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LABORATORY NO.:

1442368

PROFILE NO.:

3

SAMPLE TYPE:

SCALP

PATIENT: VAN ROSENDAL, DESMA-ANN

AGE: 64

SEX: F

METABOLIC TYPE:

FAST 4

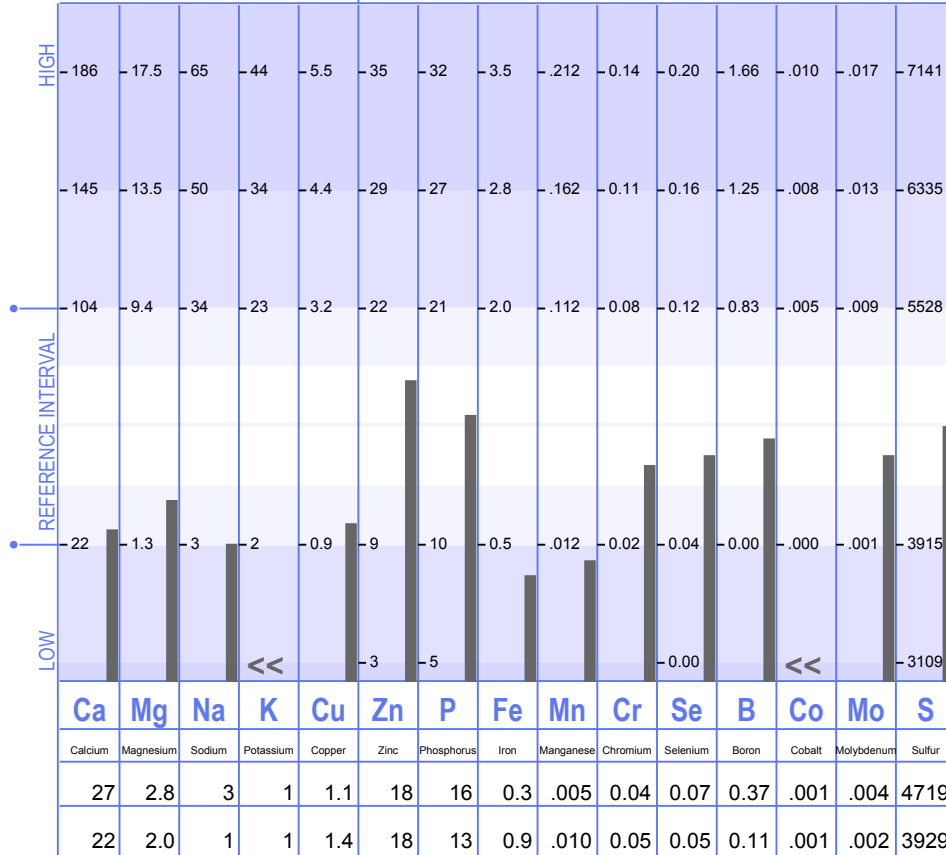
REQUESTED BY: KELLY, A

ACCOUNT NO.: 2216

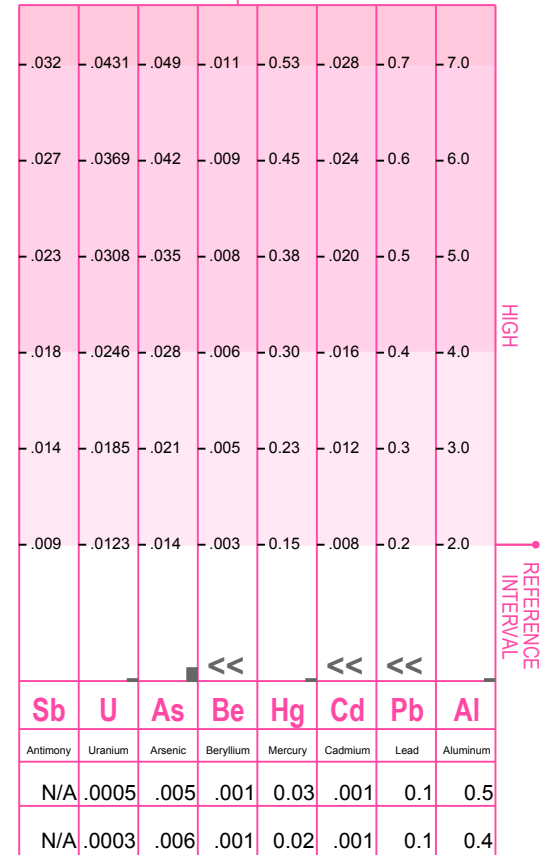
DATE:

29/12/2023

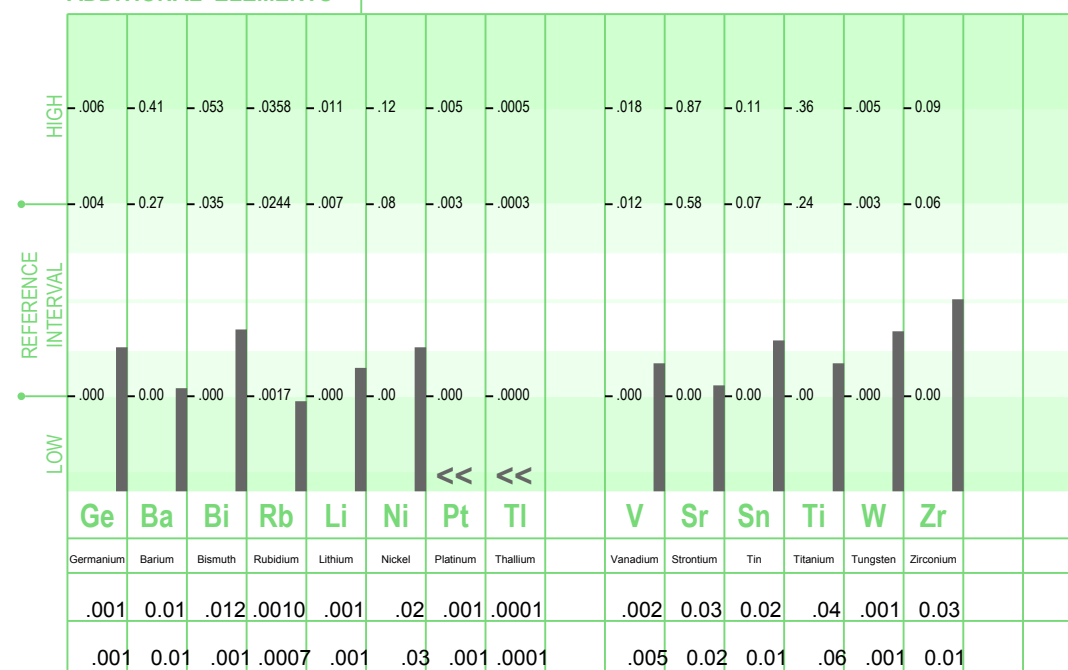
### NUTRITIONAL ELEMENTS



### 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

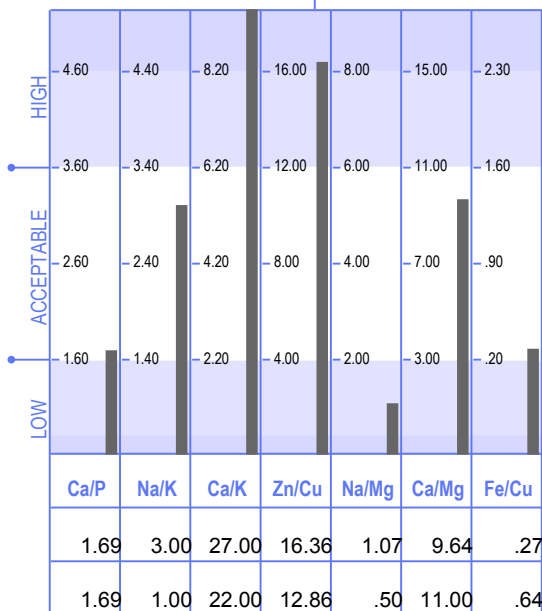
29/12/2023

CURRENT TEST RESULTS

23/05/2023

PREVIOUS TEST RESULTS

## SIGNIFICANT RATIOS



## TOXIC RATIOS



## ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	900.00	1100.00	263/1
Cr/V	20.00	10.00	8/1
Cu/Mo	275.00	700.00	356/1
Fe/Co	300.00	900.00	615/1
K/Co	1000.00	1000.00	6350/1
K/Li	1000.00	1000.00	6350/1
Mg/B	7.57	18.18	21/1
S/Cu	4290.00	2806.43	2668/1
Se/Tl	700.00	500.00	370/1
Se/Sn	3.50	5.00	3.2/1
Zn/Sn	900.00	1800.00	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.

## HAIR TISSUE MINERAL ANALYSIS (HTMA) RE-EVALUATION

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The retest analysis is a follow-up evaluation of progress that has taken place since the previous laboratory test. This interpretation will discuss any significant changes that may have occurred in nutritional mineral status during this time. In doing so, the analysis will help to determine if modifications should be recommended. These modifications may be based upon changes in mineral status, presenting symptoms, and other clinical data supplied by the attending healthcare professional.

*The laboratory test results and the following comprehensive report should not be construed as diagnostic. This analysis is provided only as an additional source of information to the healthcare professional.*

## METABOLIC TYPE

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This section of the report will discuss the metabolic profile based on research 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 the proper functioning of the endocrine glands.

### FAST METABOLISM (TYPE #4)

- \*\* Sympathetic Dominance
- \*\* Decreased Thyroid Function (decreased secretion of hormones)
- \*\* Decreased Adrenal Activity (decreased secretion of hormones)

The current tissue mineral pattern is indicative of a fast metabolic rate (Fast Metabolism, Type #4). Even though the metabolic rate is considered fast, this patient may be experiencing adrenal and thyroid insufficiency. This pattern is characteristic of a "stress burnout" syndrome. Stress burnout is often associated with chronic or prolonged stress. Apparently, the stress has been present for an extended period of time and eventually the thyroid and adrenal glands can no longer maintain sufficient energy production to keep up with stress demands. This pattern can result in periodic fatigue and depression.

It should be noted that stress is a normal part of life and serves a useful purpose when it is controlled. However, chronic uncontrolled stress will eventually contribute to various vitamin and mineral imbalances, and the ability to maintain adequate energy levels and optimum health will decrease.

## NUTRIENT MINERAL LEVELS

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This section of the report will discuss those nutritionally significant elements that reveal moderate or substantial deviations from normal and that may also possibly reflect a clinically significant change since the previous evaluation.

### 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.

### **EXHAUSTION STAGE OF STRESS INDICATED BY LOW TISSUE (Na) AND (K) LEVELS**

Low tissue sodium and potassium can often reflect a reduction in adrenal cortical activity. This pattern is indicative of an exhaustion stage of stress in the fast metabolizer (Type #4). This stage of stress is frequently the result of prolonged or severe stress, and is often referred to as a "stress burnout".

### **FATIGUE AND LOW IRON (Fe)**

Low tissue iron has been correlated with a tendency toward anemia. Iron deficiency anemia is a contributing factor to fatigue and shortness of breath.

### **IRON (Fe)**

A decrease in tissue iron levels may be due to the removal of iron along with other elements via the eliminative organs, such as; mercury, lead, copper, cadmium, manganese and calcium. If this reduction in iron is due to the antagonisms caused by one or more of these elements during the elimination process, then this reduction should only be temporary, and changes in serum abnormalities may not be detected.

Dairy foods can decrease the absorption of iron from the diet. If dairy foods are to be eaten, it is suggested that high iron foods be eaten separately.

### **SOME ADDITIONAL FACTORS THAT MAY CONTRIBUTE TO A DECREASE IN IRON**

Antacids	Excessive Aspirin Use
Vitamin C Deficiency	Excessive Tea Intake
Vegetarian Diet	Excess Zinc Intake or Retention

### **MANGANESE (Mn)**

A further reduction of manganese may reflect a diminished capability to metabolize carbohydrates efficiently.

## **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 the ideal or acceptable clinical ranges.

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 recognized, corrective therapy may then be employed to help re-establish a normal biochemical balance.

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

### **CALCIUM/POTASSIUM (CA/K) RATIO**

A high calcium-to-potassium ratio is frequently associated with an underactive thyroid gland with fatigue as a common symptom.

**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 for 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  
Dry Skin  
Constipation

Depression  
Over-weight Tendencies  
Cold Sensitivity

**ZINC/COPPER (Zn/Cu) RATIO**

Zinc and copper are mutually antagonistic and will compete with each other for absorption. If they are not in balance, these nutritionally important elements will also antagonize and disrupt the metabolic activity of the other. In this profile, an elevated zinc-to-copper ratio indicates decreased collagen synthesis due to a relative copper deficiency (see high Zn/Cu ratio). This can lead to capillary fragility, osteoporosis, bleeding gums, and premature graying of the hair if the pattern becomes chronic.

**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 shown that magnesium will affect adrenal cortical activity and response, and reduced adrenal activity results in increased magnesium retention. This current sodium/magnesium profile is indicative of low adrenal cortical function. An increased tendency toward one or more of the following conditions may exist.

Fatigue  
Dry Skin

Constipation

## **TOXIC METALS**

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This section of the report will discuss those toxic metals that are currently elevated above the normal population reference intervals or that reveal a clinically significant change since the previous evaluation.

Upon exposure, and eventual distribution of heavy metals by the body into different soft tissue storage sites, some heavy metals can accumulate in nerve tissues, including the brain. As central nervous system toxins, they can adversely affect nerve conduction, neuro-transmitters, and neurological tissue, by interfering with normal enzymes and cellular metabolic functions, as well as contributing to free radical production.

Toxic metals will often increase and/or decrease from a previous test. A significant increase or decrease in the level of a specific heavy metal usually indicates a removal of that metal from the body via the eliminative organs. The detoxification program is a fluctuating process in which the body mobilizes the metal from the soft tissue (brain, kidneys, liver, skin, etc...), and then eliminates that metal in graduated steps. Depending upon the levels of accumulation, the elements involved, and the overall biochemical pattern, the process can be a gradual release or it can be relatively quick. However, usually the slower the release, the less discomfort there will be, as the body's excretory organs are then not overloaded.

AN ELIMINATION OF ANY OF THE TOXIC HEAVY METALS MAY PRECIPITATE A TEMPORARY FLARE-UP OF SYMPTOMS THAT ARE ASSOCIATED WITH THE HEAVY METAL THAT IS BEING ELIMINATED. THE DISCOMFORT, IF ANY, WILL ONLY BE TEMPORARY AND WILL DIMINISH AS THE MOBILIZATION AND ELIMINATION PROCESS DECREASES.

## TOXIC METAL RATIOS

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This section of the report will discuss those toxic metal ratios that reveal moderate or significant 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.

## 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 improving your biochemistry.

### GENERAL DIETARY GUIDELINES FOR THE FAST METABOLIZER

- \* INCREASE INTAKE OF HIGH PURINE PROTEIN FOODS...high purine protein sources include the 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, and 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 the 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 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 avoided completely for four days. After which, they should not be eaten more frequently than once every three days during course of therapy.

#### **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. Therefore, these foods are to be avoided until the next evaluation or until notified otherwise by the attending healthcare professional.

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	

#### **HIGH COPPER FOODS**

The following foods are good sources of copper. These foods may be increased in the diet until the next evaluation.

Crab	Mushrooms
Liver	Lobster
Cod	Brazil Nuts
Duck	Walnuts
Hazelnuts	

#### **FOODS HIGH IN IRON CONTENT**

The following foods may be increased in the diet:

Beef (lean)	Sunflower Seeds
Egg (yolk)	Oysters
Pumpkin Seeds	Chipped Beef

NOTE: Dairy foods such as milk and cheese actually decrease the availability of iron from the diet. If dairy foods or vegetarian diets are consumed exclusive of meats, iron absorption can be reduced by as much as 60 percent.

#### **AMINO ACIDS THAT IMPROVE CALCIUM ABSORPTION**

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

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

Flounder  
Cod  
Ham

Heart  
Chuck Roast  
Liverwurst

**SPECIAL NOTE:**

This report contains only a limited number of foods to avoid or increase the diet. FOR THOSE FOODS NOT SPECIFICALLY INCLUDED IN THIS SECTION, CONTINUED CONSUMPTION ON A MODERATE BASIS IS ACCEPTABLE UNLESS RECOMMENDED OTHERWISE BY THE ATTENDING HEALTHCARE PROFESSIONAL. Under some circumstances, dietary recommendations may list the same food item in the "TO EAT" and the "TO AVOID" categories simultaneously. 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.

The purpose of this program is to re-establish a normal balance of body chemistry through individually designed dietary and supplement suggestions. Although this re-evaluation does show an improvement in some areas, it also reveals a lack of improvements in others. To progress further and to realize additional benefits, the following factors should be taken into consideration:

**DIETARY HABITS:**

Maintain a balanced diet, while avoiding foods that may interfere with vitamin and mineral metabolism (highly refined foods, sugar, excessive alcohol intake, fad diets, etc.) More importantly, for those individual's with elevated toxic metals, it is stressed that intake of quality protein be adequate, as removal is accomplished by the attachment of proteins to the heavy metal for transport to the elimination organs.

**NUTRITIONAL SUPPLEMENTS:**

It is important that you comply as closely as possible to your health-care professional's recommendations pertaining to supplement suggestions. Additionally, it is vital that you inform your health-care professional of other supplements and medications that you may be taking at this time. This will allow for modifications to be made in the event of known nutritional conflicts and antagonisms that will hinder results while on this re-balancing program.

**REST AND EXERCISE:**

Obtain adequate rest and maintain a moderate exercise regime for continued improvements. As you age, the body's ability to absorb and utilize nutrients decrease. In addition, there is an increased tendency to become more sedentary, allowing fat to replace muscle tissue. The body will then require less calories and the appetite will diminish. Eventually, this creates a deteriorating cycle of diminishment of health. For this reason, experts in exercise and gerontology report that as you age, you should continue to engage in aerobic and muscular strengthening exercises.

**PROLONGED STRESS:**

Research has shown that prolonged stress can be a major deterrent to good health. Be aware of stressful situations (physical or emotional) in order to recognize and avoid their adverse effects.

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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