



# OOO MICRONUTRIENTS

systemic diagnostics and treatment of mineral imbalances and intoxications

(Dr. Skalny's hair analyses®)

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№ of analysis: n374909 from 19.11.2016

Patient: [REDACTED]

Birthday: 31.08.2006

Object of analysis: Hair

## Results of analysis on chemical elements (mcg/g)

Parameter	Положение в диапазоне нормы			Concentration	Normal range	Conclusion
	decreased	norm	increased			

### Essential (😊) chemical elements

K	Potassium	😊	-1.0		55.76	40 - 2000	Lower limit
Na	Sodium	😊	-0.9		104	50 - 2000	Norm
Ca	Calcium	😊	-0.5		675	200 - 2000	Norm
Mg	Magnesium	😊	-0.6		58.33	20 - 200	Norm
P	Phosphorus	😊	0.1		162	120 - 200	Norm
Fe	Iron	😊	-0.4		16.27	7 - 40	Norm
Zn	Zinc	😊	-0.2		239	125 - 400	Norm
Cu	Copper	😊	-0.5		17.36	9 - 40	Norm
Se	Selenium	😊	-0.6		0.583	0.25 - 2	Norm
I	Iodine	😊	-0.8		1.11	0.15 - 10	Norm
Mn	Manganese	😊	-1.3		0.197	0.25 - 2	Decreased
Co	Cobalt	😊	-0.9		0.025	0.004 - 0.3	Norm
Cr	Chromium	😊	-0.7		0.184	0.04 - 1	Norm

### Toxic (😞), potentially toxic (😟) and conditionally essential (🌀) chemical elements

As	Arsenic	🌀	0.0		0.024	< 1	Norm
Sn	Tin	🌀	0.0		0.043	< 3	Norm
B	Boron	🌀	-0.9		0.19	< 5	Norm
Li	Lithium	🌀	-0.9		0.0046	< 0.1	Norm
Ni	Nickel	🌀	-0.7		0.288	< 2	Norm
V	Vanadium	🌀	-0.5		0.026	0.005 - 0.1	Norm
Si	Silicon	🌀	-0.3		31.02	11 - 70	Norm
Hg	Mercury	😞	-0.8		0.093	< 1	Norm
Pb	Lead	😞	-0.9		0.185	< 5	Norm
Cd	Cadmium	😞	-0.8		0.021	< 0.25	Norm
Be	Beryllium	😞	-0.9		0.00032	< 0.005	Norm
Al	Aluminium	😞	-0.8		3.12	< 25	Norm

Deviation's degree: 1 2 3 4 <

### **Potassium (K), daily requirement 300-3000 mg (depends on sex and age)**

Potassium is a major endocellular electrolyte, which also activates a variety of enzymes. Potassium is especially essential for "nutrition" of cells in the organism, activity of muscles, including myocardium, maintenance of water-salt balance, work of neuroendocrinal system.

The decreased potassium (K) content in children's hair is a relatively rare case. It usually indicates asthenia (mental and physical exhaustion, ergasthenia), dysfunction of the adrenal glands or kidneys, risk of metabolic disturbances in the myocardium, mitral valve prolapse, development of erosive processes in mucous tissues (for example, in gastrointestinal tract), xeroderma; sometimes it occurs in case of prediabetes, or as a result of diarrhea.

The development of K deficiency is usually related to dysfunction of kidneys, small intestine, endocrine system, overwork, abuse of purgative, diuretic, hypotensive or hormonal preparations, excess entering of sodium (Na) and cesium (Cs) into the organism.

The following tests may be useful for establishment and final specification of the diagnosis:

1. advices of the gastroenterologist, endocrinologist, cardiologist, electrocardiography;
2. determination of K concentration in the whole blood and urine, determination of Na/K ratio;
3. estimation of the adrenal cortex function.

### **Manganese (Mn), daily requirement 1-2 mg (depends on sex and age)**

Manganese is one of the major essential trace elements. It participates in regulation of many biochemical processes in the organism: synthesis and metabolism of neurotransmitters (CNS), osteogenesis, immune reactions, peroxidation of lipids, metabolism of insulin and lipids.

Deficiency of manganese is a frequent disturbance of the elemental metabolism in modern people. It is probably related to increased psychoemotional strain (manganese is necessary for maintenance of the basic neurochemical processes in CNS), increased toxic influences (Mn-superoxide-dismutase is one of the most important enzymes preventing free-radical oxidation, a mechanism of cell membranes damaging), and, on the other hand, with the considerable decrease in consumption of manganese-rich products (rough vegetable food, potherb) increased consumption of phosphates (lemonades, tinned food etc.). Manganese participates in regulation of the fat and carbohydrate metabolism, formation of bone and connective tissues, metabolism of thyroxin (hormone of the thyroid gland), so, accordingly, it is necessary for the prophylaxis of fat and carbohydrate metabolism disturbances, diabetes, osteoporosis, goitre disease, diseases of joints.

Estrogens (the main sexual hormones) increase manganese biological activity, while excessive consumption of calcium, phosphorus, iron and copper can slow manganese assimilation and decrease its influence.

Manganese takes part in regulation of metabolism of the vitamins C, E, vitamins of group B and choline.

In children manganese deficiency usually shows as inclination to allergoses (including respiratory), neurotic reactions, convulses, scoliosis etc. The distinct deficiency is found in children with infantile cerebral paralysis (ICP), retarded psycho-speech development, diabetes. Correction of the deficiency gives a positive effect even in case of serious deviations in CNS.

If manganese imbalance in the organism is detected, the following additional tests may be applied:

1. advice of the neuropathologist, EEG;
2. biochemical blood analysis, estimation of the catecholamine level;
3. myography; X-radiography or densitometry of bones.

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## The content of chemical elements in foods

Foodstuff	Ca	Co	Cr	Cu	Fe	K	Mg	Mn	Na	P	Se	Si	Zn
Apricot (fresh, dried)						*	*				*		
Water melon						*	*						
Banana						*	*						*
Legumes			*	*	*	*		*		*	*	*	*
Cherry, plum			*			*							
Buckwheat		*	*	*	*	*	*	*				*	*
Mushrooms				*	*	*				*	*	*	*
Pear				*	*								
Green peas			*		*								*
Green tea								*					
Potherb					*			*	*			*	
Wild strawberry				*	*						*		
Cereals								*			*	*	
Raisins						*	*						
Caviar									*	*	*		*
Kakao, chocolate		*		*	*	*	*	*		*			*
Cabbage, carrots				*	*	*						*	
Potatoes			*		*	*			*			*	
Sour milk products			*							*			
Coconut								*			*	*	*
Sausage (salami), ketchup					*				*				
Coffee				*									
Krill				*									*
Gooseberry				*	*			*					
Corn			*		*	*			*				*
Sesame seeds				*							*		*
Leaf vegetables	*	*					*	*				*	
Bulb onion			*					*				*	*
Chard					*			*					
Olives									*		*		
Mussels				*	*						*		*
Almonds, cashew-nuts							*			*	*		
Milk	*		*				*	*		*			*
Sea fish			*	*			*			*			*
Sea algae	*	*		*	*		*	*			*	*	
Meat and variety meats	*	*	*	*	*	*	*	*		*	*	*	*
Oatmeal	*		*		*	*	*	*				*	*
Cucumbers				*									
Olive oil											*		
Nuts (walnuts, hazelnuts)	*	*		*	*	*	*	*		*	*		*
Red pepper				*									
Pearl barley	*		*			*	*	*					
Parsley	*					*	*	*				*	

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Foodstuff	Ca	Co	Cr	Cu	Fe	K	Mg	Mn	Na	P	Se	Si	Zn
Brewer's yeast		*	*	*	*	*	*	*		*	*		*
Dog rose fruits				*	*								
Wheat acrospires			*				*	*				*	
Wheat bran, acrospires	*		*	*	*	*	*	*		*	*	*	*
Millet		*	*	*	*	*	*						*
Rhubarb		*						*				*	
Small radish			*	*				*				*	
Black radish								*				*	
Turnip								*				*	
Rice		*	*		*	*	*	*					*
Lard									*		*		
Red beet				*			*	*		*		*	
Sunflower, pumpkin seeds			*	*		*	*	*			*	*	*
Black currant				*		*							
Cheese	*						*		*	*			
Curd	*	*		*		*			*	*	*		*
Girasol			*		*	*		*		*		*	
Bread with bran	*		*				*	*				*	
Horse radish						*							*
Citrus fruits				*									
Black tea						*		*					
Bilberry			*			*		*					*
Prunes						*	*						
Garlic										*	*		
Spinach	*	*			*			*				*	
Apples				*	*							*	
Eggs			*	*	*					*	*		
Peeled barley		*		*			*						



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## **THE CONCLUSION ON THE BASIS OF RESULTS OF THE ANALYSIS**

**[REDACTED], n374909, date of birth - 31.08.2006**

As results of the analysis show, deviations in mineral metabolism are practically absent.

In children the decreased K content in hair is a relatively rare case. It can indicate asthenia (psychical and physical exhaustion, ergasthenia), decrease of the basic metabolism, disturbance of adaptation mechanisms, dysfunction of the adrenal glands or kidneys, risk of metabolic disturbances in the myocardium, mitral valve prolapse, development of erosive processes in mucous tissues, skin dryness. Also K deficiency can develop as a result of diarrhea.

The Mn deficiency is one of the most frequent disturbances of the elemental metabolism in modern people.

In girls Mn deficiency is usually displayed as inclination to allergoses (including respiratory), neurotic reactions, anemia, disturbance of the menstrual function and sexual maturity, convulses, scoliosis etc.

As the revealed deviations are insignificant or absent, additional consultations and researches are not required.

## GLOSSARY

<b>Normal range</b>	Concentrations of chemical element, in the ranges of which this element assists to normal functioning of human organism (essential elements), or not affected negatively upon the functions of the organism (relatively toxic elements).  I I I
<b>Upper limit</b>	Maximum physiologically permissible content of chemical element in hair of a healthy human.  I I I
<b>Lower limit</b>	Minimum physiologically permissible content of chemical element in hair of a healthy human.  I I I
<b>Toxic elements</b>	Elements, exposure of which to an organism results in development of intoxication syndromes (intoxications).  I I I
<b>Conditionally essential elements</b>	Elements, the functional role of which is not certain or limited by metabolic processes in particular body tissues.  I I I
<b>Essential elements</b>	Elements, the absence or deficient intake of which results in disruption of normal life, development disorder and inability of reproduction.  I I I
<b>Deviation's degree</b>	Significance of the determined variation for the human's organism (1-minimum, 4-maximum).

### **For each element calculates particularly!**

(for example, doubled content of Na in hair is much less important for the organism, than such variation of P).

As a rule, variations of 1-2 degrees in content of chemical elements in the hair are corresponding to the depletion of organism's functional reserves, and variations of 3-4 degrees indicates the high degree of probability of chronic diseases.

Variations of 1-2 degrees are usually well corrected by food ration changing or biologically active supplements applying. Variations of 3-4 degrees, as a rule, demand prolonged restoration treatment using not only biologically active supplements, but also correction of food ration, administration of pharmacological preparations prescribed by specialists (gastroenterologists, pediatricists, nephrologists, neuropathologists etc.).



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## Recommendations

№ n374909

**According to the hair element test results, we recommend you to use the following dietary supplements after the consultation with your doctor or health consultant:**

### Course 1

1. Bio-Manganese, 1 tablet 2 times a day, with meals, 3 months

A hair element retest is recommended after 4-5 months

Date: 01.12.2016



Doctor: Skalnaya M.G., M.D., Prof.