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LABORATORY NO.:

1578527

PROFILE NO.:

2

SAMPLE TYPE:

SCALP

PATIENT: NEWMAN, JACKSON

AGE: 6

SEX: M

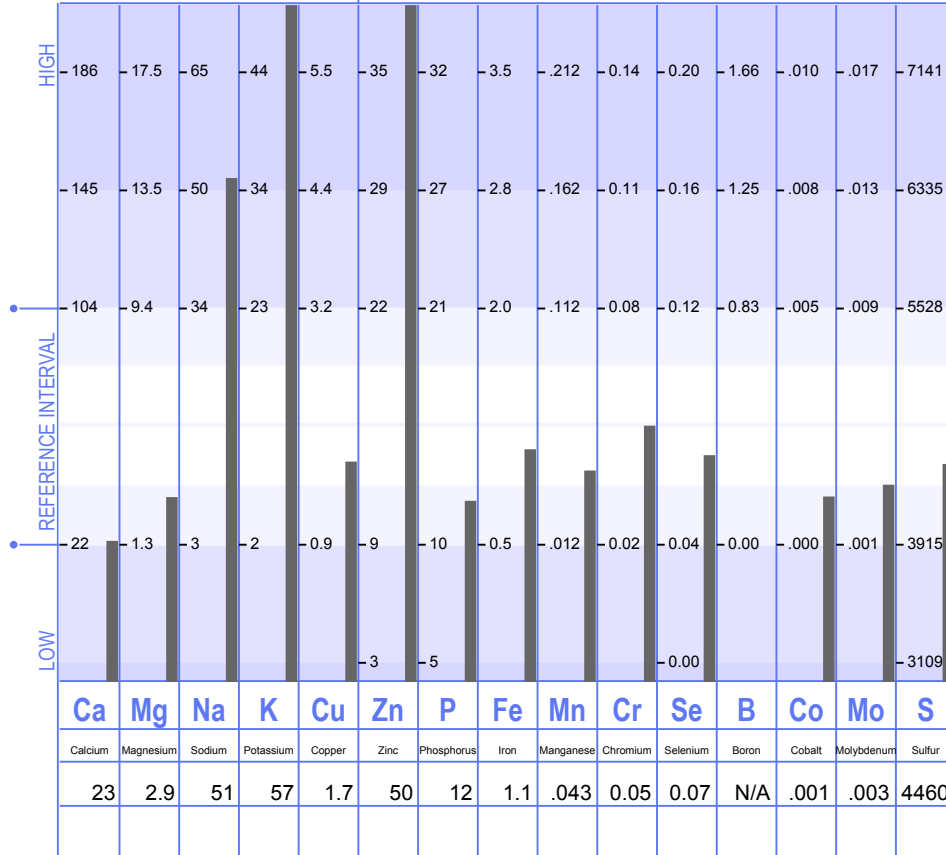
METABOLIC TYPE: FAST 1

REQUESTED BY: MIDDLETON, A

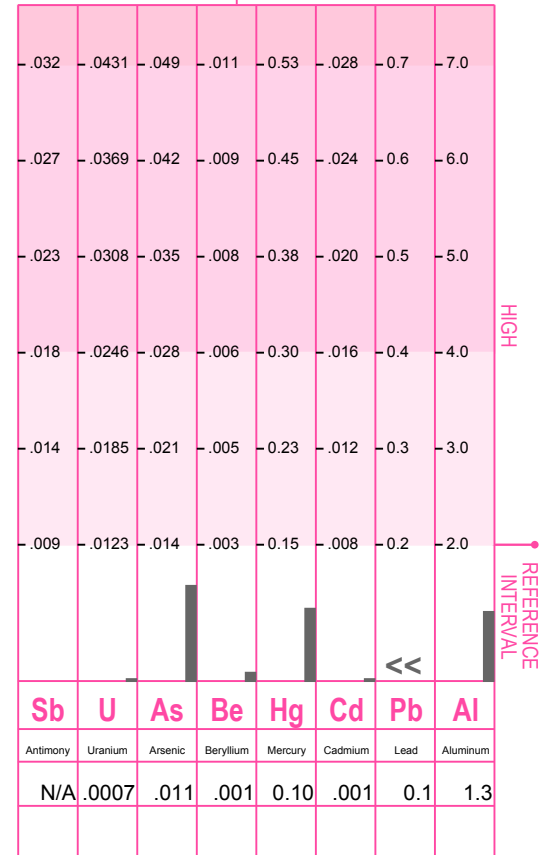
ACCOUNT NO.: 2216

DATE: 2/12/2020

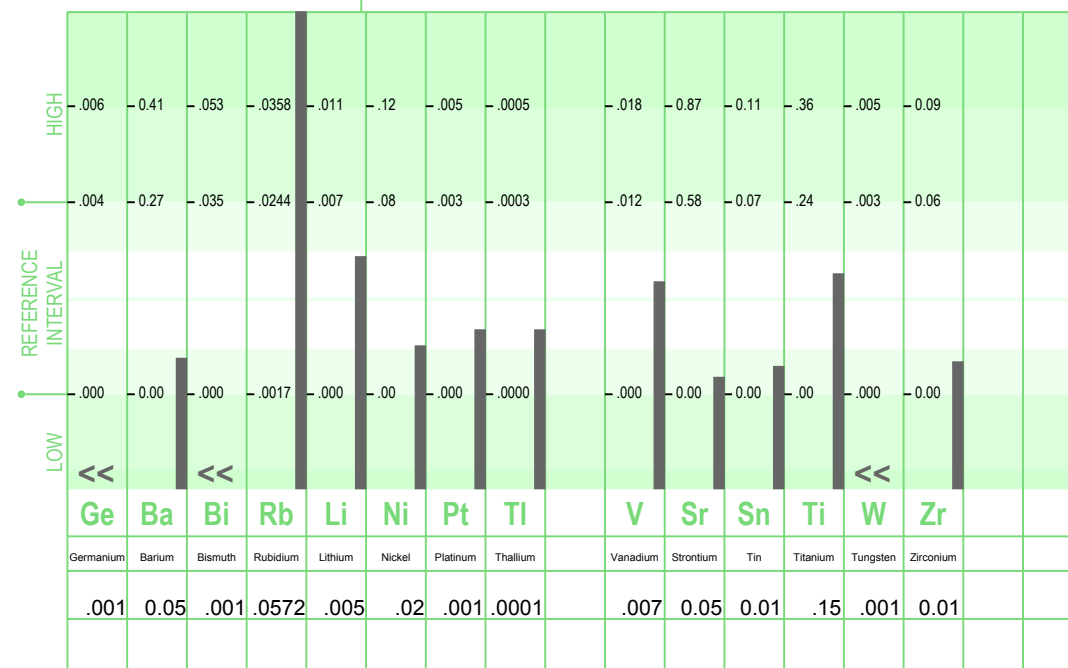
### NUTRITIONAL ELEMENTS



### 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.

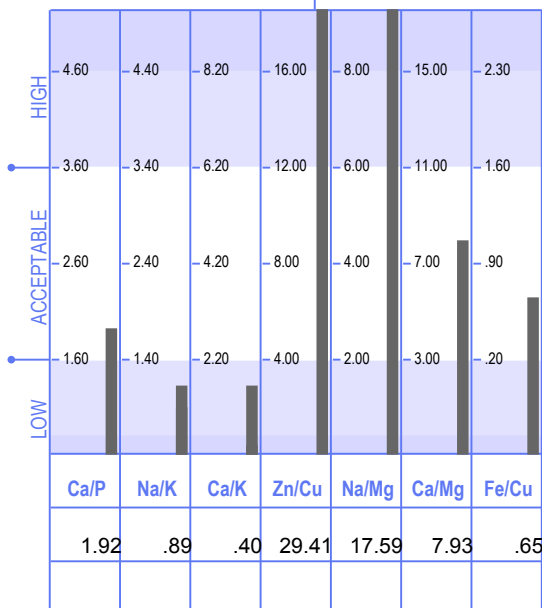
Laboratory Analysis Provided by Trace Elements, Inc.  
Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory. No. 45 D0481787

2/12/2020

CURRENT TEST RESULTS

PREVIOUS TEST RESULTS

## SIGNIFICANT RATIOS



## TOXIC RATIOS



## ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	460.00		263/1
Cr/V	7.14		8/1
Cu/Mo	566.67		356/1
Fe/Co	1100.00		615/1
K/Co	57000.00		6350/1
K/Li	11400.00		6350/1
Mg/B	N/A		21/1
S/Cu	2623.53		2668/1
Se/Tl	700.00		370/1
Se/Sn	7.00		3.2/1
Zn/Sn	5000.00		624/1

## 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 INTERVALS

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

Important Note: The reference intervals 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.

### **FAST METABOLISM (TYPE #1)**

- \*\* Sympathetic Dominance
- \*\* Tendency Toward Increased Thyroid Function (increased secretion of hormones)
- \*\* Tendency Toward Increased Adrenal Activity (increased secretion of hormones)

This child's mineral pattern is indicative of a fast metabolic rate (Fast Metabolism, Type #1). The metabolic rate is associated with energy production on a cellular level. This is not an unusual pattern in children, and is reflective of increased metabolic activity due to increased adrenal and thyroid function.

Fast Metabolism may result in warm body temperature, moist skin and a tendency to perspire easily.

## **NUTRIENT MINERAL LEVELS AND OTHER ELEMENTS**

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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 and light green area's of each graph section represent the reference interval 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 interval 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.

**SODIUM (Na) AND POTASSIUM (K)**

This child's tissue potassium level is elevated above normal. Increased potassium retention will result in sodium retention and visa-versa. The glandular relationship of these electrolytes and their metabolic retention are influenced by the adrenal and thyroid glands, as well as dietary habits. High thyroid activity is associated with elevated tissue potassium retention, which secondarily increases sodium retention by stimulating the adrenal cortex.

**SODIUM, POTASSIUM AND DIGESTIVE DISTURBANCE**

As chloride is removed from sodium chloride (NaCl) for the production of hydrochloric acid (HCl), an elevated tissue sodium level can be indicative of increased HCl production and peptic conditions. Excessive HCl production can in turn lead to the depletion of pancreatic enzymes affecting digestion, absorption and the integrity of intestinal permeability.

**ZINC (Zn)**

This child's zinc level is elevated above normal. Possible sources of zinc other than dietary may include some zinc-containing anti-dandruff shampoos, sunscreens, mouth wash, toothpastes, zinc lozenges and nasal sprays. It should also be noted that zinc has been found to be markedly elevated in imported herbs, such as chamomile, basil, parsley, sage and thyme.

An elevated zinc level may also be a result of the accumulation of toxic metals, as zinc can be displaced or eliminated through the hair, skin and organs as a result of their accumulation. The accumulation and/or elimination of copper, cadmium, lead and mercury is antagonistic to zinc retention and utilization within the body, which can contribute to a temporary increase in the zinc level.

**ELEVATED ZINC (Zn) AND MEDICATED SHAMPOOS**

Some medicated (anti-dandruff) shampoos are the cause of abnormally elevated zinc levels. If this is the case, the reported zinc tissue level should not be considered representative of current metabolic zinc activity.

**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.

## **NUTRIENT MINERAL RATIOS**

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This section of the report will discuss those nutritional mineral ratios that reveal moderate or significant deviation 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).

#### **LOW SODIUM/POTASSIUM (Na/K) RATIO**

When sodium is low in relation to potassium, emotional mood swings, including depression have been cited in greater frequency. A low sodium-to-potassium ratio may also be related to phobias, withdrawal, repression and indecision.

#### **LOW SODIUM/POTASSIUM (Na/K) RATIO AND STRESS**

The body's response to stress is often reflected by the tissue sodium-to-potassium balance. The adrenal glands are sensitive to the effects of stress, and will directly affect this electrolyte balance. A low Na/K ratio, such as in this case, is usually indicative of the secondary stage of stress, which is the resistance or exhaustion stage.

#### **LOW CALCIUM/POTASSIUM (Ca/K) RATIO**

A low calcium level relative to potassium is indicative of decreased calcium absorption and retention, or increased excretion of this essential mineral. In addition to potassium's antagonistic effect upon calcium function within the body, the increased secretion of adrenal and thyroid hormones also antagonizes calcium. This mineral imbalance reflects a decrease in thymus activity and therefore, a compromised immune system. This pattern further indicates an increased requirement for calcium and vitamin D.

#### **HIGH SODIUM/MAGNESIUM (Na/Mg) RATIO**

The sodium-to-magnesium ratio is above normal. This profile is indicative of increased cellular magnesium requirements, which can be caused by a number of factors. One possible cause is that excessive dietary sodium will decrease the ability for the body to absorb magnesium. Another possible cause is insufficient magnesium intake or decreased retention of magnesium. Regardless of the cause, at this time it would be prudent to increase foods high in magnesium, or at least avoid those factors which may contribute to further magnesium loss, especially:

- \* Alcohol
- \* Coffee
- \* Protein Drinks
- \* Stimulant Drugs

## **TOXIC METAL LEVELS**

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

## **TOXIC METAL RATIOS**

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This section of the report will discuss those toxic metal ratios that reveal moderate or substantial deviation from the ideal or acceptable clinical ranges.

Every person is exposed to toxic metals to some degree. The retention of these toxic metals, however, is dependent upon the individual's susceptibility. The balance of the protective nutrient minerals within the body in relation to the heavy metals can frequently be the determining factor to this susceptibility. As an example, the accumulation of lead will have a more detrimental effect upon body chemistry when sufficient levels of calcium and iron are not available. By examining the toxic metal levels in relation to the protective minerals, the extent to which the heavy metals may be involved in abnormal chemistry can frequently be seen.

#### **SELENIUM/MERCURY (Se/Hg) RATIO**

Mercury, a toxic metal, causes increased oxidative damage to cells. Selenium is known to protect tissues against these adverse affects by binding with mercury, thereby, rendering it less damaging. At this time, a low selenium-to-mercury ratio may be indicative of increased free radical production.

## **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 in the diet to aid in the improvement of this child's biochemistry.

#### **GENERAL DIETARY GUIDELINES FOR THE FAST METABOLIZER**

- \* INCREASE INTAKE OF HIGH PURINE PROTEIN FOODS...high purine protein sources include liver, kidney and heart. Other good sources include sardines, tuna, clams, crab, lobster and oysters. Unless notified otherwise, high purine and moderate purine protein intake should constitute approximately 33% of total daily caloric intake.
- \* INCREASE INTAKE OF MILK AND MILK PRODUCTS...such as cheese, yogurt, cream, butter (unsalted). Increase intake of nuts and seeds such as almonds, walnuts, peanuts, peanut butter and sunflower seeds. Foods high in fat unless notified otherwise should constitute approximately 33% of total daily caloric intake.
- \* REDUCE CARBOHYDRATE INTAKE...including unrefined carbohydrates. Sources such as cereals, whole grains and whole grain products are contraindicated for frequent consumption until the next evaluation. Carbohydrate intake in the form of unrefined carbohydrates should be approximately 33% of total daily caloric intake.
- \* AVOID ALL SUGARS AND REFINED CARBOHYDRATES...this includes white and brown sugar, honey, candy, soda pop, cake, pastries, alcohol and white bread.

#### **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 drowsiness to hyperactivity in children, itching and rashes, headaches, high-blood pressure and arthritic pain.

Sensitivity to foods can develop due to biochemical (nutritional) imbalances, and which stress, pollution, and medications can aggravate. 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 avoid. These foods should be considered as potential "allergy foods", or as foods that may impede a rapid and effective reponse. Consumption of these foods should be avoided completely for four days. After which, they

should not be eaten more frequently than once every three days during course of therapy.

### **CANNED FOODS - (CONTRAINDICATED)**

Canned foods should be eliminated from the diet. Most canned foods are high in salt and as such will contribute to excessive sodium levels and disturbed calcium metabolism.

NOTE: Canned foods frequently contain higher levels of toxic metals.

### **FOODS THAT STIMULATE HISTAMINES**

Consumption of the following foods can stimulate histamine release in certain metabolic types and may contribute to respiratory-type allergy reactions. These foods are to be avoided until the next evaluation or until notified otherwise by attending doctor.

Beet Greens	Rhubarb
Apples	Chocolate
Spinach	Black Tea
Eggplant	Strawberries
Sweet Potatoes	Peanuts
Blueberries	Green Beans
Pecans	Chard
Wheat Germ	Concord Grapes
Cocoa	Collards
Parsley	Blackberries
Beets	

### **PHYTIC ACID AND REDUCED CALCIUM ABSORPTION**

The following foods contain high amounts of phytic acid. Phytic acid will combine with dietary calcium to form an insoluble calcium phytate that will reduce absorption. These sources should be avoided until calcium utilization has improved.

Strawberries	Oatmeal
Rye Bread	Wheat Bran
Wheat Germ	Rye Crackers
Whole Wheat	Blackberries
Cereals	Spinach
Brown Rice	Whole Rye
Figs	White Rice
Wheat Breads	

### **CALCIUM AND ALLERGIES**

A low calcium level is often associated with an increase in histamine levels. Excessive intake of the following foods can decrease calcium absorption and utilization, thereby contributing to a histamine-type allergic response when consumed. These sources should be reduced or eliminated from the diet until the next evaluation.

Whole Wheat	Turnip Greens
Cereals	Spinach
Sodium	Soft Water
Colas	Chard
Oatmeal	

### **FOODS THAT CONTRIBUTE TO A CALCIUM/POTASSIUM IMBALANCE**

The following foods should be avoided until the next evaluation or until notified otherwise by attending doctor:

Apricots	Apples
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Peas	Chestnuts
Rye Crackers	Blackberries
Clams	Oranges
Cantaloupe	Brewers Yeast
Tomatoes	Kelp
Cucumbers	Potatoes
Coffee	Peaches

**THE FOLLOWING HIGH SODIUM FOODS SHOULD BE REDUCED UNTIL THE NEXT EVALUATION**

Table Salt	Corn Chips
White Bread	Snack Dips
Potato Chips	Ritz Crackers
Canned Foods	Pickles
Margarine	Butter (salted)
Biscuit Mix	Baking Powder
Frankfurter	Ham (cured)
Bacon	Chipped Beef
Soups (most)	Corned Beef

**TISSUE CATABOLISM AND LOW CALCIUM TO POTASSIUM**

Low calcium-to-potassium and low sodium-to-potassium is frequently indicative of excessive tissue protein breakdown (catabolism), which may result in a negative protein (nitrogen) balance. Complex carbohydrates are known to spare protein, and in conjunction with dietary fats, the sparing effects of carbohydrates are further enhanced. Due to the current metabolic profile, the previous carbohydrate, fat and protein intake suggestions found in the "GENERAL DIETARY GUIDELINES" should not be followed at this time. Temporarily, carbohydrate intake should be increased to approximately 50%, fats approximately 25% and proteins 25% of the daily caloric intake.

**DIETARY CONSIDERATIONS**

Magnesium is required in higher amounts in the presence of increased dietary sodium intake or retention. Sodium is currently high relative to magnesium.

- \* Reduce sodium intake until magnesium status has improved.
- \* Increase selection of calcium and magnesium foods.
- \* Use mineral water for drinking.
- \* Avoid distilled or softened water for drinking.
- \* Reduce alcohol intake.
- \* Limit excessive protein consumption (should not exceed 30%).

**AMINO ACIDS THAT IMPROVE CALCIUM ABSORPTION**

Calcium absorption is greatly enhanced when the diet is high in the amino acids, lysine, arginine and histadine. These proteins also help to reduce acidity of the tissues. Both effects are favorable for the fast metabolizer, therefore addition of any of the following foods to the diet is recommended at this time:

Lima Beans	Salami
Garbanzo Beans	Sausage (lean)
Rumproast	Lamb
Skim Milk	Smelt
Beef Stew	Vegetable Stew
Cottage Cheese	Canadian bacon
Spare Ribs	Peanuts
Lentils	Bass
Flounder	Heart

Cod  
Ham

Chuck Roast  
Liverwurst

**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.

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.

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