

 **ELEMENTAL
HAIR
ANALYSIS**



• **GET TO THE ROOT CAUSE** •

www.fmdiagnosics.com

Name: Jone

Date of study: 19.6.2020

Surname: Smith

Study code: ysysysysy



eha@lifelinediag.eu

What will the result tell you?

The result contains information about the concentrations and ratios of the elements in your body. The element ratios are very important, because they reflect your biochemical balance, which is critical to maintaining health. Based on them, you can evaluate metabolic activity and the correct functioning of physiological processes. The results took into account the elements whose concentrations and ratios have been scientifically identified as significant to human health.

Additional information

The EHA result includes an interpretation prepared by Jerzy Maslanký - dietitian and promoter of environmental medicine. Thanks to the enclosed brochure 'Rate your biochemical needs', you'll not only find out why elemental hair analysis is far superior to testing the mineral content of body fluids, but, most importantly, you'll get individual recommendations on what diet to follow and which supplements to take to restore your body to a state of equilibrium.

Your score:

CONCENTRATION OF DIETARY ELEMENTS IN YOUR BODY

element	norm	patient's result	unit	DEFICIENCY	NORM	EXCESS
Chromium (Cr)	0.6-1.1	0.291	ppm			
Potassium (K)	75-125	425	ppm			
Phosphorus (P)	110-210	173	ppm			
Germanium (Ge)	0.03-0.06	0.3081	ppm			
Magnesium (Mg)	20-50	76.5	ppm			
Iodine (I)	3.5-6	1.3	ppm			
Cobalt (Co)	0.035-0.06	0.0318	ppm			
Silicon (Si)	35-65	62.7	ppm			
Lithium (Li)	0.038-0.05	0.0307	ppm			
Manganese (Mn)	1-1.9	1.17	ppm			
Copper (Cu)	9.5-17.5	18.62	ppm			
Molybdenum (Mo)	0.025-0.05	0.1646	ppm			
Selenium (Se)	0.6-1.1	5.151	ppm			
Sulfur (S)	20000-35000	38333	ppm			
Sodium (Na)	100-310	203.5	ppm			
Silver (Ag)	0.005-0.6	0.1752	ppm			
Vanadium (V)	0.04-0.08	0.7361	ppm			
Calcium (Ca)	220-380	690	ppm			
Iron (Fe)	14-24	28.4	ppm			
Zinc (Zn)	120-220	227	ppm			

CONCENTRATION OF TOXIC ELEMENTS IN YOUR BODY

element	norm	patient's result	unit	NORM	EXCESS
Arsenic (As)	do 0.6	0.032	ppm		
Barium (Ba)	do 1.5	2.35	ppm		
Aluminium (Al)	do 10	43.96	ppm		
Cadmium (Cd)	do 0.3	0.122	ppm		
Nickel (Ni)	do 2.6	0.14	ppm		
Lead (Pb)	do 4	1.55	ppm		
Mercury (Hg)	do 0.5	0.027	ppm		
Strontium (Sr)	do 4.1	3.5	ppm		
Thallium (Tl)	do 0.0015	0.0001	ppm		

Unfortunately, each of us is doomed to coming in contact with toxic elements, which enter our bodies from the external environment. The presence of toxic elements in the body is, therefore, inevitable.

RATIOS OF ELEMENTS IN YOUR BODY

proportion	norm	patient's result	ratio
Sodium (Na) Potassium (K)	1.92 - 2.88	0.48	too low
Calcium (Ca) Magnesium (Mg)	5.60 - 8.40	9.02	too high
Zinc (Zn) Copper (Cu)	6.40 - 9.60	12.21	too high
Sodium (Na) Magnesium (Mg)	3.20 - 4.80	2.66	too low
Calcium (Ca) Phosphorus (P)	2.08 - 3.12	3.99	too high
Calcium (Ca) Potassium (K)	3.36 - 5.04	1.62	too low
Potassium (K) Lithium (Li)	2000 - 3000	13836	too high
Potassium (K) Cobalt (Co)	> 2000	13355	normal
Iron (Fe) Copper (Cu)	0.72 - 1.08	1.527	too high
Calcium (Ca) Sodium (Na)	2.08 - 3.12	3.39	too high
Calcium (Ca) Silicon (Si)	6.08 - 9.12	11.01	too high
Phosphorus (P) Silicon (Si)	4.16 - 6.24	2.76	too low
Calcium (Ca) Iron (Fe)	20 - 30	24.3	normal
Iron (Fe) Cobalt (Co)	> 440	893	normal

The test was made using the inductively coupled plasma optical emission spectrometry with the Avio 200 from PerkinElmer by Krystyna Kowalska, the analyst technician Lifeline Diag Sp. z o.o

Kowalska
Krystyna Kowalska
starszy technik analityki

Elemental Hair Analysis (EHA)

WHO ARE WE, REALLY?

'Although blood tests can show a lot, they can't show the whole picture, and can be completely misleading. Why? Because blood is continually striving to maintain a state of normality, and it'll do so until death.'

Dr n. med. D. Rowland, Canada

Introduction

You've done a study that prestigious scientific and forensic institutions worldwide have deemed as being fundamental in evaluating your biochemical and metabolic profile. The fact that you've made the right decision is confirmed by thousands of studies and publications, as well as millions of patients who are aware of the complex nature of disease.



The position of the United States Environmental Protection Agency, which analysed over 420 scientific publications back in 1979, concluded that: 'Hair is a meaningful and highly representative tissue for assessing toxic burden.'

Today, no one in serious scientific and medical circles dares deny this. They also don't dare to deny the relationship between diseases and the availability of microelements and macroelements. And this is regardless of the disease - whether it's Brandt syndrome, which is recognised to be a genetic disorder and whose main cause is zinc deficiency - Wilson's liver disease caused by copper deficiency, cardiovascular diseases dependent on magnesium, zinc and copper, immunological diseases, which are affected by iron and zinc, tumours, in which selenium levels are important, or diabetes, whose progress or inhibition is affected by chromium levels.

EHA is the result of many years of observation and research by world-renowned doctors and biochemists. Authoritative figures in the world of medicine, such as dr P. Eck, dr G. Watson, dr R. Passwater, dr W. Price, dr H. Selye, prof. L. Pauling, dr M. Gerson and others have taken on this topic.

Their contribution to the development of non-invasive diagnostic methods are appreciated by many. That's why today EHA is an indispensable part of medical and dietetic practices. We're thrilled that you've also taken advantage of it. The following information, which is based on your EHA result, will help you determine the causes of your (perhaps weird) atypical symptoms, which are usually an early sign of health problems. They'll also help you understand their origin. What's more, you'll be equipped to choose the diet, supplements and detoxification types that are best suited to you. EHA will also teach you about your own body, which, although seemingly similar to other bodies, differs from them in many ways. Your 'difference' has come up in the chemical composition of your hair.

Any improvement in your health problems (which usually build up over many years) will require you to change dietary habits and/or lifestyle. Although the EHA will act as a guide, it doesn't mean that it'll be easy. Your awareness, determination and persistence are crucial. We wish you perseverance,

Jerzy Maslanky, dietitian, promoter of environmental medicine
and the Lifeline Diag Sp. z o.o. Scientific Team

EHA's advantage over a blood test

Are you still questioning whether you made the right decision, although you've already had an EHA done? We think that a short explanation will dispel your fears.

Let's start by answering the question of: what is your hair? Your hair is soft tissue, similarly to fat. Second question: what is a biopsy and why is it done? A soft tissue biopsy is done when there's a need to examine it to get a detailed assessment of changes observed in it.

Likewise, hair analysis is also a biopsy done for the same reason. In this case, we're dealing with a detailed assessment of your levels of 'good' and 'bad' minerals.

EHA is not a diagnosis in its current interpretation. It is, however, an extremely useful test to determine the hidden and asymptomatic (subclinical) trends and tendencies that exist in the body. If left unchanged, they will open the door to the development of disease processes.

For example, in a person with asymptomatic development of diabetes, a urine and blood test is not able to identify an early tendency to disease at cellular level. However, such a tendency can be identified by a quantitative analysis of the 'spark plugs' responsible for the biochemical processes involved in this type of disease. If there are deficiencies, they can be adjusted, preventing further progression of this type of tendency. In medicine, this is called primary prevention, which is important to both yourself and anyone who is health oriented.

The facts

Fact 1. Minerals in hair are present in its 'dead' structure in unchanging quantities and forms. Neither time nor its 'deadness' plays a role. It's similar with heavy metals, which, like other toxic substances, the body likes to eliminate into soft tissue. The principle it follows is simple: it considers minerals that are present in excess as superfluous and sends them to the 'less-important' soft tissue, which is the hair. On the other hand, it transports the minerals it's deficient in to the hair in minute quantities. It'll continue doing this until it reaches a state of biochemical equilibrium, i.e. homeostasis.

Fact 2. Because the level of minerals in hair is generally approximately 10 times higher than in the blood, their amounts can be precisely determined based on an EHA without any problems.

Fact 3. Blood tests are often extremely valuable (especially in ad-hoc cases). The problem is that the results reflect only the state at a particular moment in time, and do not communicate what's happening in the body over time at cellular level. This is because blood is only a carrier of substances (e.g. minerals, glucose, vitamins, fats, hormones, and amino acids). However, their final recipient is cells, and that's why you should determine what your cells are missing or have too much of. EHA will help you with this, and it'll also answer the annoying question of: 'Why are my urine and blood results normal, but I still feel unwell?'

Fact 4. Blood (as well as urine and stool) results may change every hour, and their current values are affected by, among others, physical activity, mental stress, type of food, the time the test was carried out, the length of exposure to something, etc. They are well-established in medical diagnostics and, according to experts, they are recommended and fulfil their task, but only in ad-hoc cases. However, when it comes to metabolism, trends and tendencies, they become less useful and, where actual loads and nutritional needs must be determined, they are downright useless.

An example would be to measure the calcium and magnesium levels from blood. It just so happens that in order to maintain homeostasis, the body will do everything to ensure that minerals in the blood serum are relatively constant. Therefore, if blood calcium is insufficient, the body will equalise its level, taking it from bones or teeth. In practice, this means that you can have a tendency to bone demineralisation or osteoporosis, while your blood calcium level is still within the normal range. Likewise, you may be deficient in magnesium, which is responsible for, among others, turning calcium into a liquid. The ratio that is lost between them (excess calcium compared with magnesium) can have different repercussions, for example, artery calcification. Despite this, the blood magnesium level can still be normal, while cells' demand for magnesium is increased.

Fact 5. As mentioned above, hair is a soft tissue that is not necessarily important for survival. That's why the body treats it (similarly to fat) more like an unloading ramp than something that is necessary for its survival. Hence, an EHA can show you the minerals that you have put into your body during the last several months at least. So, it's an advantage that gives you the ability to assess the quality of the food and supplements you eat, and your environment. You could say that the EHA reflects your dietary and environmental state. And, because it's also the 'spark plug' state, assessment of your trends and tendencies has a strong scientific base. This became possible thanks to spectroscopy - a highly precise, efficient (which is very important in the era of financial burdens), and non-invasive biopsy technique for soft tissue, such as hair.

Possibilities that EHA gives you

1. The ability to determine your own metabolic profile

Everyone is individual not only biologically, but also metabolically. Assessing who you are in terms of both of these allows us to understand and correct the causes of many atypical symptoms (including psychiatric ones) as well as biochemical trends and tendencies by tailoring a proper diet and supplementation. You should know that you are what you eat and how you eat!

2. The ability to evaluate the activity of various organs and glands

Assessing the function of one organ or gland without taking into account the state of others doesn't give you the whole picture. Therefore, estimating the availability of e.g. thyroid hormones at cellular level without taking into account the state of adrenal hormones, or even the level of hydrochloric acid in the stomach may be impossible due to the direct or indirect impact of the 'spark plugs' on their availability. EHA can, once again, predict how the trends and tendencies will play out early on.

3. The ability to determine the degree of heavy metal load

There's no test that can accurately determine the degree of accumulation of all toxic minerals that occupy deep layers of tissue. However, by assessing the relative ratios of the others, EHA is able to precisely establish the degree of accumulation of the most toxic ones, regardless of whether they're hidden in the brain, lymph nodes, bones or liver. You could almost say the same thing about the availability and levels of the minerals you're currently lacking, or those you have in excess.

4. The ability to identify trends and tendencies in the development of many diseases

A correct interpretation of the EHA will help you determine not only your trends and tendencies, but also other causes leading to many disorders (including psychological ones). In other words, an EHA is able to show you the potential health problems that may occur at some point in the future. So, EHA can be considered an important element of prevention of diseases that, until recently, were sporadic. Another benefit of EHA is its ability to determine the 'model of progress', i.e. re-evaluating your health in relation to a previous adjustment in eating habits, lifestyle, stress management and physical activity. EHA enables the monitoring of important pathogenic factors, regardless of whether they're physical or emotional.

5. The ability to determine the extent of carbohydrate tolerance

In the era of a high incidence of diabetes (often asymptomatic in its hidden stage), EHA can show a trend or tendency to developing the disease. Like a glucose test, EHA is also highly useful due to its additional advantage, i.e. the ability to determine an individualised nutrition and supplementation programme that is appropriate for the person in question. Especially since it's the loss of mineral ratios (similar to chronic infections) that's behind this type of disorder.

6. The ability to determine patterns of mental stress

Susceptibility to mental stress or mental disorders increases proportionately to the level of biochemical disorders and vice versa - increases in the degree of biochemical disorders are accompanied by susceptibility to mental stress and mental disorders. EHA can determine the outcome of both types of stress, and correct the trends and tendencies of patterns associated with a propensity for psychiatric disorders.

7. The ability to determine the state of the autonomic nervous system

The autonomic nervous system operates without our control. It decides on the quality of sleep, peristalsis (bowel movement), heartbeat, blinking of the eyelids, etc. EHA can determine and identify the causes of disturbances in its functioning, which may be due to, for example, a lack of specific enzymes (such as ingredients necessary for their production) responsible for the elimination of heavy metals from the body. A lack of these enzymes can be, and usually is, caused by a deficiency of 'spark plugs' (read the next chapter: 'Who am I metabolically?').

Your EHA result will include standard recommendations. However, we believe that it is YOU who must make the final decision regarding the proposed options. Who else knows your body as well as you? That's why our task is to give you the information that will enable you to verify what is scientifically regarded as harmful, as well as information that'll help you to get to know yourself better.

What does your EHA result address?

Although the technology used in EHA is able to detect and determine the level of all organic and inorganic substances that exist in nature, it's here that we'd like you to focus on the 'spark plugs' of biochemical processes, i.e. 'good' and 'bad' minerals. Ironically, both types may be beneficial for you, which doesn't mean that the 'bad' ones are a cure...

1. Dietary minerals

Without minerals or a set ratio between them, biochemical processes will not occur properly. This is because they're a component of and starting point for thousands of metabolic enzymes; the decision-making factor determining the condition and performance of glands, organs and tissues; an inseparable element in hormone production; and they guarantee the absorption of vitamins, amino acids and unsaturated fatty acids. Therefore, if you analyse the level of or ratio between minerals, you'll learn about the existing and potential causes of your ailments and diseases. You can also assess your metabolic predispositions and, if necessary, make the required adjustments in accordance with your (and not the proverbial Mrs Smith's) needs.

2. Toxic minerals

These are also called heavy metals, and are predominantly an undesirable component of the process of restoring biochemical homeostasis (balance). They are present in food, air and water, and are considered one of the main causes of all types of ailments. Their ability to penetrate the protective placenta also makes them co-responsible for physical and mental disabilities in newborns! So, your decision to verify and assess the degree of accumulation was spot on, if only because of their extremely destructive nature. By assessing the type and concentration of toxic minerals, EHA can also help you in this aspect. It'll also show the minerals that are natural enemies for them (antagonists).

3. Ratios of elements

The EHA result is an analysis of minerals classified in three categories; it defines not only the amount of dietary and toxic elements, but also (perhaps crucial to illustrating the state of health) their relative ratios. The type and number of minerals that are to be analysed may vary depending on the type of equipment and procedures. Our analytical laboratory Lifeline Diag Sp. z o.o. at ul. Bielska 4 in Cieszyn marks 29 elements and meets the requirements for this type of facility.

The following are tested:

1. Macro elements (phosphorus, magnesium, potassium, sulphur, sodium, calcium).
2. Micro elements (chromium, zinc, germanium, cobalt, silicon, lithium, manganese, molybdenum, copper, selenium, silver, vanadium, iron, iodine).
3. Toxic elements (arsenic, barium, aluminium, cadmium, nickel, lead, mercury, strontium, thallium).

Dietary minerals – their role in the body and main sources

We're sure that you know that macro and micro elements are essential for the proper functioning of your body. But do you know exactly what they do? While the functions of macro nutrients, such as sodium, magnesium, calcium and potassium are discussed at length, it's not the case with microelements, which occupy a large part of the periodic table. They include less-known elements, such as germanium, lithium, cobalt, vanadium and silver. Each of these has a role to play in the body. Which role? No one knows exactly, although more is known about some of them than others. One thing's for sure - if they take part in certain biochemical processes, they'll always remain in direct a relationship with other 'spark plugs'. They can only interact thanks to the combination of air and water, organic food and proper (high-quality) supplementation. There's no other alternative.

Find out what dietary minerals do in your body. Use the EHA result to see which of them you lack, and which you have in excess, and then find the sources that'll help you top any deficiencies, or that, if you limit them, you'll eliminate any excess.

Element	Role in the body	Additional notes	Your level	Main sources
Chromium (Cr)	<ul style="list-style-type: none"> • participates in the metabolism of insulin (so-called diabetics mineral, as well as a mineral for the elderly who are often deficient) • lowers blood pressure and 'bad' cholesterol • controls atherosclerosis processes • useful in the treatment of osteoporosis • stimulates energy flow 	-	DEFICIENCY	<ul style="list-style-type: none"> • meat • liver • kidneys • yeast • eggs • cheese • mushrooms • nettle • brown rice • beetroot
Zinc (Zn)	<ul style="list-style-type: none"> • essential for the normal development of reproductive organs and prostate health • determines male fertility and sexual potency • necessary for hundreds of metabolic and digestive enzymes (including those that neutralise alcohol) • prevents acne • strengthens the immune system • protects the liver from the toxic effects of the environment • controls the sense of taste and smell • regulates vision focus • regulates blood sugar levels • prevents physical and mental disabilities in newborns • prevents epilepsy • prevents hyperactivity • accelerates wound healing and tissue regeneration 	Vegetarians (especially vegans) have a high risk of zinc deficiency due to elevated copper levels. This doesn't mean that zinc supplementation is contraindicated for meat eaters. Zinc supplementation is recommended for everyone.	EXCESS	<ul style="list-style-type: none"> • meat • offal • eggs • pumpkin seeds • sunflower seeds • grains (but, because they're highly pro-inflammatory and allergenic, their consumption in any form should be extremely limited or abandoned) • seafood (not recommended due to high toxicity)

Element	Role in the body	Additional notes	Your level	Main sources
Phosphorus (P)	<ul style="list-style-type: none"> involved in the synthesis of proteins and DNA participates in the metabolism of calcium regulates the building of cell membranes essential in building bone mass ensures proper kidney function heart contractions 	Phosphorus is better absorbed from animal sources. Plant sources contain phytates, which limit the absorption of many minerals. Elimination of phytates from cereal grains, beans and peas can take place only after they have been soaked in water for over ten hours. Excess phosphorus is a common phenomenon accompanying the consumption of dairy products.	NORM	<ul style="list-style-type: none"> meat offal eggs fish (only the smallest ones - sardines, sprats, herrings) nuts beans peas yeast garlic grains (but, because they're highly pro-inflammatory and allergenic, their consumption in any form should be extremely limited or abandoned)
Germanium (Ge)	<ul style="list-style-type: none"> supports the treatment of depression, arthritis, tumours and AIDS controls the toxic effects caused by many bacterial strains increases the body's resistance regulates interferon levels improves the supply of oxygen to cells protects against the harmful effects of ionising radiation (including X-rays) deactivates free radicals 	EHA shows that approximately 95% of those studied have a germanium deficiency.	EXCESS	<ul style="list-style-type: none"> majority of medicinal herbs (especially comfrey) ginger aloe vera garlic

Element	Role in the body	Additional notes	Your level	Main sources
Cobalt (Co)	<ul style="list-style-type: none"> • increases the absorption of vitamin B12 • acts as a 'substitute' for zinc if there is a deficiency • is useful in the treatment of anaemia and bacterial infections • helps repair nerve cell sheaths • involved in the production of many enzymes 	In food, cobalt always goes hand in hand with vitamin B12 (creating a compound called cobalamin). So, foods containing large amounts of B12 are a great source of cobalt. So, you could say that people with low levels of vitamin B12 also have low levels of cobalt.	DEFICIENCY	<ul style="list-style-type: none"> • eggs • beef • liver • milk • green vegetables (the darker the colour, the better) • fish (only the smallest ones - sardines, sprats, herrings) • (not recommended due to high toxicity) • if supplementing, the most absorbable form of cobalt is cyanocobalamin (B12)
Silicon (Si)	<ul style="list-style-type: none"> • maintains artery elasticity • cares for skin, hair and nails • is involved in collagen production • supports treatment of osteoporosis • in combination with selenium, increases brain activity 	Supplementing with silicon is recommended especially for the elderly.	NORM	<ul style="list-style-type: none"> • beetroot • green vegetables (the darker the colour, the better) • dandelion • brown rice • onion • horseradish • cucumbers
Lithium (Li)	<ul style="list-style-type: none"> • protects the brain from the destructive effects of oxidants • has beneficial effects for dementia, Alzheimer's and Parkinson's, and aids brain development • is necessary for and present in virtually every cell of the body 	Lithium is regarded as one of the most-important minerals of the 'less-important' ones.	DEFICIENCY	<ul style="list-style-type: none"> • organic mustard plant • cooked vegetables • sea algae • sprats • sardines • blue corn • peanuts (not recommended because they usually contain the carcinogenic aflatoxin) • the recommended form of lithium supplementation is aspartate

Element	Role in the body	Additional notes	Your level	Main sources
Magnesium (Mg)	<ul style="list-style-type: none"> • regulates the permeability of cell membranes • participates in energy production • necessary for the production of hundreds of enzymes responsible for the metabolism of sugars • controls the circulatory system, blood pressure and nervous system • prevents muscle cramps • prevents depression, fatigue and weakness • prevents diabetes and osteoporosis 	-	EXCESS	<ul style="list-style-type: none"> • meat • fish (only the smallest ones - sardines, sprats, herrings) • eggs (yolk) • unpasteurised milk • cocoa • nuts • almonds • bran • green vegetables (the darker the colour, the better) • sea algae • lemon • sprouts • chamomile • parsley
Manganese (Mn)	<ul style="list-style-type: none"> • regulates sugar levels • is involved in the metabolism of sugar, proteins and fat • ensures the proper growth of bones, tendons and cartilage • is involved in the synthesis of cholesterol • essential for breastfeeding women 	The vast majority of people are deficient in bioavailable manganese.	NORM	<ul style="list-style-type: none"> • walnuts • egg yolk • sea algae • green vegetables (the darker the colour, the better) • tea • grains (but, because they're highly pro-inflammatory and allergenic, their consumption in any form should be extremely limited or abandoned) • parsley • sprouts

Element	Role in the body	Additional notes	Your level	Main sources
Copper (Cu)	<ul style="list-style-type: none"> • supports the formation of bones and the production of haemoglobin • is involved in the production of blood • maintains healthy arteries • is necessary for the hair and skin pigmentation • is necessary for the building of neurotransmitters (dopamine, norfenefrine) 	Excess copper most-commonly observed among vegetarians, vegans, women on contraceptives and stressed people. An excess (especially among women) causes migraines, muscle and joint pain, fluctuating moods, depression, fatigue, menstrual tension, infertility, and acne. It also causes a tendency to ADHD and autism. Changes in copper levels typically correlate with changes in oestrogen levels.	EXCESS	<ul style="list-style-type: none"> • meat • nuts • almonds • avocado • beans • beetroot • mushrooms • raisins • chocolate • garlic • grains (but, because they're highly pro-inflammatory and allergenic, their consumption in any form should be extremely limited or abandoned)
Molybdenum (Mo)	<ul style="list-style-type: none"> • promotes the maintenance of normal levels of nitric oxide in the body; therefore, it's required for protein metabolism • is a cofactor for the oxidase that converts sulphites to sulphates • improves the use of iron in the body and can prevent anaemia • controls uric acid metabolism • has a beneficial effect on teeth 	It participates in the synthesis of taurine, which is an amino acid involved in transporting creatine to muscles, thanks to which it's used more effectively and accelerates muscle regeneration after exercise.	EXCESS	<ul style="list-style-type: none"> • beans • peas • green vegetables • offal • buckwheat • brown rice • eggs
Potassium (K)	<ul style="list-style-type: none"> • regulates heartbeat and blood pressure • is responsible for the transport of nutrients to cells • transmits nerve impulses • is responsible for the work of muscles (spasms) • prevents cerebral haemorrhage and retention of water in the body • prevents acne and dry skin • eliminates insomnia and nervousness • prevents protein in urine 	-	EXCESS	<ul style="list-style-type: none"> • sardines • herrings • meat • cheeses • avocado • yeast • figs • nuts • groats • beans • garlic • onion • green vegetables - the darker the colour, the better (drink the broth left over from cooking vegetables!)

Element	Role in the body	Additional notes	Your level	Main sources
Selenium (Se)	<ul style="list-style-type: none"> • together with vitamin E, it protects the heart, pancreas, liver, breasts and prostate gland from inflammation and cancer, impaired growth and physical and mental impairments in children, infections, infertility and poor skin elasticity • stimulates thyroid function • is involved in the synthesis of proteins, detoxification of mercury and cadmium, and in the production of glutathione 	<p>Selenium deficiency in food means that it must be supplemented. As many as 90% of people show a deficiency. Assuming, however, that there was an excess of selenium in the body and, at the same time, heavy metal poisoning and jaundice are ruled out, typical symptoms will include hair loss, yellowing or pale skin, and a metallic taste in the mouth.</p>	EXCESS	<ul style="list-style-type: none"> • meat • liver • eggs • yeast • onion • garlic • Brazil nuts • dandelion • parsley • nettle
Sulfur (S)	<ul style="list-style-type: none"> • necessary for the digestive process • helps detoxify the liver and blood • facilitates the absorption of nutrients • maintains the proper condition of skin, hair, nails and joints • protects against the side effects of radiation • is involved in the production of collagen, and the formation of bone tissue and tendons 	<p>A vegetarian diet (especially vegan), if it doesn't include products of animal origin (particularly egg yolks), is unable to provide the required amount of sulphur. Consequently, all processes that it's a part of are limited or impossible to carry out. In addition, vegetarians often have copper accumulated in the liver. Sulphur also plays its part in the elimination of excess copper.</p>	EXCESS	<ul style="list-style-type: none"> • meat • eggs • fish (only the smallest ones - sardines, sprats, herrings) • garlic • onion • horseradish • cabbage • beans • sprouts • cranberries
Sodium (Na)	<ul style="list-style-type: none"> • regulates blood pressure and the elimination of carbon dioxide • ensures adequate permeability and flexibility of cell membranes • prevents fatigue and electrolyte disturbance 	-	NORM	<ul style="list-style-type: none"> • rock salt • sea salt (never evaporated!) • olives • eggs • butter • fish (only the smallest ones - sardines, sprats, herrings) • sea algae • vegetables

Element	Role in the body	Additional notes	Your level	Main sources
Silver (Ag)	<ul style="list-style-type: none"> • silver in colloidal form (that doesn't penetrate the cell membrane) can prevent viral, fungal and bacterial infections (protecting against more than 600 strains of bacteria) 	-	NORM	<ul style="list-style-type: none"> • silver in the form of nanoparticles is controversial. It occurs mostly in the form pseudo-medications whose effects have not been definitively evaluated through research. The only proven and sure form of silver supplementation is its colloidal form
Vanadium (V)	<ul style="list-style-type: none"> • the function it plays in the body remains a mystery to science (it's believed to be involved in the production of hormones, and the control of blood sugar levels) 	Vanadium is present in almost every food product and that's why supplementation is not recommended.	EXCESS	<ul style="list-style-type: none"> • seafood (not recommended due to high toxicity) • pepper • parsley
Calcium (Ca)	<ul style="list-style-type: none"> • regulates cell membrane permeability to control nerve impulses and the work of muscles • regulates heartbeat, blood pressure, cell division and hormone secretion • is responsible for the level of blood clotting • together with amino acids, it's involved in the building of proteins 	-	EXCESS	<ul style="list-style-type: none"> • meat • eggs • fish (only the smallest ones - sardines, sprats, herrings) • green vegetables (the darker the colour, the better) • sea algae • sprouts • unpasteurised milk • cheese • almonds • dandelion • clover • chamomile
Iron (Fe)	<ul style="list-style-type: none"> • essential for energy production in cells, and transporting oxygen in the blood • participates in the detoxification of cells • prevents anaemia (especially in women with heavy menstrual flow and in children who often consume junk food). 	Excess iron promotes the growth of tumour cells, as well as bacterial and fungal infections.	EXCESS	<ul style="list-style-type: none"> • meat • offal (liver) • eggs • green vegetables (the darker the colour, the better) • avocado • beetroot • capsicum • almonds • nettle • liquorice • wild rose

Element	Role in the body	Additional notes	Your level	Main sources
Iodine (I)	<ul style="list-style-type: none"> • It is necessary for the proper functioning of the thyroid, pancreas and proper skin condition. • It protects the breast and prostate from changing. • It is important in the treatment of cancer. • It slows down the brain function. • It defends the body against fibromyalgia. • It causes irritability, hyperactivity and even depression. • It leads to dysregulation of menstrual cycles. • It plays a huge role for pregnant and breast-feeding women. 	<ul style="list-style-type: none"> • There is a much less cancer diseases in Japan, because of the fact that an average Japanese has 100 times more iodine in his/her body than European or American. • As a general rule, potassium iodide supplementation is recommended, and not iodine in its pure form, which only prevents the absorption of radioactive iodine into the cells. • Bromine, chlorine and potassium derivatives block the absorption of iodine. • Up to 95% of the population suffer from iodine deficiency. 	DEFICIENCY	<ul style="list-style-type: none"> • eggs, from hens from ecological farms • seafood from unpolluted areas • small fish • hazelnuts • broccoli, spinach, carrot carrot (preferably from regions adjacent to the sea) • seaweed • cottage cheese

EHA - the best way to determine heavy metal load

The excessive amount of toxic minerals in the environment can be described as a civilisational tragedy, because they're the main cause of ageing, disease, genetic changes and premature death. Water, food, air, cosmetics, and most inorganic chemicals contribute to these daily. Toxic minerals aren't the only ones poisoning us. There are other, similarly toxic chemical compounds, mainly petroleum derivatives (pesticides, perfumes, plastics), shampoos, toothpastes, hair dyes, nail polish, mascara, creams and dozens of other everyday products with the tendency to accumulate in the bodies of humans, animals and plants. In 2003, toxicologists from the Mount Sinai School of Medicine in the USA even demonstrated how many substances in the bodies of those studied - as many as 76 out of 167 - can cause cancer, 94 can cause diseases of the nervous system, and 79 can cause infertility, as well as physical and mental disabilities among children.

What may surprise you as well is that in addition to being potentially deadly, toxic minerals can also be 'spark plugs' for biochemical processes. This is true when there is a lack or deficiency of 'good' minerals. Although this type of mineral substitution should not be the norm, it affects approximately 80% of people! It's those who consume foods with low or no nutritional value whatsoever, and disregard dietary supplements. Indeed, these are the people who usually have serious health issues.

'Good' minerals are antagonists for toxic ones. This means that if they are in sufficient quantities and ratios, they neutralise, prevent the accumulation of, or even eliminate toxic minerals from the body. This is one of the reasons why the 'good' minerals are a protective barrier against the dangers of toxic minerals, which can temporarily help you, but, more often than not, seriously harm or even kill you.

To summarise, toxic minerals in amounts permissible for you (while there are so-called norms or acceptable limits, everyone has a different tolerance threshold!) are not really a problem. The much-more-serious problem is the body's inability to eliminate them. In turn, their elimination may prove impossible if your 'good' mineral reserves are non-existent or too low.

It's crucial that you are aware that 'good' minerals (e.g. calcium, manganese, chromium, iron, etc.) can cause similar reactions to toxic ones. This usually occurs when they are taken in a primitive form (e.g. oxides). If the body lacks the appropriate enzymes, it's unable to process and eliminate them.

There's one other thing you should know - the need to eliminate toxic minerals. We'll go into more detail below, but here we'd like to mention glutathione, which is a tri-enzyme that nature has equipped your liver with and that protects you against the toxicity of the environment. People susceptible to serious illness usually have low glutathione. So it's worth looking into the correct one. You can, as recommended by doctors, take N-acetyl-cysteine, which is difficult to get in Poland, or replace it with a liquid herbal preparation with a similar effect - Alveo. Doses are determined based on one kilogram of body weight. This is important information, especially for children being vaccinated with vaccines containing a preservative derived from mercury - thimerosal. They are as much as 27 times more likely to develop autism than those who receive thimerosal-free versions' (three-time exposure to thimerosal - Centers For Disease Control Safety Datalink).

As mentioned above, toxic minerals can replace the 'good' ones on enzyme receptors. This produces enzyme chaos, and it'll significantly decrease your enzymatic activity. In practice, this means a deterioration of organs, glands and entire systems. Unfortunately, as a result, your susceptibility to bacterial, viral and fungal infections increases proportionately. This trend affects not only you, but millions of others, especially children. This is mainly those whose zinc receptors are blocked by mercury, cadmium and lead. We're extremely pleased that you decided to check whether this type of mineral blockage or low zinc levels also applies to you.

Don't forget the lymphatic system

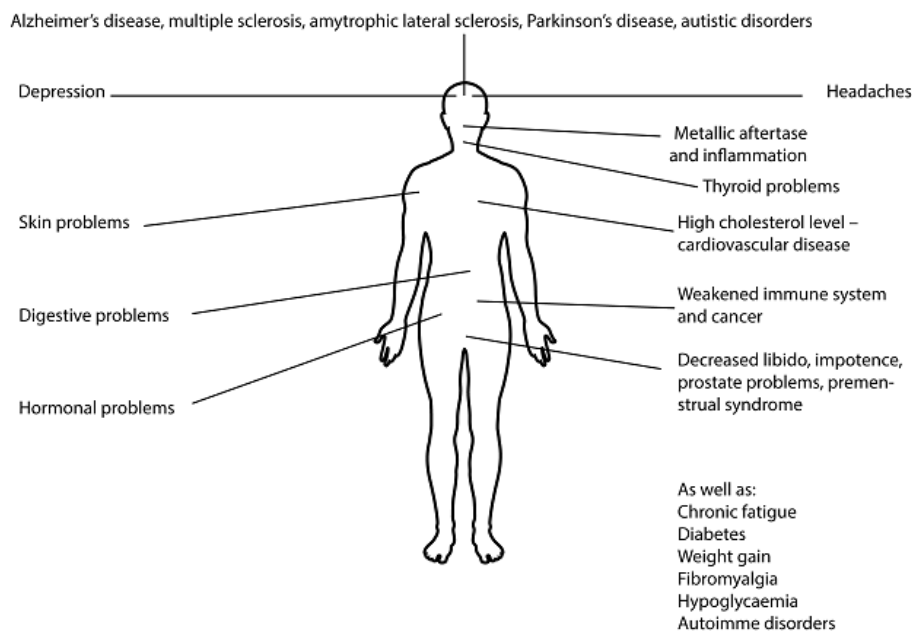
An unobstructed lymphatic system is crucial for detoxification, which is removing toxic elements from the body; it's responsible for eliminating all kinds of pollutants, and organic and inorganic metabolites from the body. In the case of cancer, metastases depend on how clean the lymphatic system is.

Use BIO cosmetics that are free from heavy metals

And there's one other very important thing: to avoid getting toxified by harmful substances, use BIO cosmetics that don't contain them. The cosmetics industry is the least regulated on the market. Its portfolio includes over 10 000 substances, most of which are toxic to some degree. Their main consumers - women - are the most vulnerable to a variety of side effects that they bring. These range from thyroid disease (especially caused by toxic toothpaste with fluoride and triclosan) and kidney disorders, to immune, endocrine, and neurological diseases. Given that women regularly use 10-12 different cosmetics (shampoo, hair dye, face and body cream, lipstick, lip gloss, deodorant, perfume, perfumed soap, hair spray, nail polish, removers, eye shadow and mascara, shower gels, and intimate washes), each of which usually contains several toxic substances, we're talking about approximately 150 substances being absorbed by the skin, of which only approximately 2% have been tested for safety. So, you should use BIO cosmetics that, unlike the ones that are traditional, popular and widely available in all chemists, don't contain toxic substances that could get into your body.

Effects of heavy metal toxicity

What are the effects heavy metals have on the body?



Consequences of heavy metal toxicity or loss of mineral ratios.

Main sources of toxic minerals

The sources of both 'good' and toxic minerals are water, air and food. All of these are poisoned to such an extent that, these days, your level of 'good' minerals is several times lower, while your level 'bad' minerals is tens of times higher than the level of our ancestors. The manipulation of food (pesticides, synthetic fertilisers, preservatives, flavourings, vegetable oils, margarine, dyes, microwave ovens, etc.) as well as the industrial breeding of cattle, poultry and fish cause the biggest disturbances to the 'good' minerals. This type of chaos is also caused by popular cosmetics, plastics, fumes from foundries, steel plants and waste incinerators, products from the telephone, electronics, tobacco, pharmaceutical, automotive and shipbuilding industries, and foundries and metal smelters. Simply put, it comes down to civilisation's "progress", which has caused civilisational diseases. So now you know where your toxic minerals come from? EHA will confirm this. Your task is to eliminate the sources.

Your EHA result shows the level of harmful elements in the body.

Check to see how they got there, and what signs of their excess may be

Toxic element	Potential sources	Amount in your body	Typical symptoms/effects of excess
Arsenic (As)	<ul style="list-style-type: none"> • pesticides • tap water • evaporated salt • beer • cosmetics • pigments • glass and mirror factories • construction timber • fungicides • insecticides • contaminated food 	NORM	<ul style="list-style-type: none"> • stomach pain • dizziness and headache • diarrhoea • fever • weakness • limb tremors • swelling • fluid loss • balding • inflammation of the throat, stomach and intestines • dermatitis • pale skin • difficulty in healing wounds • herpes • enzyme blockage • failure to absorb folic acid • muscle spasms • goitres • anorexia • jaundice • liver and kidney damage
Barium (Ba)	<ul style="list-style-type: none"> • tap water • landfills 	EXCESS	<ul style="list-style-type: none"> • barium combined with sulphur and carbon can cause breathing problems, paralysis, and even death • forms of barium that are water soluble may cause cerebral oedema and liver enlargement, heart and renal damage, high blood pressure, arrhythmia or muscle weakness
Aluminium (Al)	<ul style="list-style-type: none"> • cooking pots • beer and canned drinks • evaporated salt • baking powder • tap water • preparations for hyperacidity • deodorants • shampoos • vaccines • bleached flour • processed cheese • exposure in your profession • waste incineration plants • some medications 	EXCESS	<ul style="list-style-type: none"> • anaemia and other blood disorders • colic • chronic fatigue • tooth decay • abnormal thyroid function • abnormal liver function • abnormal kidney function • neurological problems • rickets • scoliosis • memory loss • Alzheimer's disease • Parkinson's disease

Toxic element	Potential sources	Amount in your body	Typical symptoms/effects of excess
Cadmium (Cd)	<ul style="list-style-type: none"> • refined foods • seafood • large fish • tap water • cigarettes • car fumes • galvanised pipes • cadmium pots and containers • waste incineration plants • factories that use cadmium in production (e.g. oil mills) 	NORM	<ul style="list-style-type: none"> • diabetes • low sugar • headaches • arthritis • poor bone healing • osteoporosis • cardiovascular diseases • high blood pressure • heart attacks • anaemia • atherosclerosis • cancers • cirrhosis • infertility • schizophrenia • kidney disease
Nickel (Ni)	<ul style="list-style-type: none"> • cooking pots • hydrogenated vegetable oils • margarine • seafood • water • air • cigarettes • galvanising plants 	NORM	<ul style="list-style-type: none"> • dermatological problems • vomiting • bleeding • low blood pressure • abnormal kidney function • depression • colorectal cancer • heart attacks • muscle tremors and muscle • hypocalcaemia

Toxic element	Potential sources	Amount in your body	Typical symptoms/effects of excess
Lead (Pb)	<ul style="list-style-type: none"> • hair dye • lipstick • ink (including mascara) • pesticides • tap water • industrial paints • battery factories • metal alloys • varnishes • fish (the smaller they are, the less contaminated they are) 	NORM	<ul style="list-style-type: none"> • anaemia • migraine • stomach pain • tooth decay • inflammation • abnormal production of thyroid hormones • arthritis • back problems • atherosclerosis • depression • psychosis • distraction • fatigue • hallucinations • convulsions • epilepsy • constipation • gout • glycogen management • impotence • infertility • decreased libido • kidney disease • adrenal weakness • loss of sight • diabetes • multiple sclerosis • cancer
Mercury (Hg)	<ul style="list-style-type: none"> • "silver" fillings • fish (the smaller they are, the less contaminated they are) • seafood • vegetables • air • mines • paper mills • diuretics, chlorine • adhesives • laundry softeners • waxes 	NORM	<ul style="list-style-type: none"> • hair loss • tremors • dizziness and headache • redness of the skin • dermatitis • hyperactivity • mood changes • insomnia • anxiety • depression • schizophrenia • memory loss • weakening of the immune system • muscle weakness • limb pain, numbness and tingling • hearing loss • visual disturbances • abnormal thyroid function • abnormal adrenal function • kidney damage • anorexia • psycho-physical disabilities in newborns

Toxic element	Potential sources	Amount in your body	Typical symptoms/effects of excess
Strontium (Sr)	<ul style="list-style-type: none"> • in radioactive form, the main sources of strontium are water, air and food (the highest concentrations are found in cereals, leafy vegetables, dairy products, onions and oranges) 	NORM	<ul style="list-style-type: none"> • strontium in harmful form is dangerous to health and may cause cancer (usually lung cancer)
Thallium (Tl)	<ul style="list-style-type: none"> • industrial water contaminated by the electronics and pharmaceutical industries 	NORM	<ul style="list-style-type: none"> • hair loss • bowel problems • kidney problems • changes in blood composition

Toxic element in EXCESS	Potential sources	Amount in your body	Typical symptoms/effects of excess
Copper (Cu)	<ul style="list-style-type: none"> • "silver" fillings • water pipes • tap water • swimming pools • pesticides • mines and a copper smelters • vegan diet • vegetarian diet • contraceptive tablets and inserts • weakened adrenal glands 	EXCESS	<ul style="list-style-type: none"> • acne • allergies • balding • yeast overgrowth (Candida albicans) • frequent infections • headaches • inflammation • tooth decay • vitamin C deficiency • high cholesterol • elevated oestrogen • premenstrual tension • hyperactivity and/or lethargy • apathy • fatigue • insomnia • soreness • nervousness • anxiety attacks • depression • panic attacks • schizophrenia • decreased libido • arthritis • bone fragility • osteoporosis • autism • fibroids • cancer • diabetes • anaemia • hypertension • blood diseases associated with iron levels • heart attacks • hypothyroidism • kidney and liver diseases • overactive adrenal glands • underactive adrenal glands • multiple sclerosis

Warning! If you have an excess of or deficiency in any of the above elements, it's recommended that you consult your doctor or dietician.

Mineral ratios - balance means health

How to interpret the EHA

Like all living beings, you also exist thanks to the principles that govern balance. Here, balance means health, and imbalance means disease. The balance formula also applies to minerals, which means the correct quantitative ratios between them. That's why evaluation of a set of 'mineral pairs' is the most-important part of the EHA. Of course, the 'ideal' result is what you're after. Anything beyond - above or below - describes your trends and tendencies, and even their intensity.

Regular analysis of the level of the 'spark plugs' (recommended to be done twice a year) will allow you to monitor progress on the road to biochemical (and mental) homeostasis and, if necessary, make appropriate adjustments. This is important because even a deficiency or excess of vitamins consumed on a daily basis (from food and/or supplements) may upset your mineral balance. An example of this is a deficiency of vitamins A, C and B2. In this case, you can expect to have an iron deficiency (potential anaemia). It is similar and opposite

with zinc: a deficiency will prevent your liver from releasing vitamin A. On the other hand, an excess of vitamin C may cause copper deficiency, although it will definitely improve your absorption of iron, zinc and magnesium. On the flip side, excess copper will increase your need for vitamin C and zinc.

The most-important 'mineral pairs'

EHA examines 14 ratios for each pair of your elements. They are all interrelated. One ratio affects the other and vice versa. They must all be assessed to define the following set of five 'mineral pairs' that are treated as the core set, based on which and in comparison with others you can determine your own trends and tendencies:

- Calcium/Magnesium - Ca/Mg
- Sodium/Potassium - Na/K
- Calcium/Potassium - Ca/K
- Sodium/Magnesium - Na/Mg
- Zinc/Copper - Zn/Cu

Check your trends and tendencies,
i.e. what the basic ratios of the elements mean in your specific case

Calcium to Magnesium – Ca/Mg

Both minerals are regulated by the parathyroid, thyroid, oestrogen, and kidneys. Their ratio shows the condition of the parathyroid, pancreas and adrenal glands. Calcium releases insulin from the pancreas. Magnesium maintains calcium in liquid form and limits insulin release.

Norm Calcium/Magnesium	5.60 - 8.40
Your ratio	9.02
Ratio	EXCESS
Limit intake of	Calcium
Increase intake of	Magnesium
Check the trends and tendencies for your Ca/Mg ratio	
Ratio over 16	Associated with mental and emotional disturbances.
Ratio 12-16	Limited tolerance of carbohydrates, strong sensitivity to sugar.
Ratio 7-12	Problem with controlling sugar (hypoglycaemia - l w blood glucose), dominance of parathyroid hormones, hyperactivity of the pancreas (increased levels of insulin).
Ratio 2-7	The adrenal glands are producing excess cortisol, pancreatic function is reduced (decreased insulin levels).
Ratio less than 2	Associated with mental and emotional disturbances.

Sodium to Potassium – Na/K

It's believed that the ratio of these minerals is one of the most critical. Therefore, it's often referred to as the 'life and death' ratio due to its control of the electrical potential of cells. This is one of the reasons why imperfect ratios between them indicate an impairment of many physiological functions and, therefore, a tendency to developing many serious diseases.

In an imperfect configuration, these elements have a direct and/or indirect influence, among others, on the development of immune and inflammatory conditions (precursors for almost all illnesses), as well as on the quality of adrenal, kidney, liver and heart function. Toxic minerals (e.g. lead and cadmium) disrupt the ratio of both minerals, causing a similar effect - disorders in the production of adrenal hormones (aldosterone and cortisone). The greater the discrepancy of the Na/K reading (above 6), the higher the probability of magnesium and zinc deficiency.

Norm Sodium/Potassium	1.92 - 2.88
Your ratio	0.48
Ratio	EXCESS
Limit intake of	Potassium
Increase intake of	Sodium
Check the trends and tendencies for your Na/K ratio	
Ratio 4 - 6	Inflammation, increased susceptibility to mental stress, adrenal hormone imbalance. A high level (although this is preferred a low level) is also associated with allergies, asthma and liver problems.
Ratio 2.4 - 4	Tendency towards the development of inflammatory conditions.
Ratio 2.0 - 2.4	The beginning of the adrenal fatigue process.
Ratio 1.0 - 2.0	Disturbance in liver and kidney function, arthritis, asthma, allergies, adrenal fatigue, hydrochloric acid deficiency, problems with the digestive system, neurological disorders.
Ratio less than 1.0	Arthritis, liver and kidney disease, heart attack, tumours.

Calcium to Potassium – Ca/K

Calcium and potassium are minerals, whose importance in thyroid activity can be considered as paramount. It's not without reason that their relationship is referred to as 'the thyroid one'. So, both minerals have a huge impact on your individual metabolism (read the next chapter: 'Who am I metabolically?'). This is one of the reasons why, when evaluating thyroid function, you don't rely solely on a blood test, but also take into account your EHA result. It's extremely common that blood test results indicate correct thyroid function, while the ratio of calcium to potassium clearly shows an underactive or overactive thyroid. And if you're intending to correct the problem through diet and/or supplementation, it's prudent to remain open minded on this issue. Especially since the Ca/K result often confirms typical clinical symptoms associated with both diseases.

Norm Calcium/Potassium	3.20 - 4.80
Your ratio	1.62
Ratio	EXCESS
Limit intake of	Potassium
Increase intake of	Calcium
Check the trends and tendencies for your Ca/K ratio	
Ratio over 30	Severe hypothyroidism.
Ratio 15 - 30	Moderate hypothyroidism.
Ratio 7 - 15	Mild hypothyroidism.
Ratio 4 - 7	Insignificant hypothyroidism.
Ratio 2 - 4	Insignificant hyperthyroidism.
Ratio 1 - 2	Moderate hyperthyroidism.
Ratio less than 1	Severe hyperthyroidism.

Sodium to Magnesium – Na/Mg

This is often referred to as 'the adrenal ratio' because of the direct relationship of sodium and aldosterone, a hormone whose level in the body largely depends on the level of sodium. This means that the higher the level of aldosterone, the more sodium is in the body, so the ratio of sodium to magnesium is also higher. When assessing the level of sodium to determine adrenal performance, the level of iron, nickel, copper, cadmium and mercury must be noted. Excessive amounts can temporarily increase the level of sodium, which doesn't mean that the adrenal glands are exhibiting hyperactivity.

From an analytical and medical point of view, it is, again, not smart to consider the condition of the adrenal glands without taking into account the condition of the thyroid (Ca/K). This is because both glands behave like bicycle wheels - they always turn together, regardless of the direction. Therefore, their common task is to regulate energy and metabolism, as well as control emotions and stress.

Unfortunately, when 'thyroid' diagnoses are given, the state of the adrenal glands is often not assessed. If it's assessed at all, it's based on a blood analysis. However, such results are often inconsistent with symptoms typical of abnormal adrenal function. The EHA result is the opposite. It usually confirms this. It's worth noting that the adrenal glands and thyroid (together - not separately) determine states of aggression or apathy, vigour or fatigue, failure to control excess weight or allergies, hypertension or hypoglycaemia, poor digestion or diabetes, cancer or cardiovascular diseases.

Norm Sodium/Magnesium	3.28 - 4.92
Your ratio	2.66
Ratio	EXCESS
Limit intake of	Magnesium
Increase intake of	Sodium
Check the trends and tendencies for your Na/Mg ratio	
Ratio over 15	Severe adrenal hyperfunction.
Ratio 7 - 15	Moderate adrenal hyperfunction.
Ratio 4.1 - 7	Mild adrenal hyperfunction.
Ratio 2 - 4.1	Mild adrenal hypofunction.
Ratio 1 - 2	Moderate adrenal hypofunction.
Ratio less than 1	Severe adrenal hypofunction.

Zinc to Copper – Zn/Cu

Zinc and copper have different tasks - some more and some less important. This doesn't mean that either one is better or worse. Both are important. They initiate and determine the course of a number of physiological processes. They also affect the availability of steroid hormones, which, in turn, affect them. While zinc is essential in the production of progesterone and testosterone, copper is essential in the production of oestrogen. Copper also stimulates norepinephrine and dopamine (nerve transmitters); thus, if present in excess, it leads to their dysfunction. The final result is mental disturbances manifested by a tendency to violent mood swings, panic attacks and anxiety.

Zinc is an antagonist to copper. Usually, however, due to chronic zinc deficiency in humans, it can't reveal its activity. In fact, we all need to supplement it. Especially men who have problems with the prostate, or orgasm more than once a week. Zinc supplementation should be determined based on the ratio of sodium to potassium rather than on the level of zinc in the hair. This is true especially if you wash your hair with toxic shampoos, which have zinc as one of their many ingredients.

Because symptoms and diseases in which an incorrect ratio between copper and zinc plays an important role occur extremely frequently, it's worth learning about the most-common ones.

A low level of zinc relative to copper is associated with infertility, liver diseases (fatty liver and cirrhosis, Wilson's disease), hair loss, menopausal symptoms, loss of the sense of taste and smell, acne, eczema, impotence, psoriasis, inflammation of the prostate, schizophrenia and poor wound healing.

Norm Zinc/Copper	6.40 - 9.60
Your ratio	12.21
Ratio	EXCESS
Limit intake of	Zinc
Increase intake of	Copper
Check the trends and tendencies for your Zn/Cu ratio	
Ratio over 15	Severe copper deficiency.
Ratio 8 - 15	Copper deficiency.
Ratio 4 - 8	Copper toxicity.
Ratio less than 4	Severe copper toxicity.

Because copper toxicity is often hidden, when analysing the EHA result it is advisable to pay attention to other indicators (read the next chapter: 'Who am I metabolically?'), and among them the level of copper (greater than 25 ppm), calcium (greater than 600 ppm), the ratio of sodium to potassium - Na/K (below 3) and the level of mercury (greater than 0.03 ppm).

EHA and hormones

Why does your result say a lot about hormones? Because hormones are the best indicator of biochemical changes, trends and tendencies. They are directly linked to minerals. What's more, they affect both the level and ratios of minerals. So, it's important that you take note of the minerals that are, at the time, essential to the hormonal glands or, in a sense, are an obstacle that gets eliminated into the hair.

When hormones are in balance, they fulfil the tasks put before them. However, this doesn't mean that they work together smoothly. Insulin (when in excess) can disrupt the levels of thyroid and adrenal hormones, increase oestrogen, and decrease progesterone. It's the same with parathyroid hormones, which are, in a sense, opposing the thyroid ones. Hormonal chaos is metabolic chaos. This in turn means a trend and tendency to the development of metabolic diseases. So, controlling 'spark plug' levels becomes a priority.

The concentration of elements in your body and how your hormones work

Gland/ hormone	Intensively eliminated into your hair (‘YES’ means an excess of the element for the correct functioning of the gland/hormone)		Retained in your body (‘YES’ means a deficiency of the element for the correct functioning of the gland/hormone)	
Thyroid	Copper (Cu) Calcium (Ca) Magnesium (Mg)	YES YES YES	Potassium (K) Sodium (Na) Manganese (Mn) Phosphorus (P) Iron (Fe)	- - - - -
Pancreas	Iron (Fe) Manganese (Mn) Zinc (Zn) Phosphorus (P) Chromium (Cr) Potassium (K)	YES - YES - - YES	Copper (Cu) Calcium (Ca)	- -
Adrenal glands	Magnesium (Mg) Copper (Cu) Calcium (Ca) Chromium (Cr)	YES YES YES -	Phosphorus (P) Manganese (Mn) Iron (Fe) Sodium (Na) Potassium (K)	- - - - -
Parathyroid	Magnesium (Mg) Sodium (Na) Potassium (K) Phosphorus (P) Iron (Fe) Chromium (Cr)	YES - YES - YES -	Copper (Cu) Calcium (Ca)	- -
Progesterone	Calcium (Ca) Copper (Cu)	YES YES	Zinc (Zn) Iron (Fe) Sodium (Na) Magnesium (Mg) Phosphorus (P) Potassium (K)	- - - - - -
Oestrogen	Zinc (Zn) Magnesium (Mg) Sodium (Na) Iron (Fe) Potassium (K) Phosphorus (P) Manganese (Mn)	YES YES - YES YES - -	Calcium (Ca) Copper (Cu)	- -

The ratios of elements in your body and how your hormones work

This analogy also applies to the mineral ratios contained in the following list. Both lists are designed to help you choose the right nutrients and their supplements so as not to disturb mineral levels and ratios. Of course, this takes account of your metabolic predispositions (read the next chapter: 'Who am I metabolically?').

Gland/hormone	Decreased ratio (‘YES’ means an impaired ratio of elements for the correct functioning of the gland/hormone)	Increased ratio (‘YES’ means an impaired ratio of elements for the correct functioning of the gland/hormone)
Thyroid	Calcium (Ca) / Phosphorus (P) Calcium (Ca) / Potassium (K)	Iron (Fe) / Copper (Cu) Sodium (Na) / Magnesium (Mg)
Pancreas	Iron (Fe) / Copper (Cu) Zinc (Zn) / Copper (Cu)	Calcium (Ca) / Sodium (Na) Calcium (Ca) / Magnesium (Mg) Calcium (Ca) / Potassium (K) Calcium (Ca) / Iron (Fe) Calcium (Ca) / Phosphorus (P)
Adrenal glands	Calcium (Ca) / Sodium (Na) Calcium (Ca) / Phosphorus (P) Calcium (Ca) / Potassium (K)	Sodium (Na) / Potassium (K) Iron (Fe) / Copper (Cu) Calcium (Ca) / Magnesium (Mg) Sodium (Na) / Magnesium (Mg)
Parathyroid	Iron (Fe) / Copper (Cu)	Calcium (Ca) / Magnesium (Mg) Calcium (Ca) / Sodium (Na) Calcium (Ca) / Iron (Fe) Calcium (Ca) / Potassium (K)
Progesterone	Sodium (Na) / Potassium (K) Calcium (Ca) / Potassium (K)	Iron (Fe) / Copper (Cu) Zinc (Zn) / Copper (Cu)
Oestrogen	Iron (Fe) / Copper (Cu) Zinc (Zn) / Copper (Cu)	Sodium (Na) / Potassium (K) Calcium (Ca) / Magnesium (Mg) Calcium (Ca) / Potassium (K) Calcium (Ca) / Iron (Fe)

Who am I metabolically? Find out!

Already back in the days of Hippocrates, doctors and scientists tried to find the answer to the question of ‘what is the reason for our differences?’ There were many proposed answers - some were more useful and some less, and some more controversial, and some less. Once medical terms such as anabolism and catabolism (metabolism phases) were introduced, individual metabolic predispositions were determined based on the condition of the thyroid, blood type, anatomy of the body, genes, behaviour, etc. Although these types of measures were heading in the right direction, there was still no universal formula that could precisely define the relationship between metabolism and diseases, behaviours, emotions, and even ways of thinking. Finally, three medical geniuses - Dr. Watson, Dr. Eck and Dr. Price discovered that the metabolism can be fast, slow or mixed (closer to the fast or slow).

This break down explains why we have:

- different reactions to the same food,
- varying requirements for and absorption of specific nutrients,
- varying tolerance to environmental factors,
- varying susceptibility to pathogens,
- varying reactions to stressful situations.

These same doctors also observed that minerals are a great indicator of metabolic processes, directly affecting their quality.

The EHA showed that your metabolism is mixed with a tendency towards fast.

Metabolic type 3 - mixed metabolism

Your Elemental Hair Analysis results indicate that the ratio of Calcium to Potassium Ca/K in your body is lower than 4, and Sodium to Magnesium is lower than 4.1, which means that your metabolism can be classified as mixed with a tendency towards fast. The lower the ratio of these proportions, the closer your metabolism is to being fast.

Entering a fast metabolism is normal in children under nine years of age. In adults, however, such a metabolic speed is unnatural and you should ensure that your body doesn't enter this phase. In many cases, a fast metabolism may be due to poor diet. That's why you should know that a proper diet, proper supplementation, and elimination or control of the factors referred to below can help prevent you entering into the fast metabolism stage.

Ratio of elements	Mixed metabolism	Your metabolism
Calcium to Potassium Ca/K	below 4	1.62
Sodium to Magnesium Na/Mg	below 4.1	2.66

Below are the symptoms characteristic of a mixed metabolism with a tendency towards fast. Of course, you may not have all of these symptoms. Sometimes, only one of the elements may cause this type of metabolism.

Symptoms that you may have to a greater or lesser degree.
Aggression, impatience, irritation.
Quick changes of mood from nervous, aggressive and irritated, to gentle, quiet and nice.
Bowel movements at least twice a day.
Sugar in the upper limit (100).
Blood pressure oscillating around 120/80 or higher.
Sweating easily and feeling hot.
Tendency to oily skin and dandruff.
Tendency to accumulate excess fat under the skin - especially around the abdomen (excess cortisol increases insulin levels).
Tendency to hardening of the arteries.
Lots of energy.
The body often takes on the shape of an apple, i.e. the lower torso becomes round, while the upper limbs and torso remain slim.
Varying cravings Craving 'something' normally means that either this 'something' sensitises you (usually pasteurised dairy products, flour or seafood), or that your body is calling for 'something' trying to restore the previously lost homeostasis. So, if the EHA places you on the side of a mixed metabolism with a tendency towards fast, your craving for pork knuckle, butter or lard is understandable. It's similar with purine (e.g. sardines, offal), or apple cake, potatoes or pasta. These types of cravings only prove that you consume an insufficient amount of fat. And if your body is asking for them, it means that it wants to slow down your metabolism.

Control your metabolism - how can you slow it down?

Based on the EHA results, a proper diet and supplementation will allow you to control your own metabolism. The fast pace of metabolic processes will be slowed down by controlling or eliminating the following factors.

Factor	How to control or eliminate the factor
Excess toxic minerals, chemicals	Check your levels of toxic minerals in your EHA results, and then eliminate their potential sources listed in the chapter 'The main sources of toxic minerals'.
Excess metal oxides	Limit (reduce the dosage but don't completely exclude) the sources of copper, iron, selenium, chromium, magnesium and calcium, and completely avoid sources of aluminium. (Be careful of low-quality supplements, cosmetics and industrially processed food. Oxide accumulation is toxic to the thyroid, adrenal glands, brain, and kidneys.)
Stressful situations	Learn to cope with stress. Repeated reactions of the sympathetic nervous system to stressful 'fight or flight' situations result in the loss of many nutrients, and this means many ailments and diseases.
Fatigue and hard physical work	Take care of yourself and think positively. Being overworked, insomnia, anxiety, angry outbursts, financial pressures, failures, lack of a vision for the future, etc. are harmful.
Stimulants	Eliminate coffee, sugar, hot spices, alcohol, psychotropic drugs, cigarettes, etc.
Infections	Make sure that your body doesn't develop bacterial, viral or fungal infections and the accompanying increased body temperature (sweating). To this end, first and foremost, avoid all forms of sugar.
Diseases	Get tested and prevent cancer, as well as cardiovascular, neurological, gastrointestinal, and other diseases.
Medications	Pay particular attention to taking thyroid and adrenal gland hormones. You shouldn't take increased doses of thyroid hormone to control weight!

Follow a diet that's compatible with your metabolic type

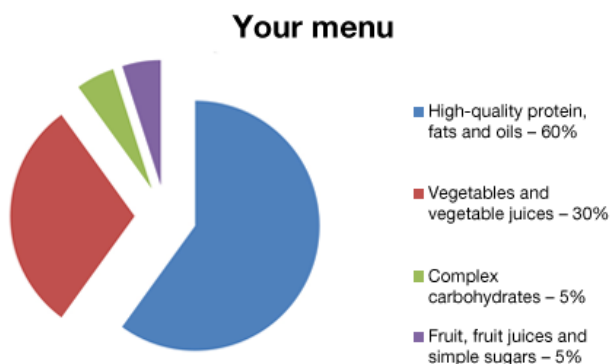
Perhaps you're surprised that doctors, dieticians and carefully selected proportions of proteins, fats and carbohydrates don't decide what goes from your plate to your cells. Your metabolic predispositions and mineral status are the key factors. There's no other option!

While the EHA will tell you who you are metabolically and what your mineral status is, it won't turn your kitchen upside down. Sure, it'll change many of your most-important nutritional habits, which, really, decide who you are, and what your current trends and tendencies look like.

In return, we expect that you'll drastically reduce or even eliminate junk products called "food". These are industrial products that are refined through pasteurisation, synthetic fertilisers, pesticides, hormones and antibiotics, freezing, frying, grilling, etc. You may ask 'why?' Firstly, because such refined foods lack approximately 80% of the original ingredients that contribute to health. We won't even mention their levels of toxicity. You're aware that all 'E' symbols are not vitamins, but preservatives destroying our health.

When setting your daily menu, don't count calories. You should focus instead on where they come from, what's better or worse, what promotes health and what promotes disease.

Diet for a mixed metabolism with a tendency towards fast.



Your daily menu and each dish should follow the proportions shown in the graph. If they don't, it's either because of traditions and habits, or a controversial food pyramid, created last century by food corporations, which don't value your health.

High-quality protein, fats and oils 60%

Your optimal source of protein is animal protein. Of course providing that the pig, cow, chicken or turkey are not fed 'humanly', but like their forefathers - organically. Other options include lamb, mutton, venison and rabbit. Don't be afraid of fat on the meat. This is saturated fat demonised by the food pyramid. This fat exists in large quantities in breast milk (it's essential for children's brain development), unless nature made another mistake ... You can also find it in butter, whole milk (best curdled and unpasteurised!) and

eggs (yolk should always be consumed raw or in liquid form. You can have ten or more of these a week). Are you scared of high cholesterol? You should instead fear low cholesterol, because those who suffer from serious diseases have low cholesterol levels. It's another matter when we're dealing with cancer, or chronic fungal or bacterial infection. Then, meat and eggs need to be limited due to high iron content - a promoter of these diseases. Eat almonds, nuts, and seeds, which will slow down your metabolism due to their fat content. We don't recommend peanuts, which often contain carcinogenic aflatoxins.

We also don't recommend fish, unless it's once or twice a week, and only the smallest ones (sardines, sprats, herrings). This size of fish have a relatively low degree of toxicity. We definitely don't recommend tuna, shark, halibut, cod, salmon (particularly from Norway) or basa from Vietnam. They're poisoned by inorganic chemicals (especially mercury) and their toxicity is too high, hence the recommendation to avoid.

As for oils, we're definitely not talking about margarine or vegetable oils. The exceptions are olive and coconut oils. And they shouldn't be put in the frying pan (heat destroys their fatty acids and turns them into highly damaging trans fats), but into salads, so that you can absorb the fat-soluble vitamins (A, D, K and E) contained in vegetables. If you insist and want to use a frying pan, you can use clarified butter or lard. No aluminium foil or cooking bags. Because we all know what the effects of plastic (hormonal disorders), and aluminium are.

Vegetables and vegetable juices 30%

As much as 30% of your meals should be made up of vegetables. Knowing that your anatomy doesn't make you a herbivore, we recommend the following solution. While vegetables should accompany your every meal, and ideally should be in cooked or fermented form (in the era of damaged gastrointestinal tracts that have difficulty digesting fibre, this is the optimal solution. In addition, minerals are better released in this form), you can compensate their required amount with vegetable juice. One to two glasses of home-made (unpasteurised) juice made from locally-grown vegetables per day is definitely enough. Your restrictions are all types of chili pepper, chilli, tomatoes, potatoes, mushrooms, pumpkin, and watermelon. But don't be afraid of sprouts, especially during winter. Their content of microelements and macroelements is up to 20 times higher than that of vegetables.

Complex carbohydrates 5%

These include all grain products (bread, pasta, crepes, cakes, dumplings), which you must avoid at all costs. Especially genetically modified spelt. This isn't at all about your potential allergy to gluten, but about insulin and sugar. In case you didn't know, cereal products ultimately convert into glucose in the body. Exactly like table sugar and alcohol. The amount specified above may include groats (buckwheat, millet), brown rice, amaranth, quinoa, etc. However, don't eat them with fatty protein. Protein goes hand in hand only with vegetables, and vegetables with complex carbohydrates, as described above. Not otherwise. In addition, don't eat proteins and vegetables with every meal. Let your digestive system have a break from time to time. Ultimately, approximately 60% of the nutritional value of food is used for digestion (including production of stomach acid and digestive enzymes). Instead, eat a meal made only from cooked, native vegetables made to your liking.

Fruits, fruit juices and simple sugars 5%

Once again, to assure you that we haven't made a mistake. Contrary to standard dietary advice from "experts" (i.e. against your biological individuality), your diet doesn't include a lot of fruit (especially avoid exotic fruit containing pesticides prohibited in Europe and America), fruit juices, honey, syrups (don't use glucose-fructose syrup). Don't use sugar and sweeteners (aspartame), bars, cakes and cookies, chocolate, sweets or alcohol in any form. Stevia or xylitol may be used in small amounts. Don't add fruit to vegetable salads. As you know, sugar (in this case, fructose) means fermentation. Your digestive system doesn't need fermentation - it needs proper digestion.

You say that when you eat only fruit and vegetables, you feel good. You have the right to this opinion, because you used to indulge in sausages, grilled pork knuckle, pasteurised milk and cheese, or, after eating protein, you had apple cake or ice cream. This doesn't mean, however, that fruit agrees with you as much as you thought.

Remember, however, that you shouldn't eat any junk food. It's tasty? Who cares, since its creators - the Americans - are currently among the most obese and sick nations in the world because of it.

Diet for a mixed metabolism with a tendency towards fast		
Type of food	recommended products	products to avoid
High-quality protein, fats and oils: 60%	<ul style="list-style-type: none"> • protein from organically fed animals • lamb • mutton • game • rabbit • butter • whole milk (preferably curdled and unpasteurised) • eggs (yolk always raw or in liquid form) • almonds • nuts • olive oil (for salads) • coconut oil (for salads) • clarified butter (for frying) • lard (for frying) 	<ul style="list-style-type: none"> • limit meat and eggs (in the case of cancers or chronic fungal and bacterial infections) • peanuts • tuna, shark, halibut, cod, salmon, basa (eat fish up to 1-2 times a week, and only the smallest ones - sardines, sprats, herrings) • margarine • vegetable oils
Vegetables and vegetable juices: 30%	<ul style="list-style-type: none"> • cooked vegetables • fermented vegetables • unpasteurised homemade vegetable juices (1 - 2 glasses per day) • sprouts 	<ul style="list-style-type: none"> • chili pepper • chilli • tomatoes • potatoes • mushrooms • pumpkin • watermelon
Complex carbohydrates: 5%	<ul style="list-style-type: none"> • buckwheat • millet • brown rice • amaranth • quinoa 	<ul style="list-style-type: none"> • genetically modified spelt • bread • pasta • crepes • cakes • dumplings
Fruits, fruit juices and simple sugars: 5%	<ul style="list-style-type: none"> • apples • pears • plums • fruit juices • syrups • honey • stevia • xylitol 	<ul style="list-style-type: none"> • sugar • sweeteners (aspartame) • fruit (if you're fighting cancer, diabetes, or bacterial, viral or fungal infection) • fruit juice (if you're fighting cancer, diabetes, or bacterial, viral or fungal infection) • honey (if you're fighting cancer, diabetes, or bacterial, viral or fungal infection) • syrups (if you're fighting cancer, diabetes, or bacterial, viral or fungal infection) • bars • cakes and cookies • chocolate • sweets • alcohol • stevia (if you're fighting cancer, diabetes, or bacterial, viral or fungal infection) • xylitol (if you're fighting cancer, diabetes, or bacterial, viral or fungal infection) • fast food

Additional notes

Salt

Never use evaporated salt in the kitchen. On the other hand, don't be afraid of rock or sea salt, which have approximately 80 microelements and macroelements. This non-evaporated salt is made by Mother Nature (you can consume it in amounts up to 2,000mg/day). Non-evaporated salt doesn't raise blood pressure. Blood pressure increases from excess sodium compared with other minerals related to it - calcium, magnesium, phosphorus and potassium.

Water

Drink clean water. Never drink "natural" water from plastic bottles. Water filtered through reverse osmosis (with a pinch of rock or sea salt) or a carbon filter are good solutions. If you have a heavy metal burden, it's also good to drink distilled water for up to four weeks. Not for longer, because it binds and removes not only the 'bad' minerals, but also the 'good'.

Don't drink water half an hour before eating a meal with animal protein. Similarly, don't drink it while eating and for two hours after. Otherwise, you'll dilute the hydrochloric acid, inhibiting digestion. This causes low or no absorption of nutrients, especially minerals.

Check your dishes

Don't use a microwave or aluminium cookware, pots coated with stainless steel (they contain cadmium and nickel), or highly toxic Teflon. Instead, use ceramic or glass pots.

Whatever you eat, eat it slowly

Digestive enzymes already start working in the mouth (saliva). Give yourself time and make eating a pleasure - use it as an opportunity to talk with fellow banqueters. Aside from the nutrient-related aim of eating, this is another objective. Eat more often, even several meals a day.

Eat so that you don't feel completely full

The feeling of being full usually comes after half an hour, when the hormone telling you to eat (leptin) turns off, and the one that tells you to stop (ghrelin) turns on.

Don't avoid herbs and spices

Choose turmeric, dill, parsley, ginger, marjoram, garlic, oregano, sage, etc. Not only do they add flavour, they're also choc-full of microelements and macroelements. Never use artificial "vegetables", because they're also usually full, but of the harmful monosodium glutamate instead.

Don't forget to regularly detox your body

Detox the liver, intestines, skin, and especially the lymphatic system, which is responsible for removing everything from the body that should be. Coffee enemas once a month are okay, a sauna three times a week is great, just like it's great if you maintain the glutathione (referred to above) at a high level. However, it's the role of the lymphatic system to pass all impurities and metabolites to the kidneys and urine. So, make sure that your lymphatic system is fully functional. In the end, it's what causes tumour metastases, if any of the 600 lymph nodes are contaminated.

In order to complete the diet apply the supplementation

If the food listed in the tables above has been the source of your minerals until recently, you should now start supplementing them. Unfortunately, these are the times we live in. There are more than 95 minerals; these include electrolytes, which are regarded as the most-important ones. They include magnesium, potassium, calcium, phosphorus, sodium and sulphur. If your EHA showed incorrect proportions between them, this means you have increased tendencies and trends to 'something'. Often, this 'something' is serious.

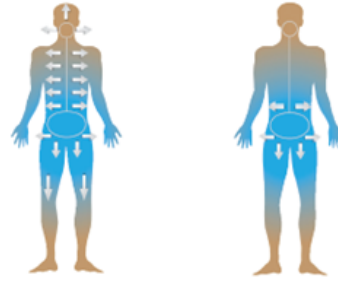
Supplementation depends on the type of food you eat. Pay special attention to the quality of supplements that you put into your body, because they are an essential complement to the food. Which supplements should you get? They should be in isotonic (liquid) form, because they're better absorbed than solid forms. Liquid supplements are absorbed approximately 95% (already in the mouth), while solid forms are absorbed from 5 to 18%, at best. This is according to scientists, whose research results have been published for doctors in the American Physician's Desk Reference - 1996).

Absorbability of nutrients from supplements

In liquid form

In solid form

Vitamin and mineral supplements in isotonic – liquid – form concentrate the vitamins and minerals in an aqueous solution in the same form as body fluids (e.g. the blood, saliva or tears). This makes them better absorbed than vitamins and minerals in solid forms (tablets or capsules).



What can you expect after making the changes recommended in the EHA?

1. An influx of energy.
2. Effective control of the growth of adipose tissue.
3. Improved mental and physical condition.
4. Elimination of cravings.
5. Slowing down of the ageing process.
6. Increased immune resistance.
7. Elimination of digestive problems.

Conclusion

Decades go by, and the so-called diet "experts" still insist on a low-protein, low-fat, carbohydrate diet. And this is despite the fact that those who follow it are more likely to get sick and have weight problems. These are the people who are scared of cholesterol and the sun. They're usually diabetics, to whom metabolic individuality is a scientific term. They have no idea that it's what makes everyone different, and also what explains everyone's individual nutritional needs. They're also unaware that the same disease often has different biochemical foundations. So, if you want to get the answer to the question of 'Who am I metabolically?', EHA is what you need. It's not fat, protein or carbohydrates that pose dietary problems. They never did. The problem could be your metabolism, which means the capacity of converting individual ingredients into energy. Remember this when someone, once again, recommends a "miraculous" diet in a magazine.

Healthy regards
Jerzy Maslanky