

**InterClinical
Laboratories**

www.interclinical.com.au

ABN 89 076 386 475

+61 2 9693 2888

PO BOX 6474

ALEXANDRIA NSW 2015

info@interclinical.com.au

LABORATORY NO.:

1960581

PROFILE NO.:

2

SAMPLE TYPE:

SCALP

PATIENT: LANGFORD, JOY

AGE: 76

SEX: F

METABOLIC TYPE:

SLOW 1

REQUESTED BY: STUDLEY, J

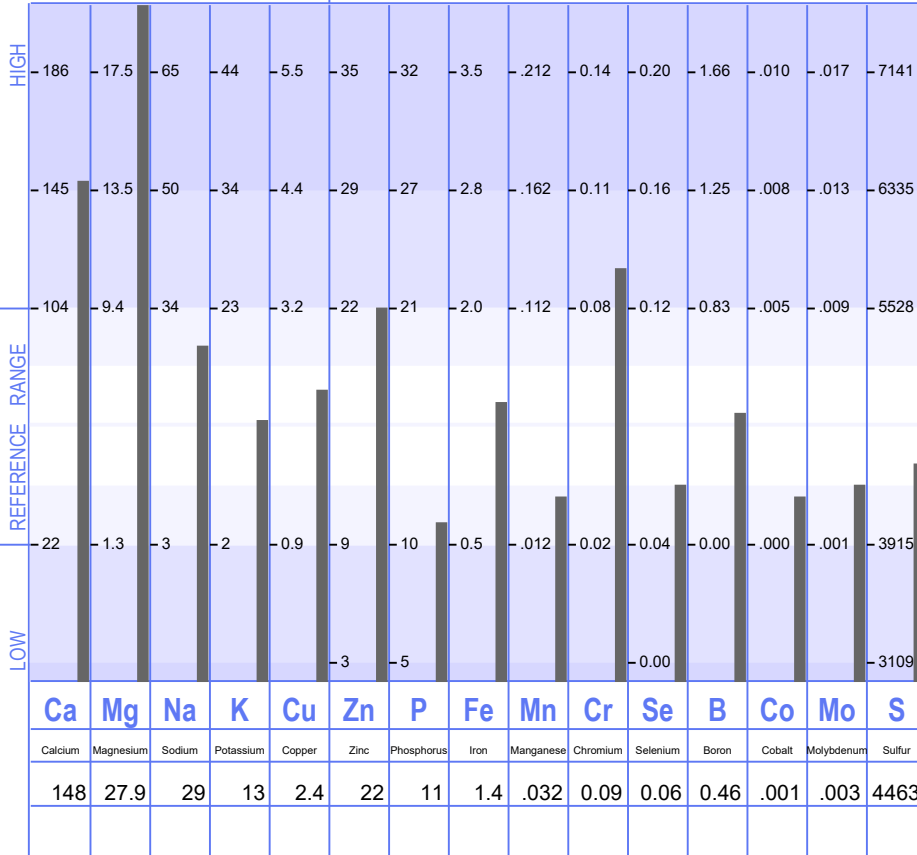
ACCOUNT NO.:

2216

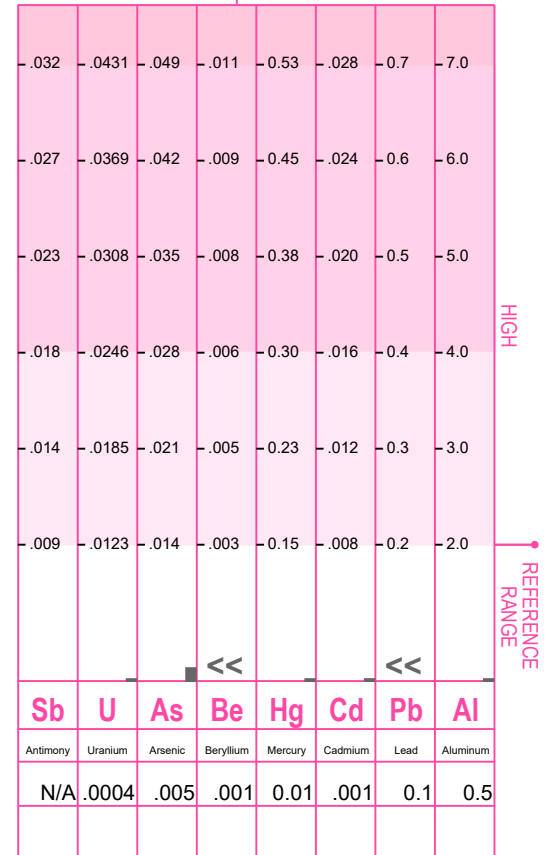
DATE:

3/09/2025

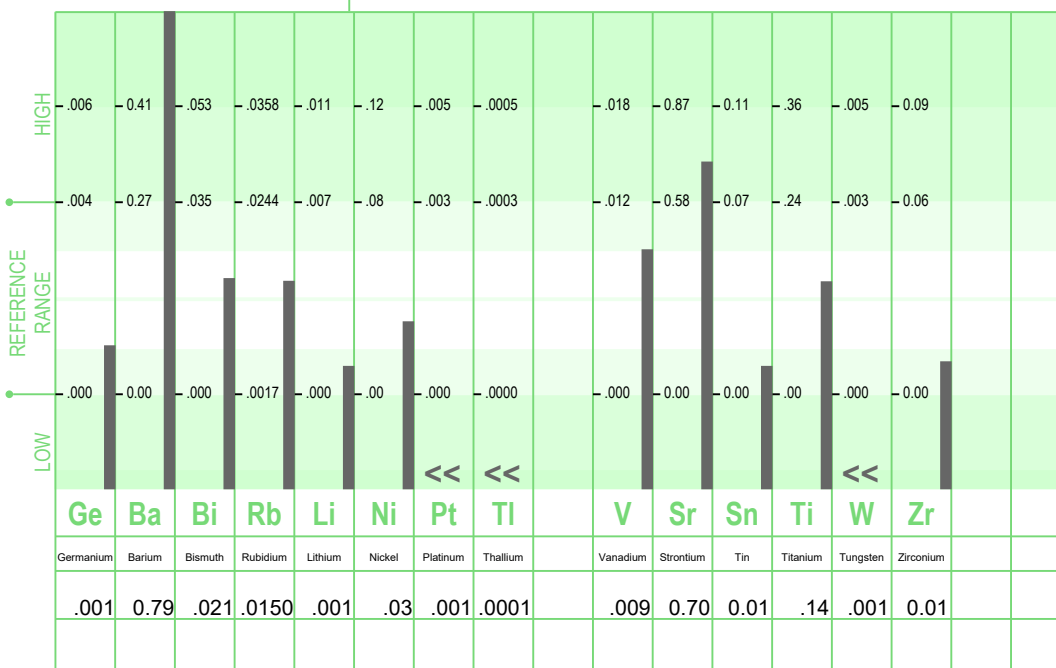
NUTRITIONAL ELEMENTS



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.

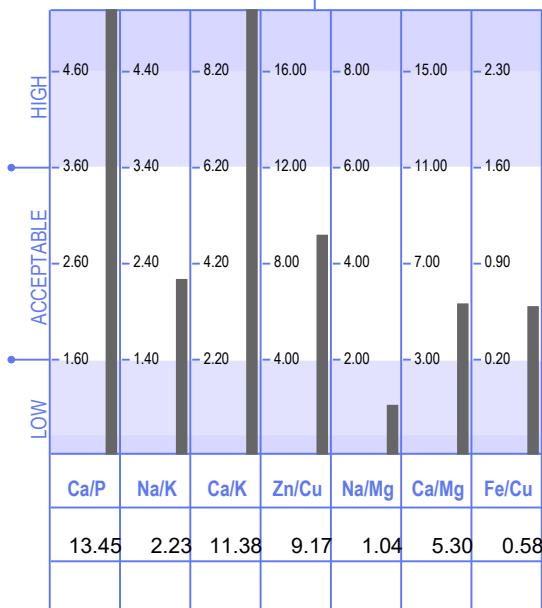
Laboratory Analysis Provided by Trace Elements, Inc.
Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory. No. 45 D0481787

3/09/2025

CURRENT TEST RESULTS

PREVIOUS TEST RESULTS

SIGNIFICANT RATIOS



TOXIC RATIOS



ADDITIONAL RATIOS

| RATIO | CALCULATED VALUE | | EXPECTED |
|-------|------------------|----------|----------|
| | Current | Previous | |
| Ca/Sr | 211.4 | | 263/1 |
| Cr/V | 10.0 | | 8/1 |
| Cu/Mo | 800.0 | | 356/1 |
| Fe/Co | 1400.0 | | 615/1 |
| K/Co | 13000.0 | | 6350/1 |
| K/Li | 13000.0 | | 6350/1 |
| Mg/B | 60.7 | | 21/1 |
| S/Cu | 1859.6 | | 2668/1 |
| Se/Tl | 600.0 | | 370/1 |
| Se/Sn | 6.0 | | 3.2/1 |
| Zn/Sn | 2200.0 | | 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 obtained from these test results is indicative of a slow metabolic (Type #1) pattern. This particular profile can be related to a number of contributing factors, such as;

* Diet - Dietary factors such as low protein intake, high carbohydrate intake, and eating refined carbohydrates, especially those containing appreciable amounts of sugar, have an indirect yet significant suppressing effect on the metabolic rate.

* Endocrine Function - Low thyroid activity, as well as low adrenal gland function, will contribute to a lowering of the metabolic rate.

* Digestion - Poor absorption and utilization of nutrients found in the foods that are consumed will result in decreased energy production on a cellular level, thereby affecting metabolism. In turn, a lowered metabolic rate will have an adverse effect 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 significantly reduced metabolic rate, such as indicated in these test results, has been correlated with the following characteristics:

| | |
|------------|-----------------|
| Fatigue | Dry Skin |
| Lethargy | Water Retention |
| Depression | Cold Hands |

Cold Feet
Tendencies Toward Recurring Viral Infections

Weight Gain in Thighs and Hips

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).

CALCIUM (Ca)

Your tissue calcium is elevated above normal. This is a common pattern found in the slow metabolizer, as high calcium may contribute to or is a result of a decreased metabolic rate.

Calcium and magnesium are considered sedative minerals. Excessive calcium intake can result in poor absorption of the minerals that are required for cellular energy production.

For your particular mineral profile, excessive retention of calcium can result in a relative deficiency of:

- * Phosphorus - The main energy constituent of every cell (ATP).
- * Potassium - Required for cellular nutrient transport and hormonal expression, especially thyroxine.
- * Iron - Required for cellular energy production.
- * Sodium - Required in sufficient amounts to contribute to digestion, absorption, and neurological function.

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.

MAGNESIUM (Mg)

Magnesium is the fourth most abundant metal found in the body and is essential for muscle relaxation, protein synthesis, nerve excitability, and energy production on a cellular level. However, magnesium also has a sedating effect upon the body, and when in excess, may contribute to a number of conditions, such as;

Low Blood Pressure
Fatigue
Craving for Salt

Depression
Dizziness
Muscle Weakness

Decreased Mental Alertness

Lowered Body Temperature

SOME FACTORS THAT MAY CONTRIBUTE TO HIGH TISSUE MAGNESIUM LEVELS

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

High Carbohydrate Intake

Low Adrenal Function

Vitamin B6 Deficiency

Vitamin E Deficiency

Elevated Tissue Calcium

HCL Deficiency

Hypothyroidism (Low Thyroid)

Low Protein Intake

BARIUM (Ba)

Your barium level of 0.79/1 mg% is above the established reference range for this element. Elevated levels of barium have previously been associated with high blood pressure and cardiovascular disease.

Barium compounds are used widely in industry in the production of plastics, rubber, electronics, and textiles. Barium compounds are used in ceramic glazes and enamels, in glass and paper production, as well as a lubricant additive in pharmaceuticals and cosmetics, and is contained in rodenticides. Barium is also used in diagnostic procedures, such as a GI series.

Dietary sources of barium include milk, potatoes, flour, cereal products, and nuts, with Brazil nuts containing the highest amounts. Water can also be a source of barium, either from naturally occurring sources or from industrial pollution. Atmospheric sources include coal and diesel fuel combustion. Barium is used as drilling mud in oil wells and can be a significant environmental source.

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).

HIGH CALCIUM/PHOSPHORUS (Ca/P) RATIO

Phosphorus is involved in almost every reaction of metabolism. When low levels of phosphorus are found in the hair relative to tissue calcium (see high Ca/P ratio), it often reflects abnormal calcium and phosphorus metabolism.

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
Dry Skin
Constipation

Depression
Over-weight Tendencies
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
Dry Skin
Allergies (Ecological)

Constipation
Lowered Resistance
Low Blood Pressure

TOXIC METAL LEVELS

ALL CURRENT TOXIC METAL LEVELS ARE WITHIN THE ACCEPTABLE RANGE

TOXIC METAL RATIOS

ALL CURRENT TOXIC METAL RATIOS ARE WITHIN THE ACCEPTABLE RANGE

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.

FOOD ALLERGIES

Certain foods can produce a maladaptive or "allergic-like" reaction, commonly called "food allergies" in some individuals. 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, 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 potential "allergy foods" or foods that impede rapid and effective response. Consumption of these foods should be completely avoided for four days. After which, they should only be eaten more frequently than once every three days during the 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. Conversely, if an under-active condition is present, excessive consumption can contribute to symptoms associated with hypothyroidism, such as; fatigue, cold sensitivity, depression, weight gain, dry skin and hair, and constipation.

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

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

FOODS THAT MAY IMPEDE ADRENAL FUNCTION

The following foods should be reduced or completely avoided until the next evaluation, or until notified otherwise by the attending healthcare professional:

| | |
|-----------|----------------|
| Almonds | Bass |
| Cashews | Garbanzo Beans |
| Wild Rice | Brazil Nuts |
| Tofu | Clams (raw) |

Soybean Flour
Baker's Yeast
Pecans
Hazelnuts
Tortilla Roll
Molasses
Torula Yeast

Cocoa Powder
Walnuts
Peanuts
Chestnuts
Spinach
Figs (dried)

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

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

VITAMIN B-1 AND THYROID HORMONE

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

Wheat Germ
Pinto Beans
Pike (broiled)

Rice Bran
Lobster

FOODS HIGH IN PHOSPHORUS

The following foods are high in phosphorus, and low in calcium and fat content. These foods may be increased in the diet until the next evaluation.

Lean Beef
Chicken (baked)
Chipped Beef
Yams

Fish (broiled)
Turkey
Pheasant
Wheat Germ

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

Mackerel
Short Ribs

Cod
Turkey
Flounder
Round Steak

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.

InterClinical Laboratories Pty Limited
Unit 6/10 Bradford Street, Alexandria, N.S.W. 2015, Sydney, Australia
Ph: (02) 9693-2888 Fax: (02) 9693-1888
Email: lab@interclinical.com.au

Authorized Representative for Australia and New Zealand