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LABORATORY NO.:

1959775

PROFILE NO.:

2

SAMPLE TYPE:

SCALP

PATIENT: THRONS, ELIZABETH

AGE: 54

SEX: F

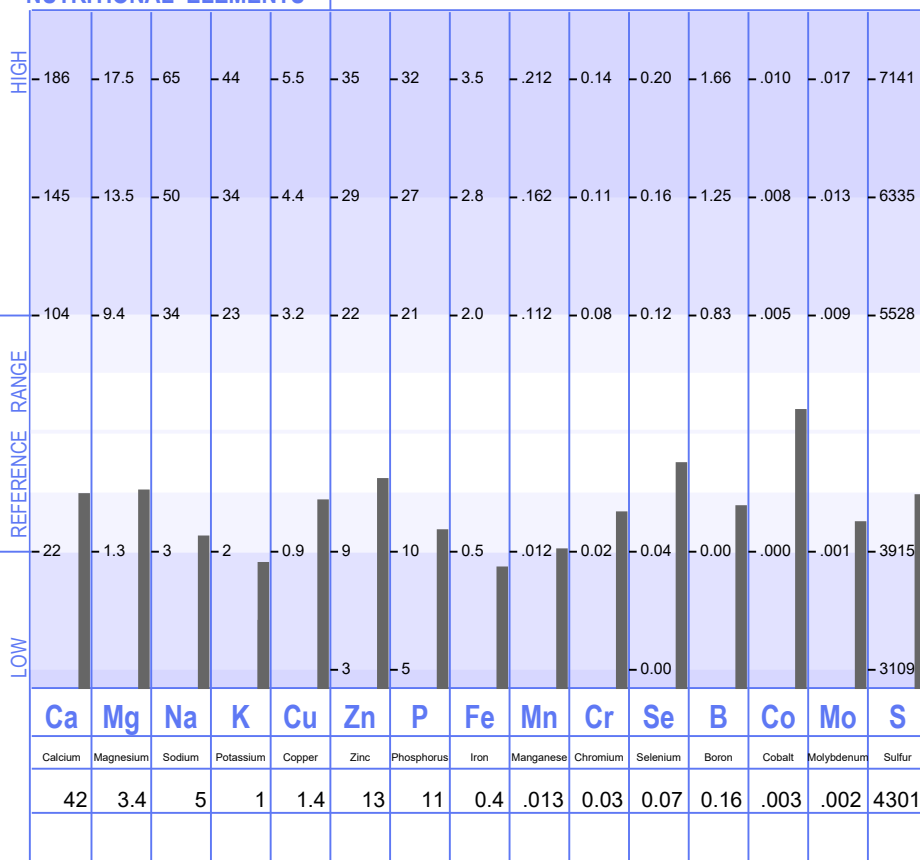
METABOLIC TYPE: SLOW 1

REQUESTED BY: DR BATTEN, H

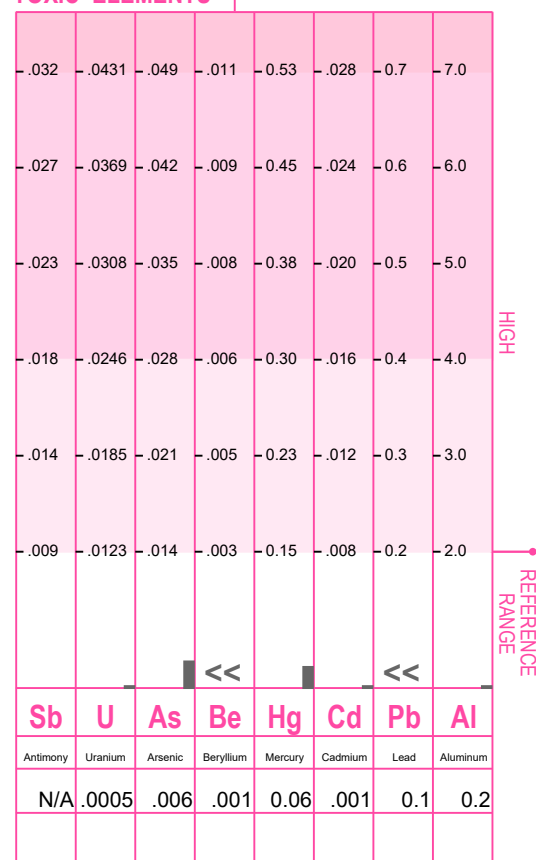
ACCOUNT NO.: 2216

DATE: 27/08/2025

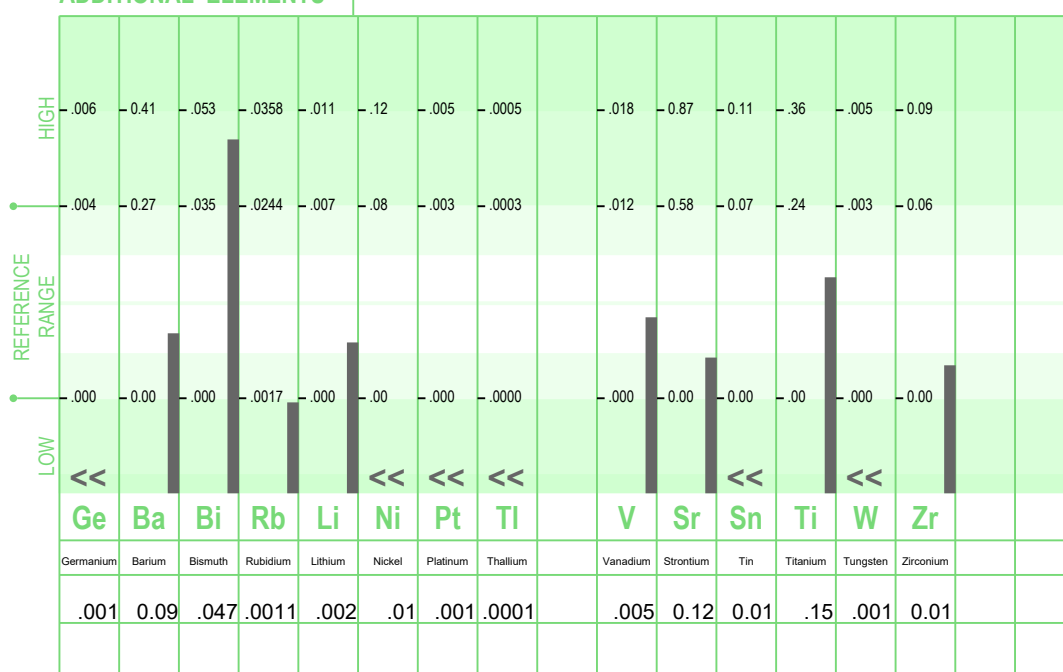
NUTRITIONAL ELEMENTS



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.

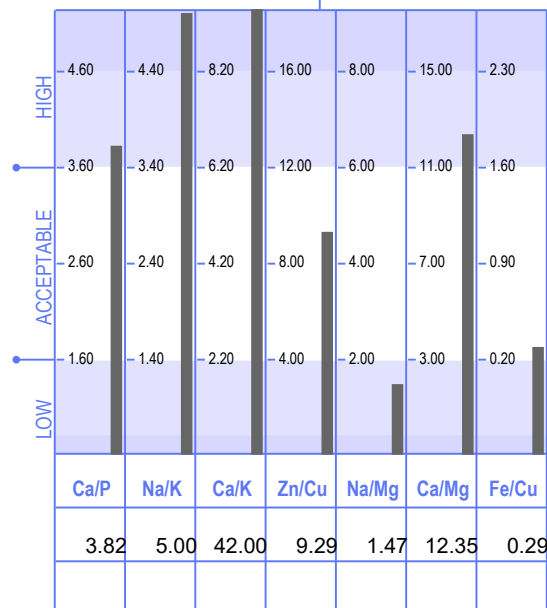
Laboratory Analysis Provided by Trace Elements, Inc.
Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory. No. 45 D0481787

27/08/2025

CURRENT TEST RESULTS

PREVIOUS TEST RESULTS

SIGNIFICANT RATIOS



TOXIC RATIOS



ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	350.0		263/1
Cr/V	6.0		8/1
Cu/Mo	700.0		356/1
Fe/Co	133.3		615/1
K/Co	333.3		6350/1
K/Li	500.0		6350/1
Mg/B	21.3		21/1
S/Cu	3072.1		2668/1
Se/Tl	700.0		370/1
Se/Sn	7.0		3.2/1
Zn/Sn	1300.0		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)

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 skin's surface, its outer layers harden, locking in the metabolic products accumulated during the formation period. This biological process provides a blueprint and lasting record of mineral status and nutritional and metabolic activity during this time.

The precise analytical method of determining the levels of minerals in the hair is a highly sophisticated technique. However, when performed to exacting standards and interpreted correctly, it may be used as a screening aid for determining mineral deficiencies, excesses, and 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 impact on your mineral balance, which 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, and 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. 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 following comprehensive report 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

NUTRITIONAL ELEMENTS

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

TOXIC ELEMENTS

The toxic elements section displays the results for each reported toxic element. 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 statistically significant but not necessarily clinically significant. Further investigation is then 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 may adversely affect

biochemical function. Further study will help to reveal their role, 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) are as meaningful, 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 critical 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 research and documentation regarding these ratios.

METABOLIC TYPE

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 body's tissues: the skin, organs, bone, hair, and nails. How efficiently each nutrient is utilized depends mainly upon the 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 on 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 AND OTHER ELEMENTS

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 areas of each graph section represent the reference interval for each element based on a 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. Therefore, if applicable, a discussion regarding their involvement in metabolism may be found in this report's ratio section(s).

HYPOGLYCEMIA PROFILE

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

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

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.

POTASSIUM (K)

Low tissue potassium may be due to poor retention of this mineral, even though dietary intake of potassium may be adequate. Poor potassium retention can result from adrenal and thyroid insufficiency, prolonged diarrhea, or from the use of medications, such as diuretics and laxatives. Nonsteroidal over-the-counter anti-inflammatories will also suppress adrenal function.

IRON (Fe)

Low tissue iron can be due to several factors other than low intake or excessive iron loss. Iron deficiency can be a result of any one or a combination of the following factors:

Vitamin C Deficiency	Excess Copper
Excess Calcium	Vegetarian Diet
Excess Zinc	Excess Toxic Metals
Excessive Aspirin Use	Antacids
Excessive Tea Intake	Excessive Milk Intake

NUTRIENT MINERAL RATIOS

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 occurs 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).

CALCIUM/PHOSPHORUS (Ca/P) AND PROTEIN INTAKE

Phosphorus is involved in all the body's cellular energy production cycles. Adequate protein intake is essential in providing needed phosphorus for increased energy production and reducing excess tissue calcium retention (see high Ca/P ratio). It is suggested that protein intake be evaluated. Protein should make up at least 40 percent of total daily caloric intake.

HIGH SODIUM/POTASSIUM (Na/K)

Your sodium-potassium profile is elevated above the normal range. When sodium is high relative to potassium (see high Na/K ratio), it is indicative of a relative sodium excess. This mineral profile, if chronic, may eventually lead to fluid retention and subsequent weight gain. Weight gain contributed to by this pattern is often only water retention. At this time, it is not necessary to reduce sodium intake, but it is recommended rather that dietary potassium intake be increased relative to sodium intake.

HIGH CALCIUM/POTASSIUM (Ca/K) AND HYPOTHYROIDISM

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	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

HIGH CALCIUM/MAGNESIUM (Ca/Mg) RATIO

Calcium and magnesium should always be in a proper balance with one another. If this normal equilibrium is upset, one mineral will become dominant relative to the other. In this case, calcium is

high relative to magnesium (see high Ca/Mg ratio), which may indicate abnormal calcium metabolism. Even though the magnesium level is not low at this time, excess calcium relative to magnesium will suppress magnesium function within the body.

MINERAL METABOLISM AND VITAMIN B6

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

TOXIC METAL LEVELS

ALL CURRENT TOXIC METAL LEVELS ARE WITHIN THE ACCEPTABLE RANGE

TOXIC METAL RATIOS

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. However, the retention of these toxic metals depends 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. For example, the accumulation of lead will have a more detrimental effect on body chemistry when sufficient calcium and iron levels are unavailable. Therefore, 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.

IRON/MERCURY (Fe/Hg) RATIO

The mineral iron exerts a protective or antagonistic effect upon mercury and its manifestations. When the iron level is low relative to the mercury level, and even though the mercury level may not be excessive, the protective action of iron will be diminished. Iron metabolism may be affected if mercury exposure increases and the body retains increased amounts of this toxic metal.

DIETARY SUGGESTIONS

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 improve your biochemistry.

SLOW METABOLISM

Dietary habits may contribute to slow metabolism. For example, low protein, high carbohydrate, high fat intake, and the consumption of refined sugars and dairy products have an excessive slowing-down effect on 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 to increase metabolic rate and energy production.
- * INCREASE FREQUENCY OF MEALS...while decreasing the total caloric intake for each meal. This is suggested to sustain the level of nutrients necessary for energy production and reduce blood sugar fluctuations.
- * EAT A MODERATE AMOUNT OF UNREFINED CARBOHYDRATES...Carbohydrate intake should be at most 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 high 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 VITAMIN D SUPPLEMENTS...unless recommended by a healthcare professional.

AVOID DIETARY FATS AND OILS UNLESS NOTIFIED OTHERWISE BY ATTENDING HEALTHCARE PROFESSIONAL

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

HIGH POTASSIUM FOODS

The following foods may be increased in the diet until the next evaluation. These foods which are high in potassium content in relation to calcium and sodium will help to supplement potassium requirements.

Oranges	Asparagus
Dates	Plums

Scallops
Tomatoes
Rhubarb
Peas
Apricots
Chicken
Catfish
Cantaloupe
Bananas
Egg (white)
Turkey
Currants
Lima Beans

Prunes
Casaba
Raisins
Lentils
Beet Greens
Beef (lean)
Apples
Artichokes
Beets
Summer Squash
Flounder (baked)
Brussels Sprout
Chard

VITAMIN B-1 AND THYROID HORMONE

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

Wheat Germ
Pinto Beans
Pike (broiled)

Rice Bran
Lobster

FOODS HIGH IN IRON CONTENT

The following foods may be increased in the diet:

Beef (lean)
Egg (yolk)
Pumpkin Seeds

Sunflower Seeds
Oysters
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.

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 the detoxification process. Toxic substances are combined with sulfur, converted to a nontoxic form, and then excreted. The following foods may be consumed liberally during the course of therapy:

Bass
Trout
Cod
Turkey
Flounder
Round Steak

Mackerel
Short Ribs
Perch
Sirloin
Pumpkin Seeds

The above list of foods is 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 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

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 on other supporting clinical data as determined by the attending healthcare professional.

OBJECTIVE OF THE PROGRAM:

This program aims 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. For 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 the 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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