
Aluminum Containers	Aspirin Compounds
Pesticides	Processed Cheese (some)
Treated Water	Aluminated Salt and Seasonings
Acid or Alkaline foods cooked in aluminum cookware	Acid or Alkaline foods kept in aluminum

\* Nutritional supplements that contain Vanadium, which can enhance the adverse effects of elevated aluminum.

**ADDITIONAL TEST(S):**

- \* 24 Hour Urinary Aluminum
- \* Blood Aluminum
- \* Serum Aluminum

**ALUMINUM UPTAKE AND PARATHYROID ACTIVITY:**

Aluminum absorption from the G.I. tract is enhanced by parathyroid hormone. It has been reported that during parathyroid treatment, intestinal aluminum absorption increases, resulting in an increased aluminum concentration in brain tissue. Reduction in parathyroid hormone treatment resulted in lowered brain concentrations of aluminum despite continued dietary aluminum intake. This patient is currently showing a trend toward increased parathyroid activity. It is suggested at this time to limit exposure to aluminum as well as to discontinue any vitamin D supplementation.

**NOTE:**

At this time, further confirmation of heavy metal toxicity using a blood test may or may not reveal an elevated level. This is due to the protective response of the body, in which following a toxic metal exposure, the element is sequestered from the blood and stored in various other tissues. Therefore, if the exposure is not ongoing or chronic, elevated levels in the blood may not be present. It is recommended that another analysis be performed in at least one year to monitor any changes in toxic metal accumulation.

**IMPORTANT NOTE ON TOXIC METAL ELIMINATION:**

As toxic metals are mobilized from storage tissues for removal from the body, the patient may experience an exacerbation of his/her present symptoms or new symptoms associated with a particular mineral. If this occurs, or if the symptoms become too uncomfortable have the patient discontinue supplementation for three days, during which symptoms should be relieved. Have the patient then resume the program at one-third the recommended dosage, usually the PM portion, then gradually build up to twice per day and back to the full program. This may be done over a one to two-week period. If symptoms again arise, have the patient continue on only the PM portion for one week before increasing.

**CONTRAINDICATIONS**

It is suggested that additional supplementation and/or intake of the following nutrients and food substitutes (if any) should be avoided by the patient until re-evaluation.

**\* VITAMIN C \***

As vitamin C enhances the absorption of iron and antagonizes the mineral copper, large doses of vitamin C should be avoided until the tissue iron status has improved.

**\* VITAMIN D \***

Vitamin D and PABA are known to antagonize thyroid function and increase the absorption and retention of calcium. Excessive vitamin D supplementation can contribute to a loss of potassium and suppress thyroid expression. The patient should avoid sources of extra vitamin D and PABA, especially if a hypo-thyroid condition is present.

**\* BORON \***

The element boron increases the retention of calcium by having an apparent estrogenic effect. At this time, supplementation of boron should not be considered until the biochemical pattern of this patient changes.

**HERBAL SOURCES OF COBALT:**

Some herbs are high in cobalt and could be a significant source of dietary cobalt. At this time, it is recommended that the following herbs be discontinued if currently being taken in dietary supplement form:

Goldenseal  
Black Cohosh  
Slippery Elm

Alfalfa  
Chamomile

**HERBAL SOURCES OF IRON:**

Some herbs are high in iron and could be a significant source of dietary iron. At this time, it is recommended that the following herbs be discontinued if currently being taken in dietary supplement form:

Peppermint

Chickweed

Black Cohosh  
Comfrey  
Chamomile  
Valerian Root  
Cascara Sagrada

Goldenseal  
Licorice Root  
Alfalfa  
Catnip  
Chaparral

**\* THYMUS \***

The thymus has an opposing effect on the adrenal glands. As long as an adrenal insufficiency is indicated, thymus supplementation should be avoided.

**\* COD LIVER OIL \***

Cod liver oil will contribute to an adverse reduction in the metabolic rate, which can result in increased fatigue and depression. It is suggested that cod liver oil be avoided until the biochemical pattern improves.

## DIETARY SUGGESTIONS

The following dietary suggestions are defined by several factors: the individual's metabolic type, mineral levels, mineral ratios, as well as the nutrient content of each food including protein, carbohydrate, fat, vitamins and minerals. Based upon these determinations, it may be suggested that foods be avoided or increased temporarily to aid in the improvement of this individual's chemistry.

### GENERAL DIETARY PRINCIPLES FOR THE SLOW METABOLIZER:

A low protein, high carbohydrate, and high fat diet in addition to increased consumption of refined sugars and dairy products have a slowing-down effect upon metabolism and energy production.

**\* EAT A HIGH PROTEIN FOOD AT EACH MEAL...**Lean protein is recommended and which should constitute at least 40% of the total caloric value of each meal. Recommended sources are lean beef, fish and fowl. Other good sources of protein include bean and grain combinations and eggs. Increased protein intake is necessary in order to increase the metabolic rate and energy production.

**\* INCREASE FREQUENCY OF MEALS...**while decreasing the total caloric intake for each meal. This is suggested in order to sustain the level of nutrients necessary for energy production, and decrease blood sugar fluctuations.

**\* EAT A MODERATE AMOUNT OF UNREFINED CARBOHYDRATES...**Carbohydrate intake should not exceed 40% of total daily caloric intake. Excellent sources of unrefined carbohydrates include whole grain products, legumes and root vegetables.

**\* AVOID ALL SUGARS AND REFINED CARBOHYDRATES...**This includes white and brown sugar, honey, candy, soda pop, cake, pastries, alcohol and white bread.

**\* AVOID HIGH PURINE PROTEIN...**Sources of high purine protein include: liver, kidney, heart, sardines, and mackerel.

**\* REDUCE INTAKE OF FATS AND OILS...**Fats and oil include fried foods, cream, butter, salad dressings, mayonnaise, etc... Fat intake should not exceed 20% of the total daily caloric intake.

**\* REDUCE OR AVOID MILK AND MILK PRODUCTS...**such as cheese, yogurt, cream, etc... These foods should be reduced to no more than once every three to four days.

**\* REDUCE FRUIT JUICE INTAKE...**until the next evaluation. This includes orange juice, apple juice, grape juice and grapefruit juice. Vegetable juices are acceptable.

**\* AVOID CALCIUM AND/OR VITAMIN D SUPPLEMENTS**

### FOOD ALLERGIES:

In some individuals, certain foods can produce a maladaptive or "allergic-like" reaction commonly called "food allergies". Consumption of foods that one is sensitive to can bring about reactions ranging from fatigue or drowsiness to rashes, migraine headaches and arthritic pain.

Sensitivity to foods can develop due to biochemical (nutritional) imbalances, and which can be aggravated by stress, pollution and medications. Nutritional imbalance can further be contributed to by restricting food variety, such as eating only a small group of foods on a daily basis. Often a person will develop a craving for the food they are most sensitive to and may eat the same food or food group more than once a day.

The following section may contain foods that are recommended to be avoided. These foods should be considered as potential "allergy foods" or as foods that may impede a rapid and effective response. Consumption of these foods should be completely avoided for four days. After which, they should not be eaten more frequently than once every three days during course of therapy.

#### FOODS THAT MAY AFFECT THYROID ACTIVITY:

The following list of foods belongs to a family of foods that are known to decrease thyroid activity when eaten in appreciable quantities. If an under-active condition is present, excessive consumption can contribute to symptoms associated with hypothyroidism, such as; fatigue, cold sensitivity, depression, weight gain, dry skin and hair, and constipation.

Intake of the following foods should be reduced considerably until the next evaluation:

Cabbage	Kale
Rutabagas	White Turnips
Cole Slaw	Fluorides
Sauerkraut	Horseradish
Soybeans	Chlorinated Water
Mustard	Walnuts

#### FOODS THAT CONTRIBUTE TO A REDUCTION IN METABOLIC RATE:

The following foods should be temporarily avoided or reduced until the next evaluation. They may contribute to a further lowering of an already low metabolic rate. Unlimited intake can contribute to fatigue, headaches, joint stiffness, water retention, and weight gain.

Swiss Cheese	Turnip Greens
Kale	Blue Cheese
Monterey Cheese	Soybean Flour
Mustard Greens	Yogurt
Mozzarella Cheese	American Cheese
Tortilla Roll	Brewers Yeast
Almonds	Cheddar Cheese
Sardines	Kelp
Hazelnuts	Carob Powder
Torula Yeast	Pancake Mix
Parmesan Cheese	Cream
Dulse	Collards
Dandelion Greens	Broccoli

#### THE FOLLOWING FOODS SHOULD BE AVOIDED UNTIL THE NEXT EVALUATION:

Sardines	Mushrooms
Herring	
Enriched Milk	

#### AVOID DIETARY FATS AND OILS UNLESS NOTIFIED OTHERWISE BY ATTENDING DOCTOR:

The handling of fats is difficult during a reduced metabolic state, and can contribute to a further reduction in the metabolic rate. It is suggested that all sources of high dietary fat and oil be avoided until the next evaluation.

Salad Dressings	Cheese (most)
Cream	Butter
Hazelnuts	Walnuts

Margarine  
 Bockwurst  
 Salami  
 Bologna  
 Corn Chips  
 Bacon  
 Duck  
 Avocado  
 Cocoa Powder  
 Sardines (canned)  
 Avocado Oil  
 Coconut Oil

Pork  
 Milk  
 Peanut Butter  
 Pork Links  
 Almonds  
 Knockwurst  
 Goose  
 Braunschweiger  
 Peanuts  
 Tuna (canned in oil)  
 Liverwurst

#### VITAMIN B-1 AND THYROID HORMONE:

The following foods high in Vitamin B-1 may be increased in the diet until the next evaluation. Vitamin B-1 has been associated with increasing the effectiveness of thyroid hormone (thyroxine) upon metabolism.

Wheat Germ	Rice Bran
Pinto Beans	Lobster
Pike (broiled)	

#### SPECIAL NOTE:

This analysis will list only a limited number of dietary foods to avoid or to increase in the diet. For those foods not specifically mentioned in this section, continued consumption on a moderate basis may be considered appropriate unless recommended otherwise.

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