

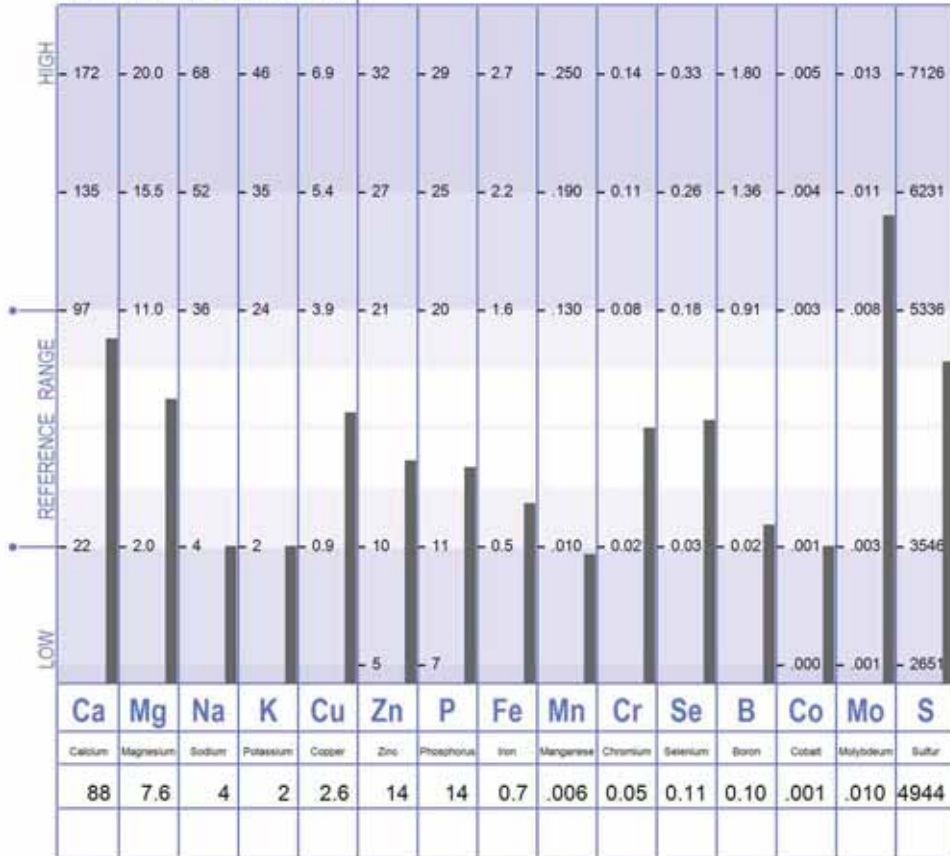
LABORATORY NO.: 1230365

PROFILE NO.: 2      SAMPLE TYPE: SCALP

PATIENT: [REDACTED]      AGE: 38      SEX: F      METABOLIC TYPE: SLOW 1

REQUESTED BY: [REDACTED]      ACCOUNT NO.: [REDACTED]      DATE: 12/29/2014

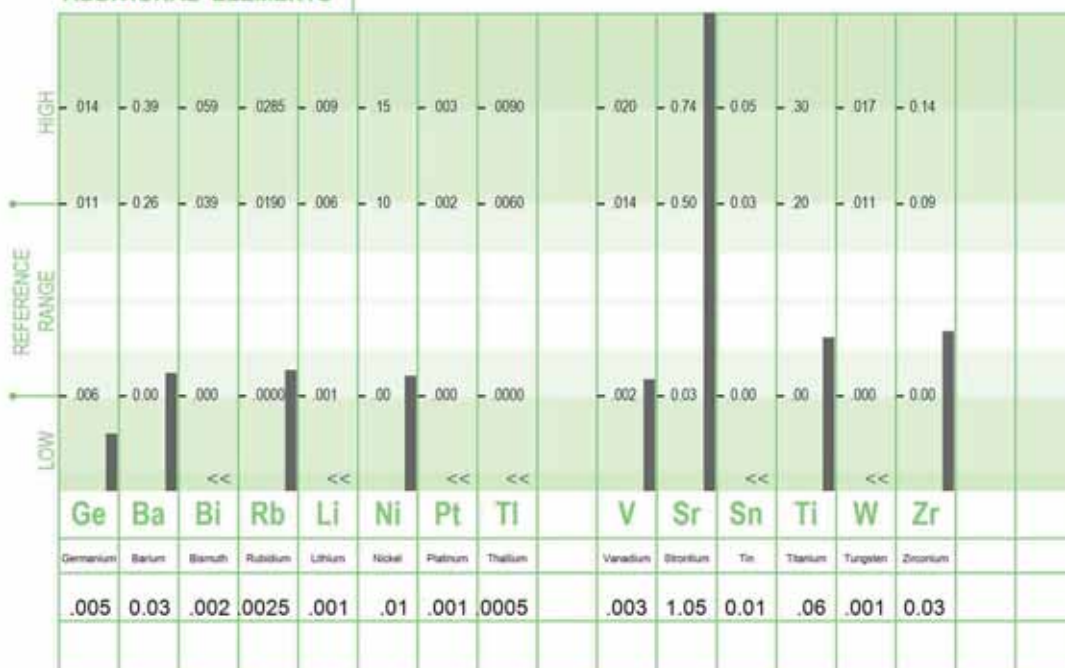
**NUTRITIONAL ELEMENTS**



**TOXIC ELEMENTS**



**ADDITIONAL ELEMENTS**



\*>>: Below Calibration Limit, Value Given Is Calibration Limit

\*QNS\*: Sample Size Was Inadequate For Analysis.

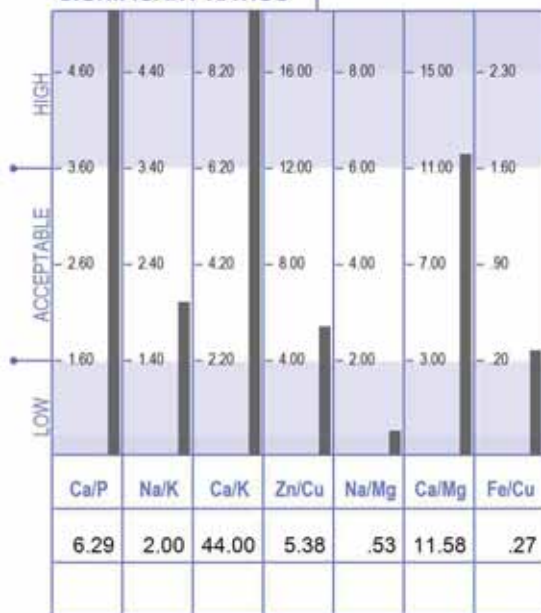
\*N/A\*: Currently Not Available

Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.

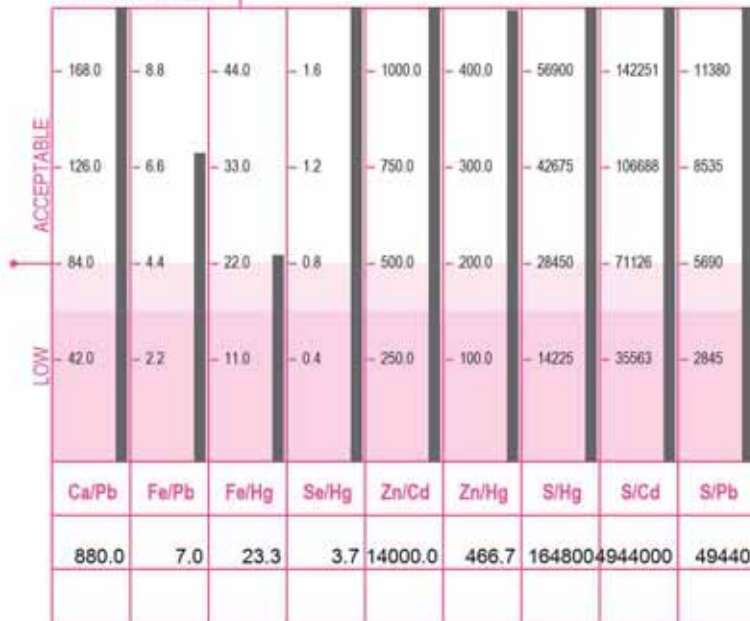
Laboratory Analysis Provided by Trace Elements, Inc. an H. H. S. Licensed Clinical Laboratory. No. 45 D0481787

12/29/2014  
CURRENT TEST RESULTS  
PREVIOUS TEST RESULTS

## SIGNIFICANT RATIOS



## TOXIC RATIOS



## ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	83.81		131/1
Cr/V	16.67		13/1
Cu/Mo	260.00		625/1
Fe/Co	700.00		440/1
K/Co	2000.00		2000/1
K/Li	2000.00		2500/1
Mg/B	76.00		40/1
Si/Cu	1901.54		1138/1
Se/Tl	220.00		37/1
Se/Sn	11.00		0.67/1
Zn/Sn	1400.00		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 affect 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 reflected in 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 effect in suppressing the metabolic rate.

\* Endocrine Function - Low thyroid activity as well as low adrenal gland function will contribute to lowering 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 diminished metabolic rate, such as indicated in these test results, has been correlated with fatigue, cold hands and feet, easy weight gain and craving for sweets.

It should be noted that even though this patient may not be overweight at this time, she 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.

### **HYDROCHLORIC ACID PRODUCTION AND PROTEIN DIGESTION**

Your mineral profile may be reflective of a deficiency in hydrochloric acid (HCL) production, which can result in inadequate protein digestion. Hydrochloric acid in sufficient amounts is necessary for the complete digestion and utilization of dietary protein. Symptoms, such as, bloating of the stomach, flatulence and constipation may be observed with an HCL deficiency, especially following high protein meals.

### **SODIUM, POTASSIUM AND HYDROCHLORIC ACID PRODUCTION**

Chloride from sodium chloride (NaCl) is utilized by the parietal cells of the stomach for the production of hydrochloric acid. Low hair sodium levels may indicate a decrease in normal hydrochloric acid production, which could lead to poor protein digestion, and an acid/alkaline imbalance.

### **MANGANESE (Mn) AND BLOOD SUGAR REGULATION**

The mineral manganese in combination with certain vitamins and minerals is essential for many biochemical reactions, including carbohydrate metabolism and energy production. Manganese deficiency is frequently related to such manifestations as, low blood sugar levels, ligamentous problems and reproductive dysfunction.

### **GERMANIUM (Ge)**

Your germanium level of 0.005 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.

### **STRONTIUM (Sr)**

Your strontium level is above the established reference range. In excess, strontium is apparently antagonistic to calcium metabolism, and can therefore interfere with normal calcium function. Strontium may be contained in some mouth rinses and dental varnishes used in the treatment of dentin hypersensitivity.

## 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

### LOW SODIUM/MAGNESIUM (Na/Mg) RATIO

This ratio is below the normal range. The adrenal glands play an essential role in regulating sodium retention and excretion. Studies have also shown that magnesium will affect adrenal cortical activity and response, and reduced adrenal activity results in increased magnesium retention. The sodium-magnesium profile is indicative of reduced adrenal cortical function. The following associated symptoms may be observed:

Fatigue	Constipation
Dry Skin	Lowered Resistance
Allergies (Ecological)	Low Blood Pressure

## TOXIC METAL LEVELS

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

## 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. Afterwhich, 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

#### **CALCIUM/PHOSPHORUS IMBALANCE**

It is suggested that the following foods be reduced until the next evaluation. At this time they may contribute to a further disturbance in the Ca/P balance and contribute to the accumulation of calcium into the soft tissues.

Swiss Cheese	Turnip Greens
Yogurt	Kale
Monterey Cheese	Hazelnuts
Mozzarella Cheese	Kelp
Broccoli	Carob Powder
Baking Powder	Sardines

#### **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	



**FOODS HIGH IN POTASSIUM RELATIVE TO OTHER SPECIFIC NUTRIENT CONTENT**

The following foods may be increased in the diet until the next evaluation:

Beef (lean)	Tomatoes
Raisin Bread	Whole Wheat Bread
Snapper	Cucumber
Rye Bread	Cornbread
Ham	Celery
Chicken	

**METHIONINE RICH FOODS**

The following foods are a rich source of the essential amino acid methionine, which supplies sulfur to the cells for the activation of enzymes, and energy metabolism. Sulfur is also involved in detoxification processes. Toxic substances are combined with sulfur, converted to a nontoxic form and then excreted. The following foods may be consumed liberally during course of therapy:

Bass	Mackerel
Trout	Short Ribs
Cod	Perch
Turkey	Sirloin
Flounder	Pumpkin Seeds
Round Steak	

The above list of foods are also high in glutamic and aspartic acid. These amino acid proteins help to improve tissue alkalinity.

**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.

**WHAT TO EXPECT DURING THE PROGRAM**

The mobilization and elimination of certain metals may cause temporary discomfort. As an example, if an excess accumulation of iron or lead is contributing to arthritis, 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.

## DIET SUMMARY PAGE

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This page may be removed from the HTMA Report and used as a quick-reference dietary guide. As this is solely a summary page, please refer to the dietary portion of the report to obtain more detailed information on why a particular food item is listed in the "Foods To Avoid" or "Foods That May Be Increased" section. For those foods that are not specifically mentioned below, continued consumption on a moderate basis is acceptable unless recommended otherwise by the attending healthcare professional.

### **FOODS TO AVOID UNTIL THE NEXT EVALUATION**

Alcohol	Almonds	Apple Juice
Avocado oil	Avocados	Bacon
Bologna	Braunschweiger	Bread - White
Broccoli	Butter	Cabbage
Cakes	Candy	Cheese - All
Cocoa	Coconut Oil	Cole Slaw
Corn Chips	Cream	Duck
Goose	Grape Juice	Grapefruit Juice
Heart	Hazelnuts	Honey
Horseradish	Kale	Kelp
Kidney	Knockwurst	Liver
Liverwurst	Mackerel	Margarine
Milk	Peanut Butter	Peanuts
Pork	Pork Links	Rutabagas
Salad Dressing	Salami	Sardines
Sardines - Canned	Soda	Sugar
Tuna - Canned	Turnips	Turnip Greens
Walnuts	Yogurt	

### **FOODS THAT MAY BE INCREASED IN THE DIET**

Bass	Beans - Green	Beans - Lima
Beans - Pinto	Beef - Lean	Bread - Rye
Bread - Wheat	Celery	Chicken
Chicken - Baked	Cod	Cornbread
Cucumbers	Eggs	Fish - Broiled
Flounder	Grains - Whole	Ham
Legumes	Perch	Pumpkin Seeds
Ribs	Snapper	Steak - Round
Steak - Sirloin	Swordfish	Tomatoes
Trout	Tuna	Turkey
Vegetable Juice		



THE FOLLOWING RECOMMENDATIONS SHOULD BE TAKEN ONLY WITH MEALS IN ORDER TO INCREASE ABSORPTION AND TO AVOID STOMACH DISCOMFORT.

RECOMMENDATION	AM	NOON	PM
PARA-PACK (Metabolic Support)	2	2	2
ADRENAL COMPLEX (Glandular Support)	2	2	2
MIN-PLEX B (Magnesium + Chromium + B6)	2	2	2
POTASSIUM PLUS	1	1	1
IRON PLUS	0	0	1
ZMC PLUS (Zinc + Manganese + Vitamin C)	1	0	1
HCL PLUS (Digestive Support)	2	2	2
VITAMIN E PLUS	1	0	1

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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. ADDITIONALLY, NUTRITIONAL SUPPLEMENTS SHOULD NEVER BE TAKEN AT THE SAME TIME AS MEDICATIONS. MEDICATIONS SHOULD BE TAKEN 2 HOURS PRIOR TO, OR 2 HOURS AFTER NUTRITIONAL SUPPLEMENT INTAKE.

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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 DOCTOR.

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.

## TRENDS

The following trends may or may not be manifesting in the patient at this time. Each trend that is listed is a result of research including statistical and clinical observations. This trend analysis is advanced merely for the consideration of the health professional, and should not be considered an assessment of a medical condition. Further investigation may be indicated based upon your own clinical evaluation.

### \*\*\* SPECIAL NOTE \*\*\*

It must be emphasized that the following are only trends of potential health conditions. Realistically, the probability for each trend's occurrence is based upon the degree and duration of the specific mineral imbalance. Since this analysis is not capable of determining either the previous degree of imbalance and/or previous duration, the trend analysis should only be used as an indicator to the health-care professional of potential manifestation's, particularly if the biochemical imbalance continues.

TENDENCY	1	2	3	4	5	6	7	8	
DEPRESSION	██								
FATIGUE	██								
HYPOGLYCEMIA	████████████								

## COMMENTS

### ATHEROSCLEROSIS AND LOW THYROID:

The patient's calcium is markedly elevated relative to potassium. This indicates a trend toward low thyroid function. A hypothyroid condition has been associated with elevated serum cholesterol and triglycerides.

Manganese is also low. Manganese is necessary for normal thyroid function, and is beneficial in lipid metabolism. A manganese deficiency may be an additional contributing factor toward atherosclerosis.

### DEPRESSION AND HYPOTHYROIDISM:

An elevation of calcium relative to potassium is associated with hypothyroidism. Depression is often seen when a concomitant hypothyroid condition exists.

### FATIGUE:

High calcium to potassium is associated with an underactive thyroid. Fatigue is often a common complaint associated with low thyroid function.

**HYPOADRENIA:**

Low tissue sodium and potassium relative to calcium and magnesium is associated with adrenal insufficiency. This may result in low blood pressure, postural hypotension, and fatigue.

**HYPOGLYCEMIA AND SLOW METABOLISM:**

Slow metabolizers are prone to hypoglycemia. This is due to the increased glycogen storage of glucose stimulated by the release of insulin. Other contributing factors are adrenal insufficiency and low thyroid function.

Hypoglycemia can be contributed to in the slow metabolizer by factors other than eating refined carbohydrates or sugar. Dairy products, juices and foods high in fat may also produce hypoglycemic symptoms.

**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.

## CONTRAINDICATIONS

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

**\* 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.

**\* 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 the patient'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. Afterwhich, 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

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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

### CALCIUM/PHOSPHORUS IMBALANCE

It is suggested that the following foods be reduced until the next evaluation. At this time they may contribute to a further disturbance in the Ca/P balance and contribute to the accumulation of calcium into the soft tissues.

Swiss Cheese	Turnip Greens
Yogurt	Kale
Monterey Cheese	Hazelnuts
Mozzarella Cheese	Kelp
Broccoli	Carob Powder
Baking Powder	Sardines

### 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	

### FOODS HIGH IN POTASSIUM RELATIVE TO OTHER SPECIFIC NUTRIENT CONTENT

The following foods may be increased in the diet until the next evaluation:

Beef (lean)	Tomatoes
Raisin Bread	Whole Wheat Bread
Snapper	Cucumber
Rye Bread	Cornbread
Ham	Celery
Chicken	



### METHIONINE RICH FOODS

The following foods are a rich source of the essential amino acid methionine, which supplies sulfur to the cells for the activation of enzymes, and energy metabolism. Sulfur is also involved in detoxification processes. Toxic substances are combined with sulfur, converted to a nontoxic form and then excreted. The following foods may be consumed liberally during course of therapy:

Bass	Mackerel
Trout	Short Ribs
Cod	Perch
Tuna	Sirloin
Flounder	Pumpkin Seeds
Round Steak	Swordfish
Turkey	

The above list of foods are also high in glutamic and aspartic acid. These amino acid proteins help to improve tissue alkalinity.

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.

## CONCLUSION

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.

### WHAT TO EXPECT DURING THE PROGRAM:

The mobilization and elimination of certain metals may cause temporary discomfort. As an example, if an excess accumulation of iron or lead is contributing to arthritis, 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.