HAIR TISSUE MINERAL ANALYSIS REPORT

HAIR TISSUE MINERAL ANALYSIS

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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

	Ca	Mg	Na	K	Cu	Zn	P	Fe	Mn	Cr	Se	B	Co	Mo	S
	Calcium	Magnesium	Sodium	Potassium	Copper	Zinc	Phosphorus	Iron	Manganese	Chromium	Selenium	Boron	Cobalt	Molybdenum	Sulfur
HIGH	186	17.5	65	44	5.5	35	32	3.5	.212	0.14	0.20	1.66	.010	.017	7141
	145	13.5	50	34	4.4	29	27	2.8	.162	0.11	0.16	1.25	.008	.013	6335
	104	9.4	34	23	3.2	22	21	2.0	.112	0.08	0.12	0.83	.005	.009	5528
REFERENCE RANGE															
	22	1.3	3	2	0.9	9	10	0.5	.012	0.02	0.04	0.00	.000	.001	3915
LOW						3	5				0.00				3109
	148	27.9	29	13	2.4	22	11	1.4	.032	0.09	0.06	0.46	.001	.003	4463

TOXIC ELEMENTS

	Sb	U	As	Be	Hg	Cd	Pb	Al
	Antimony	Uranium	Arsenic	Beryllium	Mercury	Cadmium	Lead	Aluminum
HIGH	.032	.0431	.049	.011	0.53	.028	0.7	7.0
	.027	.0369	.042	.009	0.45	.024	0.6	6.0
	.023	.0308	.035	.008	0.38	.020	0.5	5.0
	.018	.0246	.028	.006	0.30	.016	0.4	4.0
	.014	.0185	.021	.005	0.23	.012	0.3	3.0
REFERENCE RANGE	.009	.0123	.014	.003	0.15	.008	0.2	2.0
				<<			<<	
	N/A	.0004	.005	.001	0.01	.001	0.1	0.5

ADDITIONAL ELEMENTS

	Ge	Ba	Bi	Rb	Li	Ni	Pt	Tl		V	Sr	Sn	Ti	W	Zr
	Germanium	Barium	Bismuth	Rubidium	Lithium	Nickel	Platinum	Thallium		Vanadium	Strontium	Tin	Titanium	Tungsten	Zirconium
HIGH	.006	0.41	.053	.0358	.011	.12	.005	.0005		.018	0.87	0.11	.36	.005	0.09
	.004	0.27	.035	.0244	.007	.08	.003	.0003		.012	0.58	0.07	.24	.003	0.06
REFERENCE RANGE															
	.000	0.00	.000	.0017	.000	.00	.000	.0000		.000	0.00	0.00	.00	.000	0.00
LOW							<<	<<						<<	
	.001	0.79	.021	.0150	.001	.03	.001	.0001		.009	0.70	0.01	.14	.001	0.01

"<<": Below Calibration Limit; Value Given Is Calibration Limit

"QNS": Sample Size Was Inadequate For Analysis.

"N/A": Currently Not Available

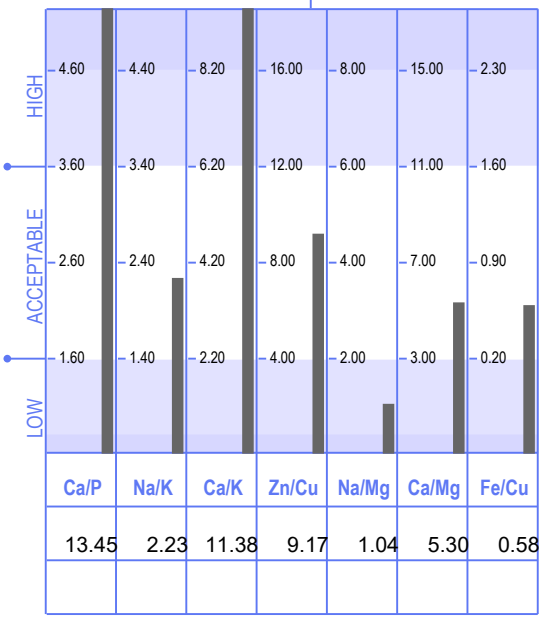
Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.

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

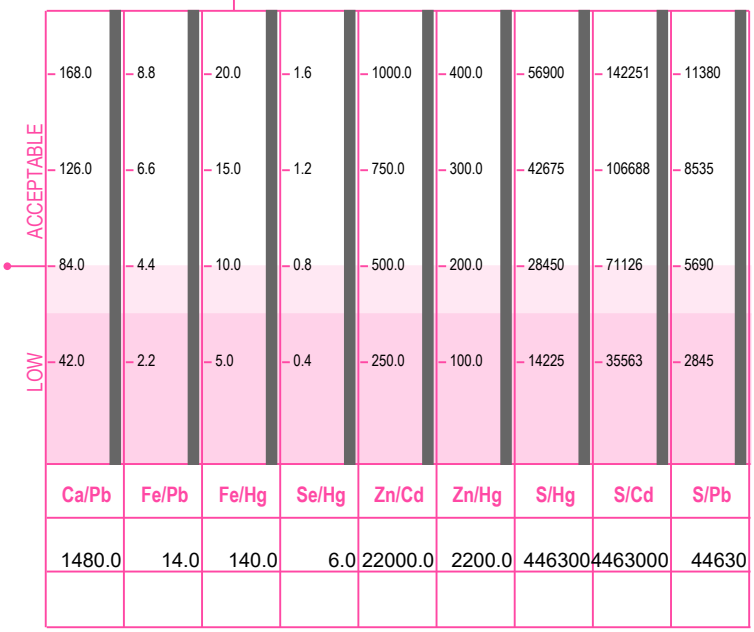
PREVIOUS TEST RESULTS

SIGNIFICANT RATIOS



Ca/P	Na/K	Ca/K	Zn/Cu	Na/Mg	Ca/Mg	Fe/Cu
13.45	2.23	11.38	9.17	1.04	5.30	0.58

TOXIC RATIOS



Ca/Pb	Fe/Pb	Fe/Hg	Se/Hg	Zn/Cd	Zn/Hg	S/Hg	S/Cd	S/Pb
1480.0	14.0	140.0	6.0	22000.0	2200.0	446300	4463000	44630

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.

THE FOLLOWING RECOMMENDATIONS SHOULD BE TAKEN ONLY WITH MEALS IN ORDER TO INCREASE ABSORPTION AND TO AVOID STOMACH DISCOMFORT.IF DISCOMFORT OCCURS SUPPLEMENTATION CAN BE REDUCED TO A MINIMUM THEN INCREASED GRADUALLY.

RECOMMENDATION	AM	NOON	PM
PARA TONE	1	1	2
ADEN COMPLEX	2	2	2
VITAMIN C PLUS	1	0	0
HCL SUPPORT	1	1	1
E ASTA SEL (Vitamin E)	1	1	1

THESE RECOMMENDATIONS ARE BASED UPON THE MINERAL LEVELS FOUND IN THE HAIR TISSUE MINERAL ANALYSIS AND MAY AT TIMES NEED MODIFICATION AS PER SPECIFIC NEED AND/OR INDIVIDUAL CIRCUMSTANCES. THESE RECOMMENDATIONS ARE PROVIDED ONLY AS A PROFESSIONAL GUIDE TO SUPPLEMENTAL ASSISTANCE.

THESE RECOMMENDATIONS MAY NOT INCLUDE MINERALS WHICH APPEAR BELOW NORMAL OR IN TURN MAY RECOMMEND MINERALS WHICH APPEAR ABOVE NORMAL ON THE HTMA GRAPH. THIS IS NOT AN OVERSIGHT. SPECIFIC MINERALS WILL INTERACT WITH OTHER MINERALS TO RAISE OR LOWER TISSUE MINERAL LEVELS, AND THIS PROGRAM IS DESIGNED TO BALANCE THE PATIENT"S MINERAL LEVELS THROUGH THESE INTERACTIONS.

THESE RECOMMENDATIONS SHOULD NOT BE TAKEN OVER A PROLONGED PERIOD OF TIME WITHOUT OBTAINING A RE-EVALUATION. THIS IS NECESSARY IN ORDER TO MONITOR PROGRESS AND MAKE THE NECESSARY CHANGES IN THE NUTRITIONAL RECOMMENDATIONS AS REQUIRED.

SPECIAL NOTE: NUTRITIONAL SUPPLEMENTS DO NOT TAKE THE PLACE OF A GOOD DIET. THEY ARE BUT AN ADDITIONAL SOURCE OF NUTRIENTS, AND THEREFORE, MUST NOT BE SUBSTITUTED FOR A BALANCED DIET.

INTRODUCTION

THE FOLLOWING REPORT SHOULD NOT BE CONSIDERED AS DIAGNOSTIC, BUT RATHER AS A SCREENING TOOL THAT PROVIDES AN ADDITIONAL SOURCE OF INFORMATION. THIS REPORT SHOULD ONLY BE USED IN CONJUNCTION WITH OTHER LABORATORY TESTS, HISTORY, PHYSICAL EXAMINATION AND THE CLINICAL EXPERTISE OF THE ATTENDING HEALTHCARE PROFESSIONAL.

TEST RESULTS WERE OBTAINED BY A LICENSED* CLINICAL LABORATORY ADHERING TO TESTING PROCEDURES THAT COMPLY WITH GOVERNMENTAL PROTOCOL AND STANDARDS ESTABLISHED BY TRACE ELEMENTS, INC., U.S.A. THE FOLLOWING INTERPRETATION IS BASED UPON INTERNATIONAL DATA AND DEFINED BY EXTENSIVE CLINICAL RESEARCH CONDUCTED BY DAVID L. WATTS, PH.D.

This analysis including levels, ratios, ranges and recommendations are based upon the sample and sampling technique meeting the following requirements:

** Sample obtained from the mid-parietal to the occipital region of scalp.
** Sample is proximal portion of hair length (first 1" to 2" of hair closest to scalp.
** Sufficient sample weight (minimum of 150 mg.)
** High grade stainless steel sampling scissors.
** Untreated virgin hair (no recent perms, bleaching, or coloring agents).

* Clinical Laboratory License
U.S. Department of Health and Human Services, State of Texas Department of Health,

Clinical Laboratories Improvement Act, 1988 No. 45-D0481787

METABOLIC TYPE

SLOW METABOLISM, TYPE #1

This patient is classified as a SLOW METABOLIZER TYPE # 1. Generally speaking, the Slow Metabolizer is experiencing the following endocrine and CNS activity. However, in those cases involving endocrine replacement therapy, such as; thyroid, insulin, adrenal steroids (anti-inflammatory drugs), etc., as well as endocrine antagonists and in extreme cases of surgical removal of a gland, tissue mineral patterns can be significantly affected. In these cases, the following reported indications of endocrine status should not be considered as representative of endocrine activity. Additional clinical tests and patient history should be taken into consideration.

Para-Sympathetic Nervous System Dominance
Tissue Alkalinity
Pancreatic Activity Increased
Adrenal Medullary Insufficiency
Parathyroid Activity Increased
Thyroid Activity Decreased
Hypochlorhydria

Physical Characteristics May Include:

Fatigue
Low Body Temperature
Low Blood Pressure
Orthostatic Hypotension
Pear-Shaped Body Structure
Cold Extremities

There are several sub-classifications of each metabolic type, ranging from Type #1 to Type #4. This is taken into consideration on their supplement and dietary recommendations. The extent to which the patient is manifesting these metabolic characteristics depends upon the degree and chronicity of the mineral patterns.

RE-EVALUATION

A re-evaluation is suggested at three months from the beginning of implementation of the TEI supplement program. However, if major symptomatic changes occur (other than from toxic metal removal), a retest can be submitted sooner.

TRENDS

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

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

TENDENCY	1 2 3 4 5 6 7 8
HYPOADRENIA	
HYPOTHYROID	

COMMENTS

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

HYPOTHYROID:
High calcium relative to potassium indicates a tendency toward a low thyroid function. It has been found that an elevated TSH, even when circulating T-3 and T-4 are normal, is an early indication of hypothyroidism.

CONTRAINDICATIONS

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

* THYMUS *
The thymus has an opposing effect on the adrenal glands. As long as an adrenal insufficiency is indicated, thymus supplementation should be avoided.

* COD LIVER OIL *
Cod liver oil will contribute to an adverse reduction in the metabolic rate, which can result in increased fatigue and depression. It is suggested that cod liver oil be avoided until the biochemical pattern improves.

DIETARY SUGGESTIONS

The following dietary suggestions are defined by several factors: the individual's metabolic type, mineral levels, and mineral ratios, as well as the nutrient content of each food, including protein, carbohydrate, fat, vitamins, and minerals. Based upon

these determinations, it may be suggested that foods be avoided or increased temporarily to aid in the improvement of the patient's chemistry.

GENERAL DIETARY PRINCIPLES FOR THE SLOW METABOLIZER:

A low protein, high carbohydrate, and high-fat diet, in addition to increased consumption of refined sugars and dairy products, have a slowing-down effect on metabolism and energy production.

* EAT HIGH-PROTEIN FOOD AT EACH MEAL...Lean protein is recommended and should constitute at least 40% of the total caloric value of each meal. Recommended sources are lean beef, fish, and fowl. Other good sources of protein include bean and grain combinations and eggs. Increased protein intake is necessary e min order to increase the metabolic rate and energy production.

* INCREASE FREQUENCY OF MEALS...while decreasing the total caloric intake for each meal. This is suggested to sustain the level of nutrients necessary for energy production and decrease blood sugar fluctuations.

* EAT A MODERATE AMOUNT OF UNREFINED CARBOHYDRATES...Carbohydrate intake should not exceed 40% of the total daily caloric intake. Excellent sources of unrefined carbohydrates include whole grain products, legumes, and root vegetables.

* AVOID ALL SUGARS AND REFINED CARBOHYDRATES...This includes white and brown sugar, honey, candy, soda pop, cake, pastries, alcohol, and white bread.

* AVOID HIGH PURINE PROTEIN...Sources of high purine protein include liver, kidney, heart, sardines, and mackerel.

* REDUCE INTAKE OF FATS AND OILS...Fats and oil include fried foods, cream, butter, salad dressings, mayonnaise, etc. Fat intake should be at most 20% of the total daily caloric intake.

* REDUCE OR AVOID MILK AND MILK PRODUCTS...such as cheese, yogurt, cream, etc. These foods should be reduced to no more than once every three to four days.

* REDUCE FRUIT JUICE INTAKE...until the next evaluation. This includes orange juice, apple juice, grape juice, and grapefruit juice. Vegetable juices are acceptable.

* AVOID CALCIUM AND/OR VITAMIN D SUPPLEMENTS

FOOD ALLERGIES:
In some individuals, certain foods can produce a maladaptive or "allergic-like" reaction commonly called "food allergies". Consumption of foods that one is sensitive to can bring about reactions ranging from fatigue or drowsiness to rashes, migraine headaches and arthritic pain.

Sensitivity to foods can develop due to biochemical (nutritional) imbalances, and which can be aggravated by stress, pollution and medications. Nutritional imbalance can further be contributed to by restricting food variety, such as eating only a small group of foods on a daily basis. Often a person will develop a craving for the food they are most sensitive to and may eat the same food or food group more than once a day.

The following section may contain foods that are recommended to be avoided. These foods should be considered as potential "allergy foods" or as foods that may impede a rapid and effective response. Consumption of these foods should be completely avoided for four days. Afterwhich, they should not be eaten more frequently than once every three days during course of therapy.

FOODS THAT MAY AFFECT THYROID ACTIVITY:
The following list of foods belongs to a family of foods that are known to decrease thyroid activity when eaten in appreciable quantities. If an under-active condition is present, excessive consumption can contribute to symptoms associated with hypothyroidism, such as; fatigue, cold sensitivity, depression, weight gain, dry skin and hair, and constipation.

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

Cabbage	Kale
Rutabagas	White Turnips
Cole Slaw	Fluorides

Sauerkraut
Soybeans
Mustard
Horseradish
Chlorinated Water
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 doctor:

Almonds
Cashews
Wild Rice
Tofu
Soybean Flour
Baker's Yeast
Pecans
Hazelnuts
Tortilla Roll
Molasses
Torula Yeast
Bass
Garbanzo Beans
Brazil Nuts
Clams (raw)
Cocoa Powder
Walnuts
Peanuts
Chestnuts
Spinach
Figs (dried)

AVOID DIETARY FATS AND OILS UNLESS NOTIFIED OTHERWISE BY ATTENDING DOCTOR:
The handling of fats is difficult during a reduced metabolic state, and can contribute to a further reduction in the metabolic rate. It is suggested that all sources of high dietary fat and oil be avoided until the next evaluation.

Salad Dressings
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
- 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 analysis will list only a limited number of dietary foods to avoid or to increase in the diet. For those foods not specifically mentioned in this section, continued consumption on a moderate basis may be considered appropriate unless recommended otherwise.

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