DOCTOR'S DATA INC.

LAB #: H160218-2303-1
PATIENT: Egor Stulov
ID: STULOV-E-00001
SEX: Male
AGE: 4

CLIENT #: 39238
DOCTOR: , MD
Neurological Research Institute Llc
279 Walkers Mills Rd
Bethel, ME 04217 U.S.A.

Suggestions for your consideration. As always, work with your Doctor. With love & hope, Dr. Amy

As tolerated slowly layer in low dose Ion Transport Cap + nucleotide blend with your own doctor as always

Toxic & Essential Elements; Hair

TOXIC METALS

		RESULT µg/g	REFERENCE INTERVAL
Aluminum	(Al)	10	< 8.0
Antimony	(Sb)	0.040	< 0.066
Arsenic	(As)	0.10	< 0.080
Barium	(Ba)	0.34	< 0.50
Beryllium	(Be)	< 0.01	< 0.020
Bismuth	(Bi)	0.065	< 2.0
Cadmium	(Cd)	0.012	< 0.070
Lead	(Pb)	0.65	< 1.0
Mercury	(Hg)	0.03	< 0.40
Platinum	(Pt)	0.004	< 0.005
Thallium	(Tl)	< 0.001	< 0.002
Thorium	(Th)	< 0.001	< 0.002
Uranium	(U)	0.007	< 0.060
Nickel	(Ni)	0.08	< 0.20
Silver	(Ag)	0.53	< 0.20
Tin	(Sn)	0.20	< 0.30
Titanium	(Ti)	0.58	< 1.0
Total Toxic Representation			

PERCENTILE: 68th, 95th

consider a CSA + DNA GI as gut bugs can hold onto aluminum + potassium + ATP; MTHFr Liver CAPS; PS/PEPC + DHA; Run DNA GI; + All in One + Sam drops methylation nucleotide blend; As tolerated Metal Away + EDTA soap; Riboflavin 5 phosphate + ATP; Run CSA as can impact digestion

ESSENTIAL AND OTHER ELEMENTS

		RESULT µg/g	REFERENCE INTERVAL
Calcium	(Ca)	367	125– 370
Magnesium	(Mg)	27	12– 30
Sodium	(Na)	350	20– 200
Potassium	(K)	200	12– 200
Copper	(Cu)	8.2	11– 18
Zinc	(Zn)	130	100– 190
Manganese	(Mn)	0.32	0.10– 0.50
Chromium	(Cr)	0.78	0.43– 0.80
Vanadium	(V)	0.12	0.030– 0.10
Molybdenum	(Mo)	0.093	0.050– 0.13
Boron	(B)	3.0	0.70– 5.0
Iodine	(I)	0.74	0.25– 1.3
Lithium	(Li)	0.013	0.007– 0.020
Phosphorus	(P)	170	150– 220
Selenium	(Se)	0.75	0.70– 1.1
Strontium	(Sr)	0.69	0.16– 1.0
Sulfur	(S)	46200	45500– 53000
Cobalt	(Co)	0.009	0.004– 0.020
Iron	(Fe)	14	7.0– 16
Germanium	(Ge)	0.034	0.030– 0.040
Rubidium	(Rb)	0.28	0.016– 0.18
Zirconium	(Zr)	0.30	0.040– 1.0

PERCENTILE: 2.5th, 16th, 50th, 84th, 97.5th

ATP + Riboflavin 5phos; Cell Food Zinc lozenge; Check home water; limit mineral, limit BENTONITE; All in One + B12 Calm; Metal Away; Hydroxy + Adenosyl B12; SHMT support; + POTASSIUM + ATP

SPECIMEN DATA

COMMENTS: *okay to add low dose B12 THEN RERUN SHMT in 4 months to recheck lithium*

Date Collected: 01/29/2016
Date Received: 02/18/2016
Date Completed: 02/20/2016
Methodology: ICP/MS

Sample Size: 0.2 g
Sample Type: Head
Hair Color: Brown
Treatment:
Shampoo:

RATIOS

ELEMENTS	RATIOS	RANGE
Ca/Mg	13.6	4– 30
Ca/P	2.16	0.8– 8
Na/K	1.75	0.5– 10
Zn/Cu	15.9	4– 20
Zn/Cd	> 999	> 800

Defer to your own doctor as always

HAIR ELEMENTS REPORT
INTRODUCTION

Hair is an excretory tissue for essential, nonessential and potentially toxic elements. In general, the amount of an element that is irreversibly incorporated into growing hair is proportional to the level of the element in other body tissues. Therefore, hair elements analysis provides an indirect screening test for physiological excess, deficiency or maldistribution of elements in the body. Clinical research indicates that hair levels of specific elements, particularly potentially toxic elements such as cadmium, mercury, lead and arsenic, are highly correlated with pathological disorders. For such elements, levels in hair may be more indicative of body stores than the levels in blood and urine.

All screening tests have limitations that must be taken into consideration. The correlation between hair element levels and physiological disorders is determined by numerous factors. Individual variability and compensatory mechanisms are major factors that affect the relationship between the distribution of elements in hair and symptoms and pathological conditions. It is also very important to keep in mind that scalp hair is vulnerable to external contamination of elements by exposure to hair treatments and products. Likewise, some hair treatments (e.g. permanent solutions, dyes, and bleach) can strip hair of endogenously acquired elements and result in false low values. Careful consideration of the limitations must be made in the interpretation of results of hair analysis. The data provided should be considered in conjunction with symptomology, diet analysis, occupation and lifestyle, physical examination and the results of other analytical laboratory tests.

Caution: The contents of this report are not intended to be diagnostic and the physician using this information is cautioned against treatment based solely on the results of this screening test. For example, copper supplementation based upon a result of low hair copper is contraindicated in patients afflicted with Wilson's Disease.

Aluminum High

The Aluminum (Al) level in hair may be an indicator of exposure and assimilation of this element, provided that hair preparations have not added exogenous Al. Al is a nonessential element that can be toxic if excessively assimilated into cells.

Excess Al can inhibit the formation of alpha-keto glutarate and result in toxic levels of ammonia in tissues. Al can bond to phosphorylated bases on DNA and disrupt protein synthesis and catabolism. Al excess should be considered when symptoms of presenile dementia or Alzheimer's disease are observed. Hair Al is commonly elevated in children and adults with low zinc and behavioral/learning disorders such as ADD, ADHD and autism. Individuals with renal problems or on renal dialysis may have elevated Al.

Possible sources of Al include some antacid medications, Al cookware, baking powder, processed cheese, drinking water, and antiperspirant components that may be absorbed. Analyses performed at DDI indicate extremely high levels of Al are in many colloidal mineral products.

Al has neurotoxic effects at high levels, but low levels of accumulation may not elicit immediate symptoms. Early symptoms of Al burden may include: fatigue, headache, and symptoms of phosphate depletion.

A urine elements test can be used to corroborate Al exposure. Al can be effectively complexed and excreted with silicon (J. Environ. Pathol. Toxicol. Oncol., 13(3): 205-7, 1994). A complex of malic acid and Mg has been reported to be quite effective in lowering Al levels (DDI clients).

Arsenic High

In general, hair provides a rough estimate of exposure to Arsenic (As) absorbed from food and water. However, hair can be contaminated externally with As from air, water, dust, shampoos and soap. Inorganic As, and some organic As compounds, can be associated with toxicity. Inorganic As accumulates in hair, nails, skin, thyroid gland, bone and the gastrointestinal tract. Organic As, such as that derived from shellfish, is rapidly excreted in the urine.

As can cause malaise, muscle weakness, vomiting, diarrhea, dermatitis, and skin cancer. Long-term exposure may affect the peripheral nervous, cardiovascular and hematopoietic systems. As is a major biological antagonist to selenium.

Common sources of As are insecticides (calcium and lead arsenate), drinking water, smog, shellfish (arsenobetaine), and industrial exposure, particularly in the manufacture of electronic components (gallium arsenide).

As burden can be confirmed by urine elements analysis. Comparison of urine As levels pre and post provocation (DMPS, DMSA, D-penicillamine) permit differentiation between recent uptake and body stores.

Silver High

Hair Silver (Ag) levels have been found to reflect environmental exposure to the element. However, hair is commonly contaminated with Ag from hair treatments such as permanents, dyes, and bleaches.

Ag is not an essential element and is of relatively low toxicity. However, some Ag salts are very toxic.

Sources of Ag include seafood, metal and chemical processing industries, photographic processes, jewelry making (especially soldering), effluents from coal fired power plants and colloidal silver products.

The bacteriostatic properties of Ag have been long recognized and Ag has been used extensively for medicinal purposes; particularly in the treatment of burns. There is much controversy over the long term safety of consumption of colloidal silver. Very high intake of colloidal silver has been reported to give rise to tumors in the liver and spleen of animals (Metals in Clinical and Analytical Chemistry, eds. Seiler, Segel and Segel, 1994). However, these data may not have relevance to the effects of chronic, low level consumption by humans.

Sodium High

Sodium (Na) is an essential element with extracellular electrolyte functions. However, these functions do not occur in hair. Hair Na measurement should be considered a screening test only;

blood testing for Na and electrolyte levels is much more diagnostic and indicative of status. High hair Na may have no clinical significance or it may be the result of an electrolyte imbalance. A possible imbalance for which high hair Na is a consistent finding is adrenocortical hyperactivity. In this condition, blood Na is elevated while potassium is low. Potassium is elevated (wasted) in the urine. Observations at DDI indicate that Na and potassium levels in hair are commonly high in association with elevated levels of potentially toxic elements. The elevated Na and potassium levels are frequently concomitant with low levels of calcium and magnesium in hair. This apparent phenomenon requires further investigation.

Appropriate tests for Na status as an electrolyte are measurements of Na in whole blood and urine, and measurements of adrenocortical function.

Copper Low

Hair Copper (Cu) levels are usually indicative of body status with two exceptions: (1) addition of exogenous Cu (occasionally found in hair preparations or algaecides in swimming pools/hot tubs), and (2) low hair Cu in Wilson's or Menkes' diseases. In Wilson's disease, Cu transport is defective and Cu accumulates, sometimes to toxic levels, in intestinal mucosa, liver and kidneys. At the same time, it is low in hair and deficient in other peripheral tissues. In Menkes' disease, the activity of Cu dependent enzymes is very low. Cu supplementation is contraindicated in these diseases.

Cu is an essential element that is required for the activity of certain enzymes. Erythrocyte superoxide dismutase (SOD) is a Cu (and zinc) dependent enzyme; lysyl oxidase which catalyzes crosslinking of collagen is another Cu dependent enzyme. Adrenal catecholamine synthesis is Cu dependent, because the enzyme dopamine beta-hydroxylase, which catalyzes formation of norepinephrine from dopamine, requires Cu.

Symptoms of Cu deficiency include: elevated cholesterol, increased inflammatory responses, anemia, bone and collagen disorders, reproductive failure, and impaired immunity. Possible reasons for a Cu deficiency include: intestinal malabsorption, insufficient dietary intake,molybdenum excess,zinc excess, and chelation therapy. Cu status is adversely affected by excess of antagonistic metals such as mercury, lead, cadmium, and manganese.

Confirmatory tests for Cu deficiency are serum ceruloplasmin to rule out Wilson's disease (ceruloplasmin is deficient in Wilson's disease), a whole blood or packed red blood cell elements analysis, and a functional test for Cu (barring zinc deficiency) is measurement of erythrocytes SOD activity. Erythrocyte SOD activity is subnormal with Cu deficiency.

Vanadium High

High levels of Vanadium (V) in hair may be indicative of excess absorption of the element. It is well established that excess V can have toxic effects in humans. Although it appears that V may have essential functions, over zealous supplementation is not warranted.

Excess levels of V in the body can result from chronic consumption of fish, shrimp, crabs, and oysters derived from water near offshore oil rigs (Metals in Clinical and Analytical Chemistry, 1994). Industrial/environmental sources of V include: processing of mineral ores, phosphate fertilizers, combustion of oil and coal, production of steel, and chemicals used in the fixation of dyes and print.

Symptoms of V toxicity vary with chemical form and route of absorption. Inhalation of excess V may produce respiratory irritation and bronchitis. Excess ingestion of V can result in decreased appetite, depressed growth, diarrhea/gastrointestinal disturbances, nephrotoxic and hematotoxic effects. Pallor, diarrhea, and green tongue are early signs of excess V and have been reported in human subjects consuming about 20 mg V/day (Modern Nutrition in Health and Disease, 8th edition, eds. Shils, M., Olson, J., and Mosha, S., 1994).

Confirmatory tests for excess V are red blood cell elements analysis, and urine V which reflects recent intake.

Total Toxic Element Indication

The potentially toxic elements vary considerably with respect to their relative toxicities.
The accumulation of more than one of the most toxic elements may have synergistic adverse effects, even if the level of each individual element is not strikingly high. Therefore, we present a total toxic element "score" which is estimated using a weighted average based upon relative toxicity. For example, the combined presence of lead and mercury will give a higher total score than that of the combination of silver and beryllium.