

# Detoxification and Nutrition programme

## Nutrition of the body



Test report: Example result  
The sample belongs to: Example result  
Test ordered by: Example result



DEAR SIRS,

*In the Biomol-Med Sp. z o.o. Trace Elements Laboratory, we conduct quantitative analyses of elements contained in hair. On the basis of own research and available literature, we have established the standards of hair mineral composition for the Central European population. On the basis of data obtained from medical literature on mineral transformation from the last several years, we have defined dependencies among elements. The results of the analysis of elements in hair are interpreted by doctors cooperating with the Laboratory on the basis of the proportions among elements and their amounts.*

*The main objective of hair analysis is prophylactics. Supplements are not medicines and they do not replace medicines. Following a hair analysis, a patient must not independently alter the treatment prescribed by their doctor. The analysis of elements in hair is not used to detect diseases symptoms and cannot be utilised for tracing the treatment process. In case any medicaments are used, prior to introducing a nutrition programme resulting from the analysis of elements in hair, it is necessary to consult a doctor who has prescribed these medicaments. The attending physician takes the final decision on the applicable form of nutrition. Thanks to this result, it is possible to tailor a nutrition programme to individual patients' needs. In some cases, nutritional preparations may have adverse impact on one's physical well-being. In such situations, a visit at attending physician's must be scheduled. Deterioration of physical well-being may result from the processes of body "detoxification". Toxic elements and catabolites collected in tissues which are removed from the body are the direct reason for this. Thus person's well-being should soon be back to normal. During this time, the dose of the suggested nutritional preparations may be halved for a few days. Numerous doctors from different specialisations cooperate with our laboratory. The examination results and our interpretation of the mineral transformation constitute handy diagnostic tools enabling them to more precisely pinpoint the reasons for some metabolic disorders. A doctor takes the final decision regarding the correct nutrition for an examined person.*

*Management Board,  
Biomol-Med Sp. z o.o.*

## 1. INTRODUCTION

The mineral metabolism test results you receive are complementary to biochemical analyses. Elemental analysis, in combination with medical interview or examination, is a valuable source of information that helps to fully assess the patient's health condition and identify the characteristics of the metabolic type. The rate of metabolism may be affected by a variety of external factors, e.g. physical or mental work, emotional states, low or high ambient temperature, food digestion and absorption, increased levels of certain hormones in blood, especially thyroid gland and adrenal medulla hormones. Appropriate analysis of medical interview (or patient questionnaire) and elemental test findings helps to identify the optimal organism nutrition.

If used in the description, such words as "increased" or "heightened", etc., should not be interpreted as indicative of a pathology, but rather as a reflection of the metabolic processes status. Correct concentrations of elements and proportions between them may only be treated as one of the parameters defining a deficit or surplus of the given element. Mineral metabolism tests have been applied for 30 years by many research centres around the world.

Mineral metabolism test results may:

- show vulnerability to certain diseases
- support therapeutic interventions
- explain the disorders accompanying a number of pathologies.

Based on the test results, we give you individual dietary recommendations and supplementation scheme (vitamins-minerals-antioxidation), with a view to improving your health condition..

## 2. THE BASIS OF HAIR ANALYSIS RESULT INTERPRETATION

The human organism is a biochemical factory, where production is going on continually. In each cell, catabolic

processes (combustion) take place, generating energy indispensable to maintain all physiological functions of the organism

The equilibrium between catabolism and anabolism is referred to as metabolism. Within one year, an adult consumes over 1 ton of food, containing ca. 70% of water. The food contains carbohydrates, fats and proteins. Carbohydrates and fats are the basic sources of energy generated as a result of catabolic processes. Protein is the basic source of material utilized in regeneration of our organism in anabolic processes.

In the whole organism, only the nervous and muscular systems remain unchanged throughout our life. All other tissues are "exchanged". Depending on the metabolic rate, new generations of cells may develop every few days, weeks, or months. The quality of the regenerated tissues is dependent on genetic and external factors, and first of all on the nutritional pattern. The efficiency of regeneration of our internal organs determines the aging rate of our organism. As genetic information is more and more deteriorated in the next generations of cells (because of the lack of enzyme; telomerase, the new cells receive shortened chromosomes) our life span is limited. If the function of all our internal organs remains optimal, we could age as long as our brain and nervous system is able to live – i.e. 110 -130 years. We cannot influence directly the genetics yet, but we can counteract the potential hazards with an appropriate diet. On the other hand, an inappropriate diet may influence our genetics, e.g. by free radical mechanisms. Incorrect nutrition impairs the function of the antioxidative barrier, thus accelerating aging due to free radical reactions. Each organism of a particular species has strictly defined characteristics, which determine its functions. Within the same species, there are significant physiological and anatomical differences. They are determined by different environmental and genetic factors. As a result, each organism is a biochemical individuality with distinct nutritional needs.

HOW CAN ONE'S OWN BIOCHEMICAL INDIVIDUALITY BE DEFINED AND DETERMINED?

HOW CAN WE ASSESS OBJECTIVELY OUR INDIVIDUAL METABOLIC NEEDS?

The search for a definition systematizing the variety of the human race has been going on for ages. The starting point was always the specific mode of biochemical energy utilization at the physical and emotional level. Recent studies point to the activity of the particular endocrine glands (thyroid and adrenals). On that basis, the following metabolic types can be distinguished.

#### ADRENALIN TYPE

a sturdy person with athletic figure, serene, patient, sympathetic; requires physical activity, enhancing oxygenation of the organism, to remain healthy; a person who likes dominating others; high-protein diet and three meals a day are the best for this type; gaining weight, such a person develops abdominal obesity which can affect significantly the lipid profile (calcium metabolism predominates in the organism)

#### THYROID TYPE

a quick-acting person, energetic, impatient, enjoying intensive activity, which often leads to exhaustion and discouragement, to regain the top form with time and be able to work hard again; owing to quick combustion processes, such a person can eat a lot, remaining slim and fit; functions well eating even once a day; high intensity of life often leads to disturbances in thyroid function; if such a person gains weight, losing excess kilograms is difficult (phosphorus metabolism predominates in the organism).

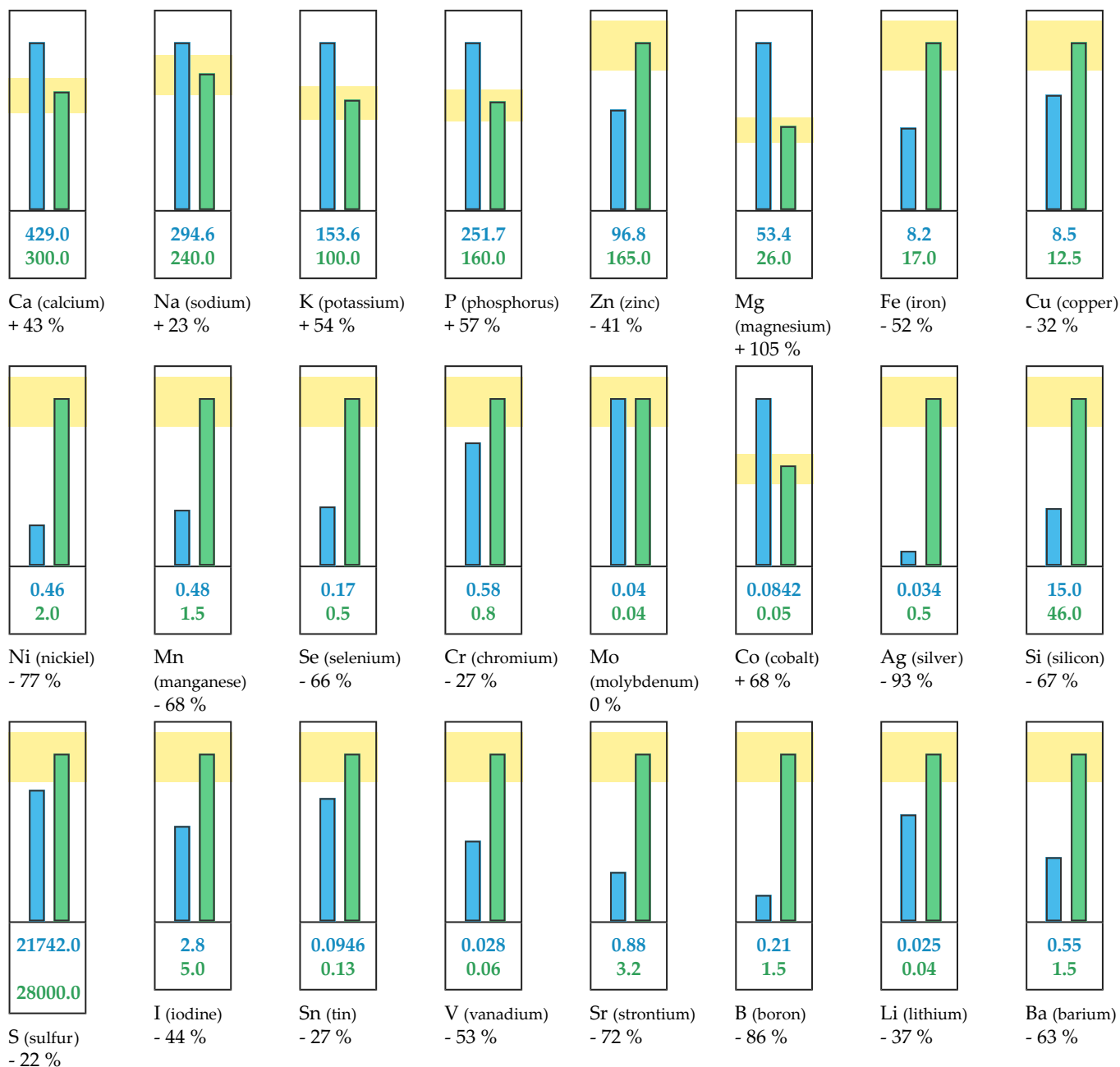
#### PITUITARY TYPE

a person thin and slim, indifferent to the needs of the organism; an intellectual type, with predominance of logical thinking; alternating periods of occupational activity or reluctance to work and depression; vegetarian diet and a few, i.e. 5-6 small meals a day are good for this type; a person susceptible to addiction to all stimulants (sulfur metabolism predominates in the organism).

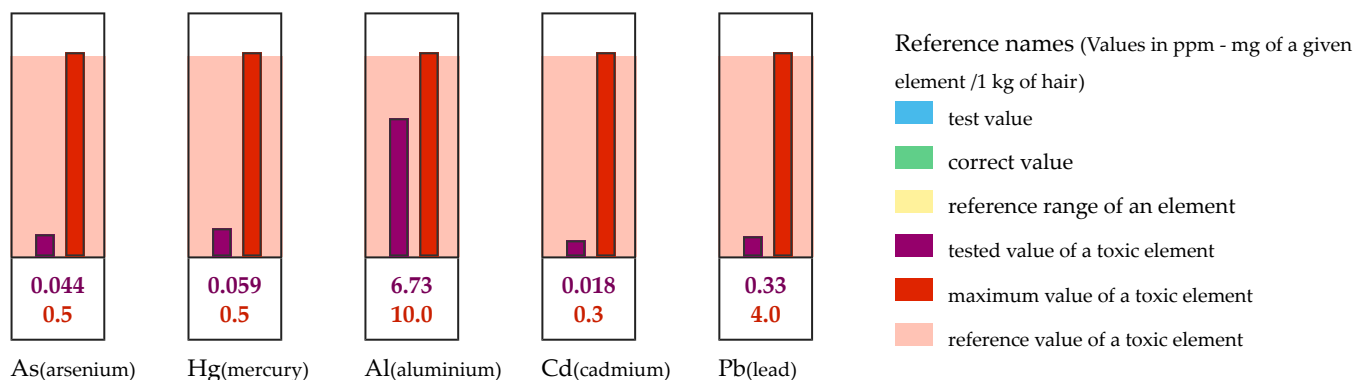


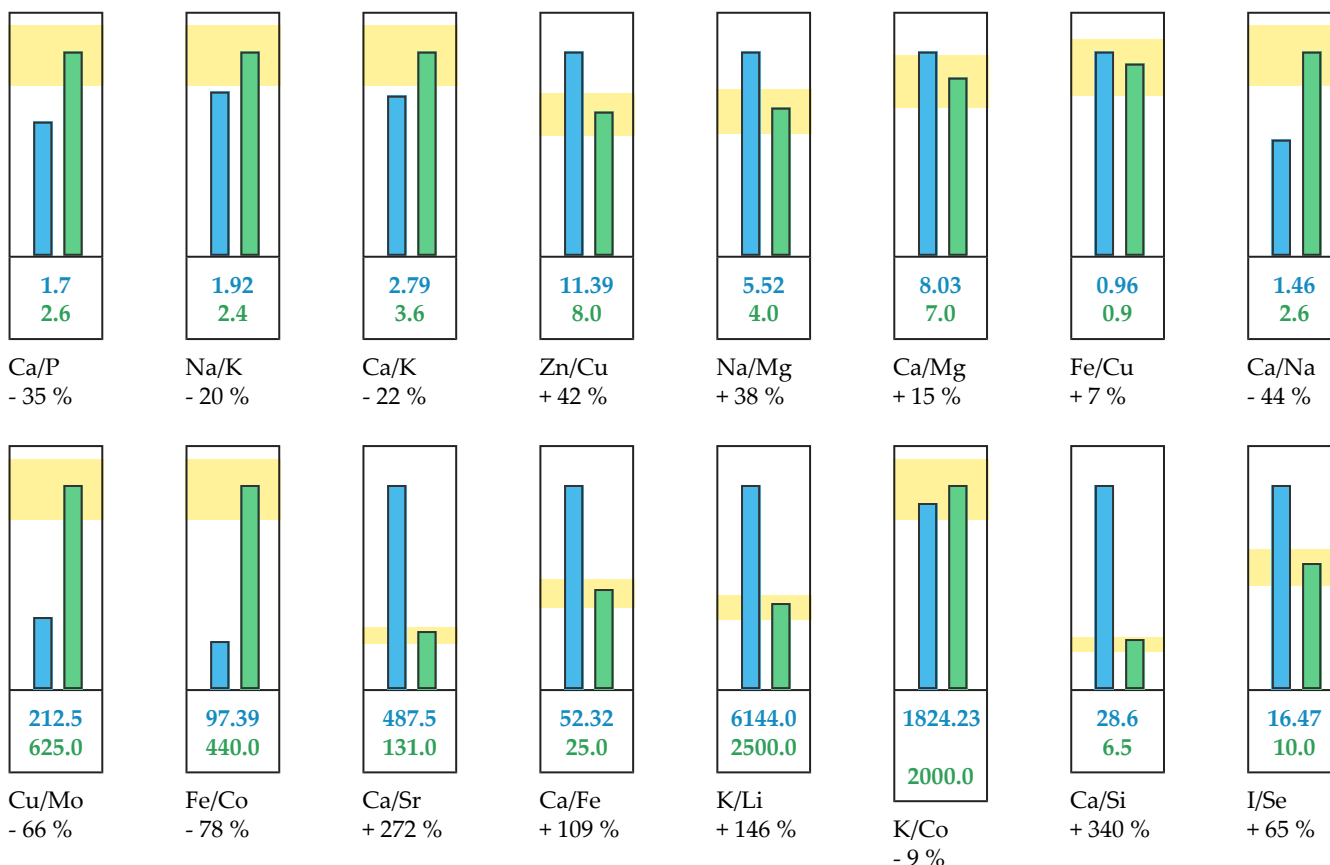
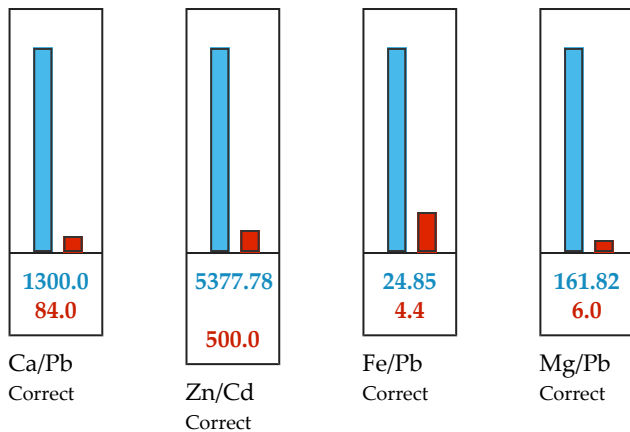
### 3. ELEMENTAL HAIR TEST RESULTS

#### ELEMENTS



#### TOXIC ELEMENTS



**PROPORTIONS BETWEEN ELEMENTS****TOXIC PROPORTIONS****REFERENCE NAMES** (Values in ppm - mg of a given element /1 kg of hair)

- test value
- correct value
- reference range of an element
- tested value of a toxic element
- maximum value of a toxic element
- reference value of a toxic element

Sample test result authorised by:

Date of sample delivery: Example result. Test date: Example result.

Authorisation date: Example result.

**We hereby represent that the result is based on the sample which we received on Example result.**

Chemical element analysis was performed on the Perkin Elmer ICP Optima 5300 DV and ICP MS DRC2

Uncertainty of test was based according to EA-4/16 document.

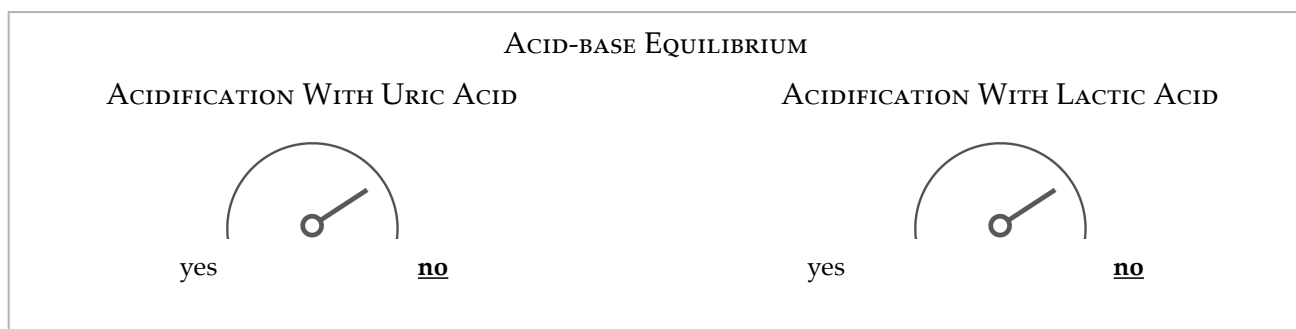
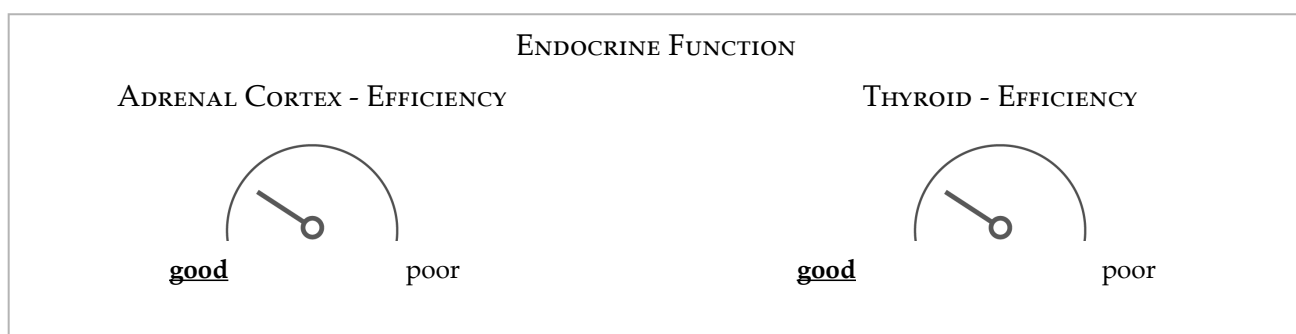
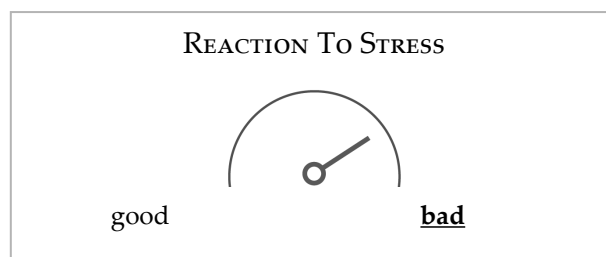
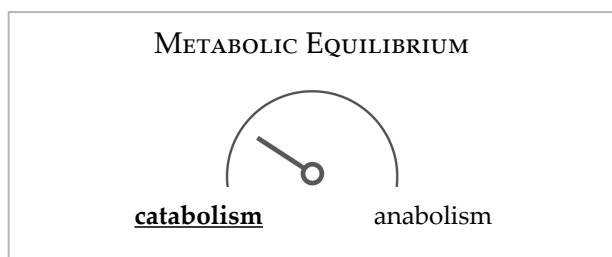
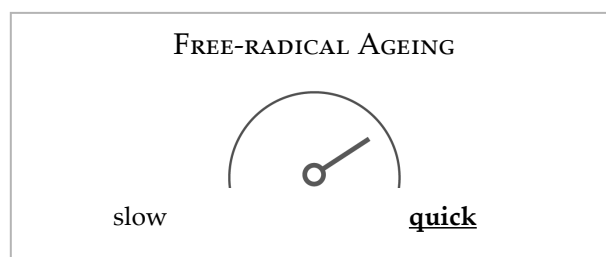
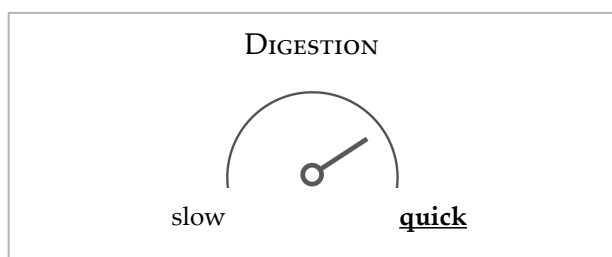
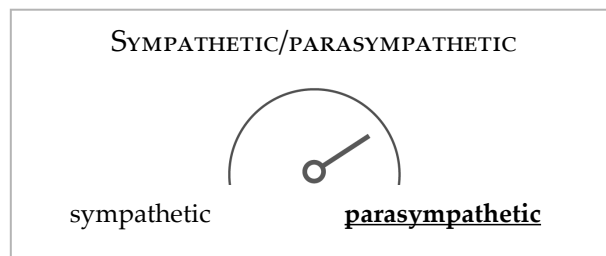
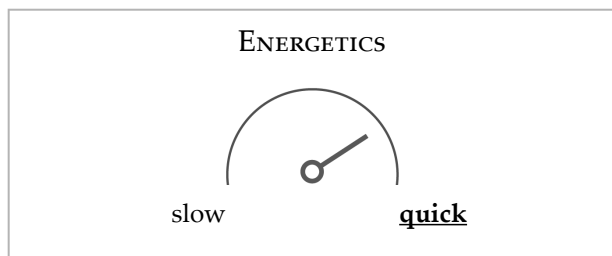
Uncertainty values constitute uncertainties extended with certainty level of ca. 95% and coverage factor k=2.

#### 4. INTERPRETATION OF THE TEST RESULT (THE MOST IMPORTANT PROPORTIONS BETWEEN ELEMENTS)

Na/Mg	The amount of sodium and magnesium is related with blood pressure. High content of sodium in the body, at high Na/Mg proportion, suggests increased production of aldosterone and may lead to high blood pressure. Small amount of sodium in the body, at low Na/Mg proportion, suggests decreased production of aldosterone. This may be the reason of low blood pressure. Your result of analysis indicates a tendency to elevated blood pressure.
Cu/Mo	Physiological activity of molybdenum depends on its interaction with other elements. In particular, proper Cu/Mo proportion is important. As copper and molybdenum are antagonistic elements, excess of molybdenum can cause secondary deficit of copper. Low value of proportion of copper to molybdenum, even at high concentration of copper, can suggest disturbances of the processes of copper absorption.
Fe/Co	Cobalt rivals with iron about access to transporting proteins in the serum. In case of low concentration of iron, cobalt may start to accumulate in soft tissues, particularly in the thyroid gland. This leads to a change in thyroid hormones metabolism, which predestines to the development of a goitre, disturbances in the heart action, and diarrhoea.
Ca/Fe	The proportion of calcium to iron, similarly to the proportion of iron to copper, can reflect the course of iron metabolism in the body. Abnormal proportion of calcium to iron, at low quantity of iron, can suggest susceptibility to anaemia.

## 5. METABOLIC TYPE (BIOLOGICAL NATURE) CHARACTERISTICS

REFERENCE NAMES: DOMINANT FEATURES ARE UNDERLINED.



## QUICK TYPE A / PARASYMPATHETIC / METABOLISM CHARACTERISTIC OF THE ADRENALIN TYPE

### 5.1. SYSTEMIC ENERGETICS

Phosphorus is indispensable in all cellular processes of energy generation. The calcium to phosphorus proportion indicates accumulation of phosphorus or calcium in the cells and demonstrates which type of energy turnover predominates in the organism. Phosphorus is the basic component of high-energy compounds (energy carriers). Calcium is involved in intra- and extracellular communication (transport of nutrients through biological membranes). It takes part in the transmission of stimuli to the nervous system. The calcium to phosphorus ratio determines the rate of systemic energy turnover processes.

#### FAST METABOLISM

The result indicates predominance of quick energy turnover processes, so-called quick metabolism.

### 5.2. ASSESSMENT OF EQUILIBRIUM IN THE AUTONOMIC NERVOUS SYSTEM; SYMPATHETIC-PARASYMPATHETIC EQUILIBRIUM

Within the nervous system, the central nervous system (CNS), peripheral nervous system (PNS) and vegetative, or autonomic nervous system (ANS) can be distinguished. The CNS includes the brain and the spinal cord. The PNS is composed of the cranial nerves and their ganglia, spinal nerves and their ganglia, as well as receptors receiving stimuli. The ANS consists of two systems: the function of one (so-called sympathetic) is opposed by the other (so-called parasympathetic). ANS is a part of the nervous system responsible for involuntary actions. It regulates the functions of the internal organs. Depending on the situation, either the sympathetic or the parasympathetic system dominates in each subject. This equilibrium is determined by the mode of energy utilization in the organism, e.g.: when we are eating a meal, we become parasympathetics (we accumulate energy); when we are running, we are sympathetics (we utilize energy).

#### DOMINATION OF THE PARASYMPATHETIC NERVOUS SYSTEM

Stimulation of the parasympathetic system activates anabolic processes. It results in slower heart rate, dilation of blood vessels in the brain, lowering blood pressure, contraction of intestinal and bronchi muscles, sphincter weakness, increased production of gastric acid, intestinal juice, urine and sweat, pupil constriction. Increased intestinal peristaltics facilitates digestion and absorption of food.

Such people are very systematic and meticulous. They do not make quick decisions, they need to be prompted to action, they suffer from the lack of sleep and have a tendency for a bad mood. In order for the parasympathetic dominant to remain balanced, the sympathetic part needs to be activated, as this results in a better mood and more energy. In the case of a wrong diet, sympathetic domination will quickly lead to significant mood worsening and total lack of energy. In order to retain a good mood, such a person needs to be balanced by the sympathetic part of the autonomous nervous system by increased intake of calcium and phosphorus. Light physical effort (which improves breathing), regular rest and good sleep are recommended, as they oxygenate the organism.

### 5.3. DIGESTION

#### **FAST DIGESTION**

**The mineral turnover profile indicates quick absorption and utilization of nutrients. This may lead to acceleration of the metabolic rate. The organism may have problems with long-term maintenance of appropriate energetic equilibrium. The subjects representing this metabolic type tend to eat and snack frequently.**

### 5.4. ENDOCRINE FUNCTIONS

The mineral turnover profile indicates increased activity of the adrenal glands and thyroid (not to be confused with hyperactivity of the aforementioned endocrine glands). The internal systemic stability (homeostasis) is directly dependent on the following systems: cardiovascular, respiratory, digestive, thermoregulation and endocrine glands. A patient with long-term predominance of quick generation of energy may demonstrate (but not necessarily – the lifestyle, medications, supplements, diet, may eliminate the following symptoms):

- elevated body temperature,
- irritability,
- high blood pressure,
- excessive sweat secretion,
- body weight gain in waist and shoulder region.

### 5.5. HOW QUICKLY IS YOUR ORGANISM AGEING?

The human organism is ageing from the moment of birth. A few ways of ageing have been described. Free radical reactions have the most significant influence on the course of ageing processes. The largest group among free radicals are reactive oxygen species (ROS).

If free radicals are generated on a limited scale, they play a positive role for the organism. If this scale is large and the process lasts for a long time, it may cause significant damage, leading to civilization diseases.

Free radical theory of ageing is based on the efficiency of respiratory chain reactions. This efficiency is becoming lower and lower with age, particularly with respect to people above 50 years of age.

At each site where free radicals can be generated, the organism has developed defense mechanisms, which are so distributed to act in a way complementary to one another. Enzymatic defense, the efficacy of which is provided by zinc, copper and manganese, is the most important. If the enzymatic barrier is too weak, the defensive role is taken over by selenium, antioxidative vitamins: E, A and C, bioflavonoids, biothiols and other antioxidants of plant origin. There are close correlations between the ageing processes, nutritional patterns and efficiency of the antioxidative barrier. On that basis, the scale of damages caused by free radicals and the ageing rate of the organism can be determined.

#### **REGULAR FREE-RADICAL AGEING**

**Impairment of the antioxidative barrier is possible. Change of the diet and antioxidative supplements should improve its efficiency. Moderate aging rate.**

## 5.6. PSYCHO-EMOTIONAL EQUILIBRIUM ASSESSMENT - REACTION TO STRESS

In medicine stress is a condition manifesting itself with a number of nonspecific changes induced in the whole biological system, human or animal, by a stressor. Mental stressors include e.g.: situational stimuli, conflicts and frustrations. Any factor (e.g. biological, chemical, thermal, exertion or lack of physical activity, tiredness, changes of weather, toxic factors, emotions, physical contact with the environment, diseases), triggering more or less pronounced nonspecific changes can be a stressor. Stressors lead to disturbances of the systemic homeostasis. If the stressor is very strong (or long-lasting), it leads to exhaustion of the adaptation potential. It is associated with increased risk of many pathologies, e.g. cardiovascular diseases, rheumatic disease, dyspepsia, metabolic disorders, or allergic reactions. The main regulators of stress syndrome are: the brain, nerves, the pituitary, the thyroid, adrenals, liver, kidneys, blood vessels, connective tissue, white blood cells. The complex of systemic changes triggered by stressors is referred to as systemic adaptation syndrome. It develops through three stages (phases):

- The alarm phase - stimulation of the adrenal cortex to secrete glucocorticoids.
- The adaptation phase - systemic changes allowing to ensure coping with (survival of) stress.
- The exhaustion phase - if exposure to stressors is too long, a pathology develops.

Stress does not have to be harmful(stress/distress). The human life is associated with functioning under continuous stress. It is inevitable and even necessary for life. Some kinds of stress can be motivating and positive. Distress is destructive for the organism. If it is prolonged, it may lead to health deterioration.

The aim of the recommended diet is to prepare the organism for an adequate response to stress, according to the stressor involved and the hazard level. Appropriate response makes it possible to reduce the level of stress (de-stressing - relaxation).

**In Your organism, the quick mineral turnover profile indicates a tendency towards high metabolic rate. Such condition may lead to manifestation of all stress phases, i.e.: alarm phase, adaptation phase, exhaustion phase. A patient with quick energy generation predominance has a high demand for antioxidants.**

**THE RESULT INDICATES SYSTEMIC ABNORMALITIES DUE TO STRESSORS.**

**YOUR ORGANISM COOPES WITH STRESS POORLY.**

## 5.7. METABOLIC EQUILIBRIUM ASSESSMENT - CATABOLISM/ANABOLISM

Metabolism comprises the overall spectrum of chemical reactions and energetic processes taking place in the cells. Metabolic processes make it possible for the cells to grow and proliferate, manage their internal structure and respond to external stimuli. The metabolic pathways can be divided into two types: anabolism, i.e. „building” and catabolism, i.e. „burning”. In adolescence, anabolism should be predominant, and in adult subjects it should be balanced with catabolic processes. In the case of domination of anabolism in an adult, the processes of fat accumulation in adipose tissue can be enhanced, which leads to overweight. Significant predominance of catabolic processes evidences the potential for generation of excess energy, which may be associated with increased production of free radicals and high risk of civilization diseases.

Mineral turnover, illustrated by proportions between bioelements, indicates the effect of hormonal activity (without indicating the amount of hormones) in the specific organs, i.e. is a reflection of neuroendocrine functions. Slight changes in hormonal activity over a short period of time do not affect the equilibrium of mineral turnover. Long-term changes in hormonal functions significantly disturb homeostasis, which results in permanent changes of

mineral turnover. Elemental analysis of hair makes it possible to detect this phenomenon.

#### **INCREASED ACTIVITY OF CATABOLIC PROCESSES**

The result indicates increased activity of catabolic processes.

Selection of appropriate diet for a particular person is dependent on metabolic equilibrium of the organism. If the processes of decomposition of organic compounds (catabolism) outweigh the processes of their synthesis (anabolism) mainly fatty acids are processed in the liver. In many cases, such condition may lead to acceleration of metabolic processes.

### **5.8. ASSESSMENT OF ACID-BASE EQUILIBRIUM EFFICIENCY**

Acidification of the organism is most frequently caused by excessive production of lactic acid. It is produced as a result of various factors, including, among others, deficiency of minerals and vitamins indispensable to generate energy in the cells, or during emotional and psychological disorders. Such condition may develop if too much energy is generated by glycolysis with hypoxia and weak musculo-hepatic cycle. The respiration at the cellular level is impaired, leading to an energetic deficit.

Acidification of the organism will be reflected in particular in impairment of the immune function. Additionally, mineral and/or vitamin deficiency may cause a dysfunction of cellular respiration in various tissues, which may be manifested by continuous tiredness. Elevated concentration of lactic acid causes intracellular acidification. To counteract the excess acidity, calcium, as a neutralizing factor, begins to deposit in the tissues. The blood is well-buffered to maintain the Ca level of 9-11 mg%. When Ca concentration falls below 9 mg%, the parathyroids activate the production of PTH, which causes transfer of Ca from the bones and teeth to soft tissues and mitochondria.

Such energy deficit may lead to distant consequences in the activity of anabolic and catabolic processes. If the condition is prolonged, it causes hyperparathyroidism, involving transport of increasing amounts of calcium and magnesium to the cells. Excessive activity of the parathyroids will be visible in the elemental analysis as increased content of calcium and magnesium in the hair.

The second type of acidosis is due to consumption of proteins of animal origin with high content of purines, which are catabolized to uric acid. With decelerated detoxification by the urea cycle, the organism is acidified by excess uric acid. To neutralize acidification, Ca and Mg transport to the tissues is increased. The effect visible in elemental analysis will be increased levels of Ca, Mg and P. The consequence of such condition will be increased bone calcium loss, which leads to osteoporosis, dental caries and calcification of soft tissues. Increased mitochondrial Ca and Mg levels will impair intracellular respiration and energy production rate. Correction of vitamin and mineral deficiency is necessary, as well as improvement of systemic detoxification mechanisms and change of the diet.

#### **THE RESULT INDICATES NO ACIDIFICATION OF THE ORGANISM**

### **5.9. HEALTH-RELATED TENDENCIES**

- This profile suggests increased risk of the development of osteoporosis 2 [high Ca/Mg proportion, low concentration of copper].
- This profile suggests susceptibility to development of alimentary and respiratory allergy, which may be due to low concentration of zinc or low Zn/Cu proportion and high

**concentration of copper.**

- **This profile suggests possibility of cellular immunity disorders.**
- **This profile suggests susceptibility to development of iron deficit anaemia.**
- **This profile suggests possibility of disturbances in absorption form the alimentary tract.**
- **This profile suggests weakness of the efficiency of antioxidative barrier.**
- **This profile suggests susceptibility to collagen synthesis disorders, which can lead to increased risk of development of osteo-articular system disorders.**
- **This profile suggests possibility of diabetic disturbances.**
- **This profile suggests possibility of depression disturbances.**
- **This profile suggests possibility of neurovegetative system disturbances.**

## 6. SUPPLEMENTATION SCHEME

Below, we recommend daily doses. The recommended substances may contain microelements and vitamins which are not identical to those indicated as needed in the chart. This is because microelements and vitamins interact and this leads to an optimum mineral composition of the organism.

**We recommend supplements from natural sources.** Purified water (e.g. filtered in a special kit) should be used for drinking and reparation of meals.

### PART ONE - NUTRITION SCHEME

Supplement	morning	afternoon	evening
Vit. C 240 mg from acerola and citrus every day, for one month	2 before meal	2 before meal	0
B-complex every day, for one month	1 after meal	1 after meal	0
Calcium 300 mg + Magnesium 125 mg every day, for one month	0	0	1 after meal
Magnesium 200 mg every day, for one month	1 after meal	1 after meal	0
Iron 6 mg every day, for one month	1 before meal	0	0
Selenium 50 mcg every day, for one month	0	1 after meal	0
Zinc 15 mg every day, for one month	0	0	1 after meal
Omega-3 (EPA 180 mg, DHA 120 mg) every day, for one month	0	2 30 minutes before meal	2 30 minutes before meal
QUERCETIN 500 mg every day, for one month	1 after meal	0	0
LYCOPENE 10mg every day, for one month	0	0	1 after meal
Black Cohosh 40 mg every day, for one month	1 after meal	1 after meal	0
Lecithine 1200 every day, for one month	0	0	1 after meal
Silymarol (extract from milk thistle) 70 mg every day, for one month	0	1 after meal	1 after meal
Vitamin D3 2000 IU every day, for one month	0	2 30 minutes before meal	0
Protein nutrient 5 g every day, for one month	1 With breakfast	0	0

## PART TWO - PREVENTIVE SCHEME

Supplement	morning	afternoon	evening
Vit. C 240 mg from acerola and citrus every day, for six months	1 before meal	1 before meal	0
Calcium 300 mg + Magnesium 125 mg every day, for six months	0	0	1 after meal
Magnesium 200 mg every day, for six months	1 after meal	1 after meal	0
Multivitamin every day, for six months	0	1 after meal	0
Omega-3 (EPA 180 mg, DHA 120 mg) every day, for six months	0	2 30 minutes before meal	2 30 minutes before meal
QUERCETIN 500 mg every day, for six months	1 after meal	0	0
LYCOPENE 10mg every day, for six months	0	0	1 after meal
Black Cohosh 40 mg every day, for six months	1 after meal	0	0
Lecithine 1200 every two days, for six months	0	0	1 after meal
Silymarol (extract from milk thistle) 70 mg every day, for six months	0	1 after meal	1 after meal
Vitamin D3 2000 IU every day, for six months	0	1 30 minutes before meal	0
Protein nutrient 5 g every day, for six months	1 With breakfast	0	0

**NOTE**

The foregoing scheme is just a proposal for doctors, who will take the final decision of the supplementation. Food supplements should only be taken with meals in order to increase their absorption. Supplementation is intended to balance the quantity of elements in organism utilising the interactions between them.

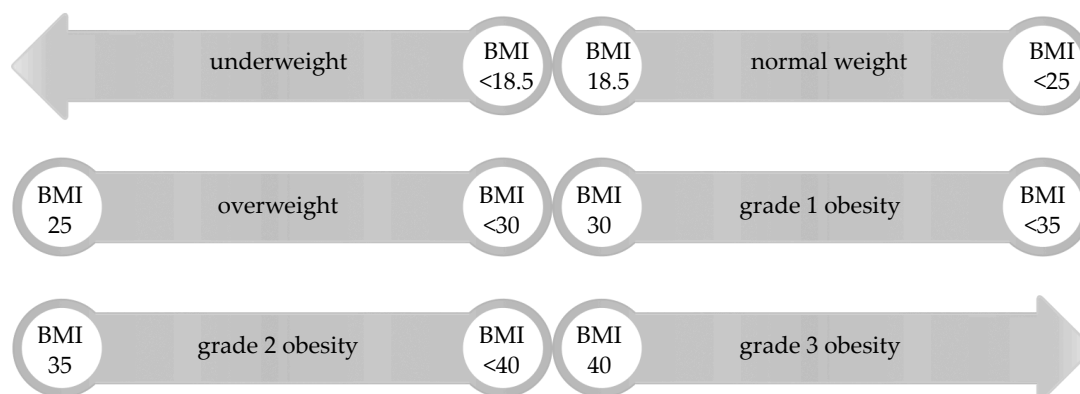
Test result authorised by:

## 7. ENERGETIC BALANCE AND DIET

### 7.1. WEIGHT

#### YOUR BMI = 19 (NORMAL WEIGHT)

The BMI scale (according to the World Health Organization - WHO) is as follows:



BMI - (abbreviation for Body Mass Index).

BMI = body weight (in kilograms) / height <sup>2</sup> (in meters)

Obesity is a reason for many of the so-called diseases of civilisation, including e.g. diabetes, hypertension, atherosclerosis, gallstones, coronary heart disease, tumours, menstrual disorders, infertility, lung diseases, sleep apnoea, gout, osteoarthritis and many more. **Obesity is a complex disease which has genetic, behavioural and environmental reasons.**

Each process of losing weight should be consulted with a doctor. The doctor who supervises it should be informed by the Patient about the pace of weight loss. **Normal weight loss is about 5% of the body weight in 3 months.** (e.g. for a person who weighs 60 kg, it is a 3 kg loss, and for 80 kg it is a 4 kg loss). There is no reason to worry then, as such weight fluctuations are natural. An overweight or obese person who wants to slim down should lose about 5% of their weight per each three-month period. Then, the body weight needs to stabilize within the correct weight range (according to BMI). Further weight loss is dangerous and it requires consultation with a doctor. In the case of obesity, blood tests (complete blood count and lipid profile /cholesterol, triglycerids, HDL, LDL/) should be done and their results should be discussed with a doctor.

**If in a period of three months an adult person loses more than 10% of body weight or reaches the weight level that is lower than that appropriate for their height (according to BMI <18), it should definitely be consulted with a doctor!**

Some reasons of excessive weight loss:

- neoplasms - the development of malignant tumors often causes excessive weight loss, lack of appetite, elevated body temperature and chronic fatigue;
- diabetes - often in young subjects, accompanied by polyuria, excessive thirst and appetite, headaches;
- hematologic disorders - whose characteristic symptoms may include fatigability and ecchymosis;
- thyroid diseases - if excessive weight loss occurs despite good appetite, accompanied by nervousness, fatigability, depression, pulse acceleration and excessive sweating;
- infections - may cause weight loss, gastric problems, fever, myalgia or headaches;
- gastrointestinal tract disorders - with lack of appetite, vomiting, abdominal pains, indigestion and malabsorption;

- worms - a characteristic symptom of infestation with worms (especially a tapeworm) is weight loss which occurs despite an appropriate diet;
- adolescence - especially in girls (note: girls who want to obtain the model figure often develop anorexia);
- pregnancy - weight loss may occur in the first trimester;
- addictions - in subjects consuming excessive amounts of alcohol, or taking drugs, stimulating or psychoactive substances excessive weight loss is possible.

## 7.2. ENERGETIC DEMAND

THE OVERALL ENERGETIC DEMAND IS, RESPECTIVELY, AS FOLLOWS:

- **1461 kcal** - if the lifestyle is sedentary;
- **1705 kcal** - if the lifestyle is moderately active, i.e. without avoidance of physical activity, which is, however, irregular and not too intensive;
- **1948 kcal** - if the lifestyle is really active, i.e. some sport is practised regularly;
- **2740 kcal** - if some professional sport is practised regularly (applicable to the training stage only).

**REGULAR, EVERYDAY PHYSICAL ACTIVITY IS RECOMMENDED ACCORDING TO THE POSSIBILITIES AVAILABLE ON A SPECIFIC DAY**

How many calories "must be burnt"?

**Recommended energy expenditure allowing to maintain appropriate weight: 140 kcal a day.**

PARTICULARLY RECOMMENDED SPORTS (WITH ENERGY EXPENDITURE PER 1 HOUR OF EXERCISE):

- **Aerobics** (550 kcal/h) - **15 min;**
- **Badminton** (400 kcal/h) - **21 min;**
- **Slow run** (600 kcal/h) - **14 min;**
- **Callanetics** (300 kcal/h) - **28 min;**
- **Intensive gymnastics** (300 kcal/h) - **28 min;**
- **Slow cycling (10 km/h)** (300 kcal/h) - **28 min;**
- **Light gymnastics** (210 kcal/h) - **40 min;**
- **Run/walk (7 km/h)** (500 kcal/h) - **17 min;**
- **Swimming** (400 kcal/h) - **21 min;**
- **Ping-pong** (280 kcal/h) - **30 min;**
- **Fast march (5 km/h)** (150 kcal/h) - **56 min;**
- **Tennis** (450 kcal/h) - **19 min;**

## 8. METABOLIC DIET

### Basic ingredients of the diet (in the order of importance):

- cooked vegetables,
- white meat (chicken, turkey),
- fish with high fat content (halibut, flounder, salmon, trout, mackerel, sprats, eel, sardines),
- gluten-free bread,
- gluten-free groats (buckwheat, millet, maize, quinoa seed),
- gluten-free noodles and pasta,
- rice,
- nuts and seeds,
- dairy products.



THE AMOUNT OF KILOCALORIES CONSUMED SHOULD BE ADJUSTED TO THE SUBJECT'S DAILY DEMAND IN THE FOLLOWING WAY::

- the recommended daily amounts of kilocalories are specified above
- depending on physical activity, an appropriate option should be chosen
- check the total daily intake of kilocalories resulting from the recommended diet
- if the calorific value of the diet is too high, the size of meals should be reduced, until an appropriate value is obtained, according to the following algorithm: reduce the supper by o 1/4 or by 1/2; if the amount of kilocalories is still too high, reduce additionally the lunch/dinner by 1/4 or by 1/2
- if the calorific value of the diet is too low, the size of meals should be increased, until an appropriate value is obtained, according to the following algorithm: increase the supper by o 1/4 or by 1/2; if the amount of kilocalories is still too low, increase additionally the lunch/dinner by 1/4 or by 1/2

## 8.1. DIET FOR 14 DAYS

DAY 1 (ALL MEALS) - 2018 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Trout jelly with vegetables 1 Serving - 349 kcal	Cranberry-flavoured starch jelly 1 Serving - 459 kcal	Lemon soup 1 Serving - 338 kcal	Rice pudding with strawberries 1 Serving - 354 kcal
Gluten free bread 1 Serving - 16 kcal	Sunflower seeds 1 Serving - 140 kcal	Grilled chicken breast 1 Serving - 99 kcal	Mint tea 1 Serving - 0 kcal
		Jacket potatoes 1 Serving - 84 kcal	
		Boiled beetroot salad 1 Serving - 179 kcal	
<b>Total: 365 kcal</b>	<b>Total: 599 kcal</b>	<b>Total: 700 kcal</b>	<b>Total: 354 kcal</b>

DAY 2 (ALL MEALS) - 1684 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Gluten free bread with butter 1 Serving - 21 kcal	Pear pudding on rice milk 1 Serving - 171 kcal	Delicate dill soup 1 Serving - 278 kcal	Olive risotto 1 Serving - 284 kcal
Boiled egg 1 Serving - 65 kcal	Sunflower seeds 1 Serving - 140 kcal	Rice 1 Serving - 275 kcal	Wild rose hip tea 1 Serving - 0 kcal
Asparagus with cherry tomatoes, olives 1 Serving - 82 kcal		Chicken stew without garlic and onions 1 Serving - 96 kcal	
Camomile tea 1 Serving - 0 kcal		Simmered carrot 1 Serving - 272 kcal	
<b>Total: 168 kcal</b>	<b>Total: 311 kcal</b>	<b>Total: 921 kcal</b>	<b>Total: 284 kcal</b>

DAY 3 (ALL MEALS) - 2223 KCAL			
Breakfast	Breakfast II	Dinner	Supper
3 scrambled eggs fried in butter 1 Serving - 360 kcal	Millet with fruit mousse 1 Serving - 512 kcal	Cream of celery 1 Serving - 187 kcal	Asparagus and potato salad 1 Serving - 317 kcal
Gluten free bread 1 Serving - 16 kcal		Trout baked with tomatoes and fennel 1 Serving - 568 kcal	Mint tea 1 Serving - 0 kcal
Camomile tea 1 Serving - 0 kcal		Jacket potatoes 1 Serving - 84 kcal	
		Boiled beetroot salad 1 Serving - 179 kcal	
<b>Total: 376 kcal</b>	<b>Total: 512 kcal</b>	<b>Total: 1018 kcal</b>	<b>Total: 317 kcal</b>

DAY 4 (ALL MEALS) - 2116 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Chicken foot jelly 1 Serving - 493 kcal	Natural yoghurt 1 Serving - 60 kcal	Parsley cream soup 1 Serving - 149 kcal	Vegetable stuffed peppers 1 Serving - 412 kcal
Gluten free bread 1 Serving - 16 kcal		Russian salmon 1 Serving - 563 kcal	melissa tea (from melissa`s leaves) 1 Serving - 0 kcal
Camomile tea 1 Serving - 0 kcal		Steamed potatoes 1 Serving - 77 kcal	
		Tomatoes with aubergine 1 Serving - 346 kcal	
<b>Total: 509 kcal</b>	<b>Total: 60 kcal</b>	<b>Total: 1135 kcal</b>	<b>Total: 412 kcal</b>

DAY 5 (ALL MEALS) - 1662 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Omelette with ham and cheese 1 Serving - 170 kcal	Rice flakes 1 Serving - 344 kcal	Courgette and carrot cream soup 1 Serving - 90 kcal	Asparagus and potato salad 1 Serving - 317 kcal
Mint tea 1 Serving - 0 kcal	Pumpkin seeds 1 Serving - 56 kcal	Buckwheat risotto 1 Serving - 685 kcal	melissa tea (from melissa`s leaves) 1 Serving - 0 kcal
<b>Total: 170 kcal</b>	<b>Total: 400 kcal</b>	<b>Total: 775 kcal</b>	<b>Total: 317 kcal</b>

DAY 6 (ALL MEALS) - 1932 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Zucchini pancakes 1 Serving - 101 kcal	Vegetable jelly with eggs 1 Serving - 239 kcal	Fish soup 1 Serving - 359 kcal	Rice with apples 1 Serving - 448 kcal
Camomile tea 1 Serving - 0 kcal	Gluten free bread with butter 1 Serving - 21 kcal	Chicken and chanterells risotto 1 Serving - 737 kcal	Mint tea 1 Serving - 0 kcal
		Cooked carrots 1 Serving - 27 kcal	
<b>Total: 101 kcal</b>	<b>Total: 260 kcal</b>	<b>Total: 1123 kcal</b>	<b>Total: 448 kcal</b>

DAY 7 (ALL MEALS) - 1810 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Fried egg with a spoonful of oil 1 Serving - 189 kcal	Anti-inflammatory shake with kiwi and bananas 1 Serving - 245 kcal	Tomato soup 1 Serving - 333 kcal	Rice with milk 1 Serving - 357 kcal
Tomato 1 Serving - 30 kcal		Herbs stuffed chicken 1 Serving - 220 kcal	Mint tea 1 Serving - 0 kcal
		Buckwheat	

Gluten free bread with butter 1 Serving - 21 kcal		1 Serving - 336 kcal	
Camomile tea 1 Serving - 0 kcal		Cooked carrots 1 Serving - 79 kcal	
<b>Total: 240 kcal</b>	<b>Total: 245 kcal</b>	<b>Total: 968 kcal</b>	<b>Total: 357 kcal</b>

DAY 8 (ALL MEALS) - 1770 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Sweet avocado paste 1 Serving - 105 kcal	Cherry-flavoured starch jelly 1 Serving - 203 kcal	Cream of carrot soup 1 Serving - 111 kcal	Buckwheat with leeks 1 Serving - 354 kcal
Gluten free bread with butter 1 Serving - 21 kcal	Sunflower seeds 1 Serving - 140 kcal	Roasted trout 1 Serving - 725 kcal	Wild rose hip tea 1 Serving - 0 kcal
Camomile tea 1 Serving - 0 kcal		Jacket potatoes 1 Serving - 84 kcal	
		Cooked carrots 1 Serving - 27 kcal	
<b>Total: 126 kcal</b>	<b>Total: 343 kcal</b>	<b>Total: 947 kcal</b>	<b>Total: 354 kcal</b>

DAY 9 (ALL MEALS) - 1804 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Chicken jelly with vegetables 1 Serving - 255 kcal	Coconut pudding 1 Serving - 144 kcal	Pumpkin cream-soup 1 Serving - 233 kcal	Potato roast 1 Serving - 527 kcal
Corn bread 1 Serving - 121 kcal		Steamed turkey meatballs 1 Serving - 151 kcal	Mint tea 1 Serving - 0 kcal
Camomile tea 1 Serving - 0 kcal		Millet kasha 1 Serving - 346 kcal	
		Cooked carrots 1 Serving - 27 kcal	
<b>Total: 376 kcal</b>	<b>Total: 144 kcal</b>	<b>Total: 757 kcal</b>	<b>Total: 527 kcal</b>

DAY 10 (ALL MEALS) - 2257 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Mchadi cornbreads 1 Serving - 421 kcal	Rice with milk 1 Serving - 357 kcal	Green pea soup 1 Serving - 162 kcal	Millet with nuts 1 Serving - 520 kcal
Camomile tea 1 Serving - 0 kcal	Raisins 1 Serving - 55 kcal	Boiled duck breast 1 Serving - 35 kcal	melissa tea (from melissa`s leaves) 1 Serving - 0 kcal
		Brown rice 1 Serving - 161 kcal	

		Baked beans in Greek tomato sauce 1 Serving - 546 kcal	
<b>Total: 421 kcal</b>	<b>Total: 412 kcal</b>	<b>Total: 904 kcal</b>	<b>Total: 520 kcal</b>

**DAY 11 (ALL MEALS) - 2279 KCAL**

<b>Breakfast</b>	<b>Breakfast II</b>	<b>Dinner</b>	<b>Supper</b>
3 scrambled eggs fried in butter 1 Serving - 360 kcal  Camomile tea 1 Serving - 0 kcal  Corn bread 1 Serving - 121 kcal	Natural homogenised cream cheese 1 Serving - 161 kcal	Onion soup 1 Serving - 178 kcal  Hearts ragout 1 Serving - 277 kcal  Millet kasha 1 Serving - 346 kcal  Boiled asparagus 1 Serving - 135 kcal	Buckwheat risotto 1 Serving - 701 kcal  Wild rose hip tea 1 Serving - 0 kcal
<b>Total: 481 kcal</b>	<b>Total: 161 kcal</b>	<b>Total: 936 kcal</b>	<b>Total: 701 kcal</b>

**DAY 12 (ALL MEALS) - 1492 KCAL**

<b>Breakfast</b>	<b>Breakfast II</b>	<b>Dinner</b>	<b>Supper</b>
Green cottage cheese spread 1 Serving - 262 kcal  Corn bread 1 Serving - 121 kcal  Wild rose hip tea 1 Serving - 0 kcal	Coconut pudding 1 Serving - 144 kcal	Beetroot cream soup 1 Serving - 62 kcal  Fried halibut fillet 1 Serving - 186 kcal  Buckwheat 1 Serving - 336 kcal  Cooked carrots 1 Serving - 27 kcal	Rice pudding with strawberries 1 Serving - 354 kcal  Wild rose hip tea 1 Serving - 0 kcal
<b>Total: 383 kcal</b>	<b>Total: 144 kcal</b>	<b>Total: 611 kcal</b>	<b>Total: 354 kcal</b>

**DAY 13 (ALL MEALS) - 1740 KCAL**

<b>Breakfast</b>	<b>Breakfast II</b>	<b>Dinner</b>	<b>Supper</b>
Rice flakes 1 Serving - 344 kcal  Camomile tea 1 Serving - 0 kcal  Cornbread with a cheese slice 1 Serving - 62 kcal	Lean ham - slices 1 Serving - 84 kcal  Gluten free bread with butter 1 Serving - 21 kcal	Rabbit broth 1 Serving - 250 kcal  Rice pasta – one serving 1 Serving - 53 kcal  Turkey risotto 1 Serving - 514 kcal	Vegetable stuffed peppers 1 Serving - 412 kcal  Mint tea 1 Serving - 0 kcal
<b>Total: 406 kcal</b>	<b>Total: 105 kcal</b>	<b>Total: 817 kcal</b>	<b>Total: 412 kcal</b>

DAY 14 (ALL MEALS) - 1606 KCAL			
Breakfast	Breakfast II	Dinner	Supper
Millet spread 1 Serving - 359 kcal	Gluten free bread with butter 1 Serving - 21 kcal	Beetroot cream soup 1 Serving - 62 kcal	Potato dumplings 1 Serving - 445 kcal
Corn bread 1 Serving - 121 kcal	Lean ham - slices 1 Serving - 84 kcal	Turkey risotto 1 Serving - 514 kcal	Mint tea 1 Serving - 0 kcal
Camomile tea 1 Serving - 0 kcal			
<b>Total: 480 kcal</b>	<b>Total: 105 kcal</b>	<b>Total: 576 kcal</b>	<b>Total: 445 kcal</b>

## 8.2. RECIPES FROM YOUR DIET

### CRANBERRY-FLAVOURED STARCH JELLY (1837 KCAL)

#### Ingredients

Dried cranberries - 500 g, Potato starch - 50 g, Water - 600 g

#### Preparation

- Rinse the cranberries, cover them with water and boil for 30 minutes.
- When they are soft, sieve the cranberries through a dense sieve.
- Mix ½ glass of cold water with the flour and energetically add it to the boiling fruit. Stir to remove any lumps. Boil for a few minutes.

### 3 SCRAMBLED EGGS FRIED IN BUTTER (360 KCAL)

#### Ingredients

Whole chicken eggs - 180 g, Extra butter - 15 g

#### Preparation

- Melt the butter in a pan, add the eggs.
- Fry over slow fire, stirring all the time.

### ANTI-INFLAMMATORY SHAKE WITH KIWI AND BANANAS (735 KCAL)

#### Ingredients

clarified butter (ghee) - 250 g, Banana - 400 g, Kiwi fruit - 150 g, Orange juice - 125 g, Lemon juice - 15 g, Turmeric - 2 g, Cinnamon - 2 g, Olive oil - 5 g, Chilli - 1 g, Cloves - 1 g

#### Preparation

1. Peel bananas and kiwi. Cut into smaller particles.
2. Squeeze the juice from the lemons and oranges.
4. Put chopped fruit, freshly squeezed juice, rice milk, spices and 1 teaspoon of inulin and vegetable proteins in a high dish.
5. Mix everything.
6. Consume immediately after preparation (can be stored in the fridge max. 24h after preparation).

### ASPARAGUS AND POTATO SALAD (635 KCAL)

#### Ingredients

Asparagus - 200 g, Potatoes, medium - 220 g, Whole chicken eggs - 180 g, Parsley, leaves - 10 g, Mayonnaise - 15 g, Cream 18% fat - 25 g, Lemon juice - 5 g, Iceberg lettuce - 150 g

#### Preparation

- Cook in water or steam the potatoes until medium soft. Dice.
- Cook in water or steam the asparagus until medium soft. Dice.
- Boil, shell, and dice the eggs.
- Wash the lettuce and tear the leaves into small pieces.
- Mix the mayonnaise with cream and chopped parsley and add the lemon juice.
- Add the sauce and mix all the ingredients.

### ASPARAGUS WITH CHERRY TOMATOES, OLIVES (330 KCAL)

#### Ingredients

Asparagus - 380 g, Cherry tomatoes - 200 g, Preserved black olives - 45 g, Thyme - 2 g, Marjoram - 3 g, Rosemary - 2 g, Olive oil - 20 g, White salt - 1 g, Ground black pepper - 1 g

#### Preparation

- Heat olive oil on a frying pan. Drop unpeeled cherry tomatoes with branches and herbs. Turn down the heat.
- Prepare the asparaguses by breaking off the woody ends. Drop them into the frying pan with tomatoes, add pitted black olives. Stir and simmer for 7-10 minutes.
- Serve with pasta and bread.

### BAKED BEANS IN GREEK TOMATO SAUCE (2184 KCAL)

#### Ingredients

Dry navy beans - 500 g, Olive oil - 30 g, Onions - 70 g, Garlic - 20 g, Carrots - 100 g, Tomatoes - 650 g, Tomato paste, 30% - 25 g, Bay leaves - 1 g, Parsley, leaves - 15 g, Canned tomatoes - 400 g, Wine vinegar - 12 g, White salt - 1 g, Ground black pepper - 1 g, Feta-style cheese - 80 g, Oregano - 3 g, Basil - 2 g

#### Preparation

- Pour beans a large pot and add plenty of cold water. Leave the beans in water over night (or for 8 hours) to swell.
- Strain the beans, pour back to the pot, add cold water and boil. Boil on high heat for 10 minutes and skim off the scum, then turn the heat down and continue cooking for another 50 minutes until soft. Strain the beans on a strainer.
- Heat olive oil on a large frying pan, drop the onion and fry for 5 minutes, then add garlic, and fry for another 2-3 minutes. Add carrots, fresh tomatoes, tomato paste, laurel leaves, parsley leaves and canned tomatoes. Flavour with red wine vinegar (ca. 2 spoons), salt and pepper. Pour around 300 ml water. Stew on low heat for 10 minutes. Add cooked beans and stir.
- Put the mix in a casserole dish, cover it and put in the oven heated to 180°C. Add salt and pepper if necessary.
- Serve hot or cold, sprinkled with quality olive oil. It can be topped with crushed feta.

### BEETROOT CREAM SOUP (249 KCAL)

#### Ingredients

Beetroot - 500 g, Carrots - 90 g, Parsley, roots - 60 g, Water - 1000 g, Garlic - 5 g, Lemon juice - 5 g, Vinegar - 5 g, Ground black pepper - 1 g, Bay leaves - 1 g, White salt - 1 g, Dill - 10 g

#### Preparation

- Peel and chop the vegetables, then boil them in some water.
- Add the crushed garlic and spices and herbs.
- Cook for 20 minutes, take out the laurel leaves and blend the soup. Serve sprinkled with finely chopped dill.

### BOILED ASPARAGUS (135 KCAL)

#### Ingredients

Asparagus - 200 g, Dairy butter - 15 g

#### Preparation

- Boil the asparagus.
- Drain and serve with butter.

**BOILED BEETROOT SALAD (358 KCAL)****Ingredients**

Beetroots, boiled - 500 g, Lemon juice - 10 g, White salt - 5 g

**Preparation**

- Wash beetroots, boil them (unpeeled) in slightly salted water until they are soft. Cool the beetroots down, then peel and grate them. Add some lemon juice.

**BOILED DUCK BREAST (140 KCAL)****Ingredients**

Duck breast meat - 100 g, White salt - 3 g

**Preparation**

- Boil the duck breast in slightly salted water and cook it until it is soft.

**BOILED EGG (65 KCAL)****Ingredients**

Boiled eggs - 60 g

**Preparation**

- Boil the egg for about 5 minutes.

**BROWN RICE (322 KCAL)****Ingredients**

Brown rice - 100 g, Water - 200 g, White salt - 1 g

**Preparation**

- Pour 200 ml of water into a pot, salt and bring it to a boil.
- When the water is cooking, put in the rice.
- Cook over low heat until soft.

**BUCKWHEAT (336 KCAL)****Ingredients**

Buckwheat groats - 100 g, White salt - 2 g

**Preparation**

- Boil the buckwheat in slightly salted water.

**BUCKWHEAT RISOTTO (2055 KCAL)****Ingredients**

Buckwheat groats - 500 g, Water - 1000 g, Rapeseed oil - 30 g, Green peas - 100 g, Carrots - 100 g, Parsley, leaves - 20 g, White salt - 1 g

**Preparation**

- Finely chop the carrots.
- Stew carrots and peas in oil, add the buckwheat and fry for a moment.
- Pour salted boiling water into the dish.
- Cook (with a lid on) on a low fire for about 15-20 minutes, stir from time to time.
- Serve sprinkled with parsley.

### BUCKWHEAT RISOTTO (2105 KCAL)

#### Ingredients

Buckwheat groats - 500 g, Water - 1000 g, Onions - 100 g, Garlic - 14 g, Rapeseed oil - 30 g, Green peas - 100 g, Carrots - 100 g, Parsley, leaves - 20 g, White salt - 1 g

#### Preparation

- Finely chop the onion, garlic and carrots.
- Stew the garlic, carrots and peas in oil, add the buckwheat and fry for a moment.
- Pour salted boiling water into the dish.
- Cook (with a lid on) on a low fire for about 15-20 minutes, stir from time to time.
- Serve sprinkled with parsley.

### BUCKWHEAT WITH LEEKS (708 KCAL)

#### Ingredients

Buckwheat groats - 200 g, Water - 450 g, Leek - 150 g, White salt - 1 g

#### Preparation

- Cut the leeks.
- Pour water into a pot, salt it, bring to a boil, add the leeks.
- After approx. one minute add the buckwheat.
- Cook over low heat for 30 minutes.

### CHERRY-FLAVOURED STARCH JELLY (407 KCAL)

#### Ingredients

Cherries - 500 g, Potato starch - 50 g, Water - 600 g

#### Preparation

- Wash and stone the fruit, put them into a pot, cover with water and boil for 30 minutes.
- Mix ½ glass of cold water with the flour and energetically add it to the boiling fruit. Stir to remove any lumps. Boil for a few minutes.

### CHICKEN AND CHANTERELLS RISOTTO (2212 KCAL)

#### Ingredients

Chicken breast with skin - 350 g, Brown rice - 250 g, Onions - 120 g, Mushrooms, chanterelles - 250 g, Olive oil - 30 g, Vegetable stock - 750 g, White wine, semi-dry - 150 g, Parmesan cheese - 100 g, Tarragon - 5 g, White salt - 3 g, Ground black pepper - 3 g

#### Preparation

- Heat one tablespoon of olive oil on the skillet. Add the cooked rice, spring onions (onions) and stir-fry until transparent.

- Mix the wine with the vegetable stock and add the rice. Cook over low heat for 30 minutes.
- Clean and dry the chicken filets and slice them.
- Heat the olive oil and add the mushrooms. Stir-fry, season, and remove from the.
- Stir-fry the meat, until crumbly and season.
- Mix carefully the mushrooms, meat, tarragon and parmesan with the rice in the stock.
- Serve hot.

### CHICKEN FOOT JELLY (1972 KCAL)

#### Ingredients

Chicken feet - 1000 g, Water - 2000 g, Allspice - 3 g, White salt - 4 g, Bay leaves - 3 g, Carrots - 150 g, Parsley, roots - 100 g, Celeriac - 100 g, Leek - 100 g, Garlic - 10 g, Lemon juice - 10 g

#### Preparation

- Remove any skin from the chicken feet, cut the claws and wash the feet. Put them into a pot, pour water to cover them, then boil and remove any foam. Add some allspice, bay laurel leaves, salt.
- Set the fire to minimum and cook with a lid on over very low fire.
- When the meat starts to come off the bones, add the cleaned and peeled vegetables and crushed garlic.
- When the vegetables are soft, drain everything (keep the stock).
- Cool the chicken feet down a bit, remove the bones and put the meat into the drained stock.
- Add some lemon juice, salt, according to the need.
- Pour the jelly into small bowls and put aside into a cool place until it solidifies.

### CHICKEN JELLY WITH VEGETABLES (1022 KCAL)

#### Ingredients

Chicken breast, without skin - 500 g, Meat stock - 1500 g, Soup vegetables - 500 g, Onions - 100 g, Bay leaves - 3 g, White salt - 3 g, Ground peppers - 3 g, Black pepper – grains - 3 g, Gelatin - 20 g, Whole chicken eggs - 120 g, Green peas, potted, without brine - 50 g, Chicken egg whites - 60 g

#### Preparation

- Pour the stock onto the meat and boil it with the peeled vegetables, a laurel bay leaf and a few grains of black pepper.
- At the end of cooking, add a pinch of chilli.
- Drain through a sieve to another pot.
- Cut the meat into pieces and slice the vegetables.
- Remove fat from the stock, heat it and clarify it, i.e. add the slightly whisked egg whites and boil, stirring all the time.
- Drain one more time and take one litre of the stock.
- Melt the gelatine in the hot stock and put aside until it starts to solidify.
- Put the meat and vegetable pieces into the bowls and pour a part of the jelly on them.
- Put the bowls into the fridge and when the first layer solidifies, decorate it with slices of hard-boiled egg peas.
- Pour the remaining part of the jelly into the bowls and put them into the fridge again (overnight, if possible). Take the jelly out of the bowls when it is firm.

### CHICKEN STEW WITHOUT GARLIC AND ONIONS (290 KCAL)

#### Ingredients

Chicken breast, without skin - 250 g, Carrots - 50 g, Tomato paste, 30% - 30 g, White salt - 3 g, Ground black pepper - 1 g, Water - 250 g, Bay leaves - 1 g

#### Preparation

- Wash, dry and cut the chicken breast into cubes.
- Grate carrots.
- Heat oil in a pan, add meat. Add vegetables, salt, pepper and fry for a few minutes.
- Add tomato paste and water. Fry the moments. Add another portion of water, bay leaf.
- Simmer stew under cover on low heat for 20 minutes.

### COCONUT PUDDING (578 KCAL)

#### Ingredients

soya milk - 500 g, Coconut oil - 10 g, Dessicated coconut - 15 g, Corn flour - 15 g, Potato starch - 15 g

#### Preparation

- Roast desiccated coconut in a dry frying pan.
- Mix flour with milk in a pot, add coconut oil and the roasted desiccated coconut.
- Boil and cook for about 3 minutes, stir all the time, until the pudding becomes smooth.

### COOKED CARROTS (27 KCAL)

#### Ingredients

Carrots - 100 g, Water - 250 g, White salt - 2 g

#### Preparation

- Wash, peel and dice the carrots.
- Pour water into the pot, add a pinch of salt, boil.
- Add the carrots.
- Cook on a low fire until soft.

### COOKED CARROTS (79 KCAL)

#### Ingredients

Carrots - 100 g, Water - 250 g, White salt - 2 g, Wheat flour, type 550 - 15 g

#### Preparation

- Wash, peel and dice the carrots.
- Pour water into the pot, add a pinch of salt, boil.
- Add the carrots.
- Cook on a low fire until soft.
- In a separate dish, mix the flour with water and add it to the carrots.
- Cook until properly thick.

### COURGETTE AND CARROT CREAM SOUP (360 KCAL)

#### Ingredients

zucchini - 400 g, Carrots - 250 g, Onions - 80 g, Vegetable bouillon - 1000 g, White salt - 2 g, Ground peppers - 2 g, clarified butter (ghee) - 10 g

#### Preparation

- Wash the carrots and the courgette and cut them into thick dices.

- Melt butter in a pot, put the diced carrot into it, and fry it for about 5 minutes. Then add the diced courgette and fry the ingredients for about 3 minutes.
- After that, add the broth and seasonings and stew the vegetables over a low flame until they are tender. Blend all vegetables to make a smooth cream soup.

### CREAM OF CARROT SOUP (111 KCAL)

#### Ingredients

Carrots - 95 g, Dill - 9 g, Potatoes, medium - 30 g, Mixed Dried Vegetables - 4 g, Olive oil - 6 g, Lemon juice - 10 g, Water - 300 g, Coriander - 1 g, White salt - 2 g, Ground black pepper - 1 g

#### Preparation

- Peel and cut the carrot and potatoes into pieces, pour on water and cook for 25 minutes.
- Mix it all, season to taste with olive oil, mix of dried vegetables, salt, pepper and ground coriander.
- Add lemon juice, sprinkle with chopped dill.

### CREAM OF CELERY (748 KCAL)

#### Ingredients

Celeriac - 500 g, Parsley, roots - 80 g, Potatoes, medium - 500 g, Leek - 50 g, Bay leaves - 1 g, Allspice - 1 g, Ground black pepper - 1 g, Vegetable stock - 1000 g, Parsley, leaves - 20 g, White salt - 1 g, Rapeseed oil - 10 g

#### Preparation

- Peel and dice all the vegetables. Cut the onion and the leek into thick stripes.
- Pour oil into a pot. Add vegetables and fry them for a while.
- Pour stock into the pot, add spices, and cook all ingredients over a low flame under a lid until the vegetables are tender.
- At the end, blend the soup in a blender and sprinkle it with chopped parsley.

### DELICATE DILL SOUP (834 KCAL)

#### Ingredients

Dill - 60 g, Ground black pepper - 2 g, White rice - 100 g, Chicken leg - 250 g, Carrots - 150 g, Parsley, roots - 100 g, Allspice - 1 g, Bay leaves - 1 g

#### Preparation

- Cook a chicken leg with carrot and parsley roots, allspice, pepper and laurel leaves in about 1,5 litres of water. After about 50 minutes, take out the meat, carrot and parsley.
- Rinse rice and add it to the stock, boil and cook for about 10 minutes. Finely chop the carrot and parsley roots and add them to the soup.
- Rinse and chop dill and add it to the soup. Cook the soup for a few minutes, until the rice is soft.
- If the rice absorbs too much liquid, add some boiled water.

### FISH SOUP (1078 KCAL)

#### Ingredients

Carp, fresh - 300 g, Red peppers - 200 g, Champignons, fresh - 150 g, Water - 1000 g, Onions - 150 g, Garlic - 20 g, Lard - 20 g, Tomato paste, 30% - 50 g, White salt - 2 g, Extra butter - 50 g, Lemon juice - 5 g

#### Preparation

- Fry the chopped onion and garlic in oil.
- Put them in a heavy-bottom saucepan.
- Pour 0,5 litre cold water into the heavy-bottom saucepan and put in all the finely chopped vegetables, the other ingredients and spices together with the fried onion and garlic and the lard in which they have been fried. Bring to a boil over low heat and cook for approx. 30 minutes.
- Next add butter and cook for approx. 15 min.
- Serve slightly cooled and sprinkled with a few drops of lemon juice.

#### FRIED EGG WITH A SPOONFUL OF OIL (189 KCAL)

##### Ingredients

Sunny-side-up fried egg - 60 g, linseed oil - 10 g

##### Preparation

- Heat the oil in a pan max 120°C.
- Carefully crack and drop the egg into the pan. Fry over slow fire until the egg is firm, do not stir..

#### FRIED HALIBUT FILLET (186 KCAL)

##### Ingredients

Halibut, fresh - 100 g, White salt - 3 g, Olive oil - 10 g

##### Preparation

- Clean and wash the fish, divide it into pieces, add some salt. Fry in hot oil.

#### GLUTEN FREE BREAD WITH BUTTER (87 KCAL)

##### Ingredients

gluten-free bread - 30 g, Extra butter - 3 g

##### Preparation

- Spread some butter evenly on a rye bread slice.

#### GREEN COTTAGE CHEESE SPREAD (262 KCAL)

##### Ingredients

Curd cheese, skimmed - 200 g, Drinking milk, 0.5% fat - 125 g, Parsley, leaves - 20 g, Garlic - 5 g

##### Preparation

- Grind the cheese with some milk and crushed garlic.
- Add the finely chopped green leaves and mix all the ingredients thoroughly.

#### GREEN PEA SOUP (649 KCAL)

##### Ingredients

Green peas - 450 g, Garlic - 10 g, Onions - 120 g, Rapeseed oil - 10 g, Vegetable bouillon - 1000 g, White salt - 2 g, Ground black pepper - 2 g, Mint - 10 g, Nutmeg - 2 g, Parsley, leaves - 20 g, Olive oil - 5 g

##### Preparation

- Heat a spoonful of oil in a pot and fry chopped onion.
- Add finely chopped garlic, nutmeg, and peppermint, and fry for a minute, stirring all the time.
- Add the frozen peas, pour the stock, stir and boil.
- Cook over medium fire for 10-12 minutes.
- Take the soup off the fire, add salt and pepper and blend the soup.
- Serve hot, sprinkled with olive oil and chopped parsley leaves.

### GRILLED CHICKEN BREAST (99 KCAL)

#### Ingredients

Chicken breast, without skin - 100 g

#### Preparation

- Dry the meat.
- Grill until ready.

### HEARTS RAGOUT (833 KCAL)

#### Ingredients

Calf hearts - 400 g, Carrots - 300 g, Extra butter - 40 g, Onions - 20 g, Meat stock - 150 g, White salt - 5 g, Ground black pepper - 100 g

#### Preparation

- Soak the cleaned hearts in cold water, strain, and slice.
- Cut the onion into half-discs, julienne the carrot.
- Melt the butter in the saucepan, fry the onion until transparent, add the sliced hearts and stir for a while, cook over high heat, then reduce the heat.
- Season with salt and pepper, put the carrot into the saucepan and pour the stock over the dish.
- Cook for about one hour and let a half of the liquid evaporate.

### HERBS STUFFED CHICKEN (660 KCAL)

#### Ingredients

Chicken breast, without skin - 600 g, Natural yoghurt, 2% fat - 25 g, Olive oil - 5 g, Mint - 10 g, Parsley, leaves - 10 g, Dill - 10 g, Oregano - 10 g, White salt - 3 g, Ground black pepper - 3 g

#### Preparation

- Finely chop the mint, parsley, dill. Carefully mix all the stuffing ingredients in a small bowl.
- Spread 1/4 of the stuffing delicately under the chicken breast skin. Smoothen on the top and evenly distribute the stuffing. Do the same with the other filets.
- Cover and put in the refrigerator for 1 ½ hours.
- Bake in the oven heated to 180 °C on the grill for 15-17 minutes. When on pricking the meat a transparent gravy flows out, the dish is ready.

### JACKET POTATOES (253 KCAL)

#### Ingredients

Potatoes, medium - 200 g, White salt - 2 g, Dairy butter - 15 g

#### Preparation

- Wash the potatoes (preferably new) thoroughly.
- Put them into boiling salted water. Cook over high heat.
- Strain and serve with butter.

### LEMON SOUP (676 Kcal)

#### Ingredients

Lemon - 100 g, Cream 12% fat - 230 g, Sugar - 3 g, Carrots - 100 g, Parsley, roots - 50 g, Celeriac - 30 g, Leek - 50 g, Rice flakes - 40 g, Vegetable stock - 1000 g

#### Preparation

- Boil the vegetable stock.
- Remove vegetables, add lemon zest, boil, remove zest from the broth.
- Add rice flakes to the boiling broth and cook for about 10 minutes.
- Add lemon juice to the soup, combine with cream, season to taste.

### MCHADI CORNBREADS (1685 Kcal)

#### Ingredients

Corn flour - 500 g, Water - 500 g, White salt - 2 g

#### Preparation

- Sieve the corn flour, add warm water to it (~50°C) and stir energetically until the ingredients become smooth batter.
- Form small breads/pies on the baking pan and bake them in a pre-heated 180 °C oven until the skin becomes golden brown. Then flip the breads and bake for a while more.

### MILLET KASHA (346 Kcal)

#### Ingredients

Millet groats - 100 g, Water - 200 g, White salt - 1 g

#### Preparation

- Pour 200 ml of water into a pot, salt and bring it to a boil.
- When the water is cooking, put in the kasha.
- Cook over low heat until soft.

### MILLET SPREAD (719 Kcal)

#### Ingredients

Millet groats - 200 g, Carrots - 100 g, Basil - 10 g, White salt - 3 g, Water - 200 g

#### Preparation

- Boil the millet in slightly salted water and cool it down. Boil the carrots until soft.
- Blend all the ingredients into smooth spread and serve it with bread.

### MILLET WITH FRUIT MOUSSE (512 Kcal)

#### Ingredients

Millet groats - 100 g, Flaked almonds - 10 g, Strawberries - 150 g, Natural yoghurt, 2% fat - 50 g, Extra butter - 5 g, Cinnamon - 3 g

#### Preparation

- Rinse the millet with running water, Boil in water with the almond flakes, over low fire, with a lid on.
- Clean and blend the fruit with the natural yoghurt (you can use e.g. blackberries, raspberries, pears instead of strawberries).
- Add the butter and stir. Pour the mousse over the millet and sprinkle it with a bit of cinnamon.

### MILLET WITH NUTS (1040 KCAL)

#### Ingredients

Millet groats - 180 g, Walnuts - 10 g, Hazelnuts - 10 g, Peanuts - 10 g, Sesame - 10 g, Sunflower, seeds - 10 g, Almonds - 10 g, Pumpkin, seeds - 10 g

#### Preparation

- Rinse the millet under running water, then cover it with water and boil with a lid on for about 20 minutes, over low fire. Do not stir.
- Serve with crushed nuts and seeds.

### OLIVE RISOTTO (1139 KCAL)

#### Ingredients

White rice - 200 g, Pickled green olives, potted - 100 g, Vegetable bouillon - 500 g, White wine, dry - 50 g, Green peas, frozen - 50 g, Tomatoes - 50 g, Parmesan cheese - 6 g, Olive oil - 10 g, Extra butter - 10 g, Basil - 5 g, White salt - 1 g

#### Preparation

- Heat olive oil and butter in a saucepan.
- Pour rice and roast it. Pour wine, stir and simmer for a while. Pour half of the hot broth and cook on low heat till the rice absorbs the liquid (5-7 minutes).
- Add frozen peas and tomatoes cut in pieces, and pour the remaining broth and stir. Continue for about 10 minutes stirring frequently.
- Drain the olives and cut in halves. Add to risotto, stir and flavour as necessary. Serve with parmesan and basil.

### OMELETTE WITH HAM AND CHEESE (681 KCAL)

#### Ingredients

Parsley, leaves - 6 g, White salt - 1 g, Ground black pepper - 1 g, UHT milk, 3.2% fat - 100 g, Whole chicken eggs - 240 g, Cottage ham - 50 g, Gouda cheese, fat - 50 g

#### Preparation

- Cut the ham into small cubes.
- Eggs, beat, mix with milk. Add grated cheese, salt, pepper and beat until smooth.
- Pour into a pan greased with sunflower oil and fry on both sides.
- Sprinkle the finished omelette with chopped parsley.

### ONION SOUP (715 KCAL)

#### Ingredients

Onions - 700 g, Vegetable stock - 1500 g, Olive oil - 25 g, Cream 18% fat - 50 g, Sugar - 3 g, White salt - 3 g, Ground black pepper - 3 g

**Preparation**

- Peel and dice the onions and fry them until transparent in a deep saucepan in hot olive oil, add the vegetable stock and cook for 20 minutes.
- Pour the soup through a sieve into another pot.
- Put 2-3 tablespoons of the onion left on the sieve into the soup, puree the rest. Bring to a boil.
- Season with sugar, salt, cream and freshly ground pepper.

**PARSLEY CREAM SOUP (598 KCAL)****Ingredients**

Parsley, roots - 600 g, Onions - 120 g, Garlic - 20 g, Vegetable bouillon - 1000 g, Rosemary - 5 g, Thyme - 5 g, Parsley, leaves - 20 g, Rapeseed oil - 20 g, Ground black pepper - 2 g, White salt - 2 g

**Preparation**

- Heat the oil in a large pan, add chopped onions, garlic, thyme and rosemary. Simmer under a lid for about 5 minutes, stir from time to time.
- When the onion is soft, add the stock and diced parsley, and boil.
- Cook over low fire until the parsley is soft (20-30 minutes), add some salt and pepper.
- Take the soup off the fire and blend it.
- Serve sprinkled with finely chopped parsley leaves.

**PEAR PUDDING ON RICE MILK (513 KCAL)****Ingredients**

clarified butter (ghee) - 500 g, Potato starch - 40 g, Pear - 80 g

**Preparation**

- Peel, crush and roast the pear in a saucepan with a small amount of water.
- Add rice milk mixed with flour.
- Season the milk if desired with salt and vanilla sugar.
- Cook on low heat, stirring constantly until the consistency of pudding.

**POTATO DUMPLINGS (1780 KCAL)****Ingredients**

Potatoes, medium - 1600 g, Ground rice - 80 g, Potato starch - 80 g, White salt - 3 g

**Preparation**

- Boil the potatoes in their jackets and cool them down (potatoes boiled on the previous day are the best). Peel and mince them.
- Peel and grate the raw potatoes. Drain them thoroughly.
- Put the minced boiled potatoes, grated and drained raw potatoes and rice flour into a large bowl. Work it so that all the ingredients are mixed.
- Start forming dumplings with wet hands.
- Boil salted water in a pot. Delicately put the dumplings into the pot.
- After the dumplings start floating, boil them for 4 more minutes.

**POTATO ROAST (2109 KCAL)**

Ingredients
Potatoes, medium - 600 g, Onions - 600 g, Parmesan cheese - 150 g, Cream 18% fat - 125 g, Dairy butter - 45 g, Rapeseed oil - 15 g, Chicken egg yolks - 40 g, Garlic - 2 g, Tarragon - 20 g, White salt - 1 g, Ground black pepper - 1 g
Preparation
<ul style="list-style-type: none"> <li>• Cook the jacket potatoes, cool, peel and finely slice them.</li> <li>• Peel and finely dice the onion, blanch for a while and strain carefully.</li> <li>• Grease the baking pan with oil and put in alternate layers of the potato slices and onion, sprinkling each layer with salt, pepper, and chopped garlic.</li> <li>• Pour the cream mixed with the yolks and grated cheese over the dish.</li> <li>• Bake the roast for approximately 15 minutes at 220 °C. Serve the roast sprinkled with chopped tarragon.</li> </ul>

PUMPKIN CREAM-SOUP (932 KCAL)
Ingredients
Pumpkin - 1000 g, Olive oil - 20 g, Carrots - 120 g, Onions - 120 g, Apple - 150 g, Nutmeg - 2 g, Ginger - 2 g, Cinnamon - 2 g, Vegetable bouillon - 1000 g, Ground rice - 15 g, Ground black pepper - 2 g, White salt - 2 g, Pumpkin, seeds - 30 g, Plant cream - 50 g
Preparation
<ul style="list-style-type: none"> <li>• Dice the pumpkin, chop the onion, slice the carrots and cut the apple into large dices.</li> <li>• Heat the oil in a large pot (use medium fire), add the onion, apple, carrot, pumpkin and the spices: nutmeg, ginger and cinnamon. Simmer under a lid for about 10 minutes, stir from time to time.</li> <li>• Pour the stock into the pot and boil it.</li> <li>• Keep on cooking until the pumpkin is soft (i.e. for about 15 minutes).</li> <li>• Take the soup off the fire and blend it.</li> <li>• Add some flour, stir and boil.</li> <li>• Add some salt and pepper.</li> <li>• Serve the soup with a spoonful of cream and a spoonful of roasted pumpkin seeds per serving.</li> </ul>

RABBIT BROTH (1003 KCAL)
Ingredients
Rabbit, carcass - 500 g, Carrots - 300 g, Parsley, roots - 200 g, Parsley, leaves - 10 g, Allspice - 4 g, Ground black pepper - 4 g, Onions - 125 g, Bay leaves - 3 g, White salt - 3 g, Leek - 100 g
Preparation
<ul style="list-style-type: none"> <li>• Boil app. 2 litres of water, add thoroughly washed rabbit meat, and skim off any scum. Then add pepper, allspice, and bay leaves. Cook it all for 5 minutes and add peeled and diced carrot and parsnip as well as whole parsley leaves.</li> <li>• Singe the onion over fire and put into the soup.</li> <li>• Cook the broth over a low flame for about 1.5 hours. At the end, add salt and pepper.</li> <li>• Serve the broth with noodles, sprinkled with chopped parsley.</li> </ul>

RICE (275 KCAL)
Ingredients
White rice - 80 g, White salt - 2 g
Preparation
<ul style="list-style-type: none"> <li>• Boil the rice in slightly salted water.</li> </ul>

RICE FLAKES (344 KCAL)	
Ingredients	
Rice flakes - 100 g, Water - 300 g	
Preparation	
<ul style="list-style-type: none"> <li>Slowly add the rice flakes to boiling water and boil for 2 minutes, stir from time to time.</li> </ul>	

RICE PASTA – ONE SERVING (215 KCAL)	
Ingredients	
Rice pasta - 100 g	
Preparation	
<ul style="list-style-type: none"> <li>Cook the rice pasta in accordance with instruction on the packaging.</li> </ul>	

RICE PUDDING WITH STRAWBERRIES (1416 KCAL)	
Ingredients	
UHT milk, 1.5% fat - 1000 g, White rice - 230 g, Vanilla extract - 5 g, Pear - 150 g, Apple - 150 g, Rhubarb - 50 g	
Preparation	
<ul style="list-style-type: none"> <li>Boil the milk in a saucepan, add the rice and cook it for 10 minutes.</li> <li>Add the pear and cook for 35 minutes, stirring, until the rice becomes cream and thick. Take the pudding off fire and add some almond flavour to it.</li> <li>Put the pudding into a dish, cool down to the room temperature, then put it into the fridge.</li> <li>Before serving, put the dish into warm water for a while, then put it upside down over a plate to take out the pudding. Put some strawberries on it, blend the remaining ones with some vanilla, and pour this strawberry sauce over the pudding.</li> </ul>	

RICE WITH APPLES (897 KCAL)	
Ingredients	
Vanilla extract - 5 g, Apple - 450 g, White rice - 200 g, Cinnamon - 5 g, Cloves - 3 g, Lemon juice - 5 g	
Preparation	
<ul style="list-style-type: none"> <li>Boil and drain the rice. Peel and grate the apples.</li> <li>Put the apples into a large saucepan, sprinkle them with some lemon juice, add the grated vanilla and a pinch of cinnamon, stew for about 15 minutes.</li> <li>Put the rice and the apple mousse on a plate. You can bake it in the oven, at 180 °C, for about 10 minutes.</li> </ul>	

RICE WITH MILK (1431 KCAL)	
Ingredients	
Drinking milk, 3.2% fat - 600 g, White rice - 300 g, Cinnamon - 5 g, Dairy butter - 5 g	
Preparation	
<ul style="list-style-type: none"> <li>Pour a glass of milk over rice and cook it over a medium flame, stirring continuously, until the liquid evaporates.</li> <li>Add more milk and cook the rice until it is tender.</li> </ul>	

- Mix the cooked rice with butter. Serve hot, with cinnamon.

### ROASTED TROUT (1450 KCAL)

#### Ingredients

Brown trout, fresh - 500 g, Pork, side without bones - 100 g, Olive oil - 50 g, Lemon - 40 g, Rosemary - 2 g, Thyme - 2 g, Caraway seeds - 2 g, White salt - 2 g

#### Preparation

- Clean and dry the trout. Rub the whole fish with salt blended with herbs.
- Heat a spoonful of olive oil on the skillet, put in the fish and fry briefly on both sides.
- Inside the pre-fried trout put two slices of bacon, put the fish on an ovenproof platter greased with olive oil and bake in hot oven (200 °C) until brown.
- Slice the rest of the bacon, fry on the skillet until crispy and put in the fish. Before serving, replace the bacon slices that have been baking with the fish.
- Immediately before serving sprinkle with lemon juice.

### RUSSIAN SALMON (1691 KCAL)

#### Ingredients

Salmon, fresh - 300 g, Potatoes, medium - 600 g, Natural yoghurt, 2% fat - 110 g, Cream 18% fat - 200 g, Lemon - 40 g, Sunflower oil - 20 g, Dill - 5 g, Mint - 3 g, White salt - 2 g, Ground black pepper - 3 g

#### Preparation

- Slice the potatoes, arrange them on a metal tray greased with sunflower oil and bake in the oven at 200 °C (maximum for 30 minutes).
- Slice the smoked salmon and arrange it on the plates.
- Yoghurt sauce: combine the yoghurt with sour cream, add 1 teaspoon of dill, 1 teaspoon of mint, salt, pepper and thyme, mix the whole until homogeneous.
- Sprinkle the salmon slices with lemon juice, surround with baked potatoes, cover the whole with the yoghurt sauce.

### SIMMERED CARROT (545 KCAL)

#### Ingredients

Carrots - 200 g, Olive oil - 50 g, Onions - 100 g, Water - 120 g, Parsley, leaves - 12 g, Sugar - 2 g, Lemon - 20 g, White salt - 1 g, Ginger - 3 g

#### Preparation

- Cut onion in fine cubes. Peel the carrots and cut in thin slices. Heat olive oil in a saucepan, add onion and simmer 3 minutes until it becomes glossy. Add the carrot and simmer for 5 minutes, stirring from time to time.
- Pour water into the saucepan (the carrot should be almost fully covered), pour the parsley leaves (leave some for garnishing afterwards), flavour with sugar, salt. Turn down the heat and simmer covered for around 15 minutes (as long as the carrot gets soft but not overcooked).
- Remove cooked carrot from heat, flavour with juice from half a lemon and ginger. Sprinkle with parsley leaves.

### STEAMED POTATOES (77 KCAL)

#### Ingredients

Potatoes, medium - 100 g

**Preparation**

- Steam the potatoes until soft (for about 30 minutes)..

**STEAMED TURKEY MEATBALLS (606 KCAL)****Ingredients**

Turkey breast, without skin - 500 g, Champignons, fresh - 120 g, Carrots - 140 g, Whole chicken eggs - 60 g, Garlic - 5 g, Parsley, roots - 100 g

**Preparation**

- Crack the egg to the meat and mix.
- Peel and finely cut the champignons, and add them to the meat.
- Finely grate the carrot and parsley roots.
- Crush the garlic and mix the ingredients.
- Form meat balls and steam them.

**SWEET AVOCADO PASTE (422 KCAL)****Ingredients**

Avocado - 140 g, Banana - 120 g, Cocoa 16%, powder - 10 g, Honey - 12 g

**Preparation**

- Wash, peel an avocado and banana and cut in pieces. Add cocoa and honey.
- Mix the ingredients smoothly.

**TOMATO SOUP (999 KCAL)****Ingredients**

Tomatoes - 1000 g, White salt - 3 g, Vegetable stock - 800 g, Bay leaves - 1 g, Allspice - 2 g, Orange juice - 150 g, Coriander - 5 g, Basil - 5 g, White rice - 200 g

**Preparation**

- Wash the tomatoes, cut them into pieces and put them into a pot.
- Add coriander, and stew under a lid for about 15 minutes. Stir from time to time and check if the tomatoes are already soft.
- Rub the stewed tomatoes through a sieve and add them to the vegetable stock, add allspice, bay laurel, a bit of orange juice, salt and sugar, and boil.
- Serve with rice, pasta or croutons.

**TOMATOES WITH AUBERGINE (346 KCAL)****Ingredients**

Tomatoes - 125 g, Eggplant - 60 g, Wine vinegar - 15 g, Lemon juice - 5 g, Olive oil - 35 g, White salt - 1 g, Ground black pepper - 1 g

**Preparation**

- Dice the aubergines, lightly salt and set aside for an hour so the juice is released.
- After draining the juice, cook the aubergines briefly (about 5 minutes) in water, drain, salt and pour on lemon juice.
- Burn the tomatoes, peel, cut into slices.

- Prepare sauce with olive oil mixed with distilled vinegar, season with salt and pepper to taste.
- On a plate lay out the tomato slices, sprinkle surface with diced aubergine, add olives and pour on the sauce.

### TROUT BAKED WITH TOMATOES AND FENNEL (2272 KCAL)

#### Ingredients

Dairy butter - 25 g, Potatoes, medium - 750 g, Tomatoes - 400 g, White wine, dry - 200 g, Pickled green olives, potted - 100 g, Brown trout, fresh - 1200 g, White salt - 1 g, Ground black pepper - 100 g, Capers in brine - 50 g, Fish bouillon - 200 g, Fennel - 300 g

#### Preparation

- Heat butter in a large baking pan and stir-fry the chopped onion in it, add the potatoes chopped into single-bite pieces and mix well.
- Add the tomatoes chopped into large pieces and a half of the thinly sliced fennel and wine. Cook until the liquid is reduced by half. Pour in the stock, add capers and olives and mix well.
- Use the remaining fennel to stuff the whole fishes and put them on the vegetables, and place some of the vegetables on the top. Season with salt and pepper.
- Bake for approximately 30 minutes at 200 °C.
- Serve the fish surrounded with the vegetable ragout.

### TROUT JELLY WITH VEGETABLES (698 KCAL)

#### Ingredients

Brown trout, fresh - 500 g, Soup vegetables - 450 g, Bay leaves - 3 g, Allspice - 3 g, Black pepper – grains - 3 g, Ground black pepper - 3 g, White salt - 3 g, Green peas, potted, without brine - 30 g, Parsley, leaves - 30 g, Gelatin - 20 g

#### Preparation

- Clean the scales off the fish, remove the eyes and gills, boil the fish (incl. heads).
- Peel the vegetables and cut them into smaller pieces. Fasten the leek with a piece of thread.
- Use a pot (with a large bottom diameter) to boil the vegetables with about two litres of water.
- When the water starts boiling, put the fish into it (the fish should be completely covered with water), and after about 10 minutes, add bay laurel leaves, some black pepper grains, allspice, and salt.
- Cook over slow fire for about 20 minutes more. Be careful not to overcook the trout pieces, because they will fall apart.
- Carefully take the fish pieces out of the stock and put them into a flat dish. Drain the stock through a sieve, add some spices/herbs, and add the gelatine in accordance with the instructions on the packaging (its quantity will depend on the quantity of water)
- Prepare small bowls, put some pickled peas to the bottom of each bowl.
- Put the fish pieces (they can have the skin, but remember to remove the bones) into the bowls, pour the stock onto them, and garnish them with parsley. Wait until the jelly cools down and put the bowls into the fridge until the jelly is firm.

### TURKEY RISOTTO (1029 KCAL)

#### Ingredients

Turkey breast, with skin - 200 g, White rice - 100 g, Meat bouillon - 250 g, Frozen sweetcorn - 150 g, Leek - 125 g, Celery - 50 g, Olive oil - 10 g, Sweet vermouth - 100 g, Parsley, leaves - 10 g, Onions - 100 g

#### Preparation

- Grill the turkey breast (or fry it in a pan), and dice it.
- Heat the oil in a large saucepan, fry the diced onions for about 2 minutes, until soft. Add the rice and stir continuously for 3 minutes to let it roast in the oil. Add the vermouth and cook for about 3 minutes in order to steam the alcohol off.

- After some time, add the stock in small portions, stir from time to time and let the rice absorb the stock before you pour more.
- After you add the whole stock, cook for 15 minutes more and stir.
- Add the corn and the chopped leek and celery, cook for about 10 minutes, until all the ingredients are soft.
- Serve with chopped dill.

### VEGETABLE JELLY WITH EGGS (479 KCAL)

#### Ingredients

Onions - 100 g, Black pepper – grains - 4 g, White salt - 3 g, Allspice - 4 g, Whole chicken eggs - 120 g, Green peas - 60 g, Gelatin - 40 g, Champignons pickled, potted - 60 g, Dill pickles - 60 g, Soup vegetables - 300 g

#### Preparation

- Boil the vegetables (until soft) in water with pepper, salt and allspice.
- Drain the stock from the vegetables and stir it with the gelatine melted in about 1/3 glass of boiling water. Slice the carrots.
- Put the slices of hard-boiled eggs into ramekins, and add the green peas, mushrooms, gherkins and carrots.
- Pour the eggs and vegetables with the stock mixed with gelatine into the bowls. Leave them in the fridge overnight. When the jelly is solid, carefully take it out of the ramekins.

### VEGETABLE STUFFED PEPPERS (1236 KCAL)

#### Ingredients

Red peppers - 1000 g, Carrots - 300 g, Parsley, roots - 175 g, Onions - 250 g, Tomato paste, 30% - 100 g, Sunflower oil - 70 g, Parsley, leaves - 15 g, Ground black pepper - 3 g, Sugar - 3 g, White salt - 3 g, Vegetable bouillon - 30 g

#### Preparation

- Remove the seeds and wash the peppers carefully.
- Stuffing: julienne the carrot and parsley, thick-dice the onion, fry a little in oil and add the tomato puree, briefly stew and season the vegetables, and then stuff the peppers.
- Baste the stuffed peppers with oil and stock and stew under the lid until soft.

### ZUCCHINI PANCAKES (404 KCAL)

#### Ingredients

zucchini - 500 g, Whole chicken eggs - 60 g, White salt - 3 g, Ground black pepper - 3 g, Rapeseed oil - 10 g, Buckwheat flour - 45 g

#### Preparation

- Sprinkle some salt on grated zucchini and put it aside for 20 minutes, for the juice to come out. After that, squeeze the juice off thoroughly.
- Mix the zucchini, egg, flour and pepper until the batter becomes smooth.
- Heat some oil in a frying pan, spoon the zucchini batter into it and fry for 3-4 minutes on each side, until the pancakes become golden-brown. Serve e.g. with garlic dip.

Note! This report may be copied only as a whole.

The result has been issued in accordance with the PB-01 test procedure. from 01.02.2016

The result was verified by: dr n. med. Sławomir Puczkowski on: Example result.

## 9. MINERAL CHANGE

### Ca - CALCIUM

Calcium is an important mineral component of the human body, responsible for many regulatory mechanisms. It is necessary for many processes: neuro-muscular conductivity, activity of muscles, normal development of the skeletal system, blood clotting, activation of enzymes, permeability of membranes. It is present in the human body in amounts exceeding any other element. About 99% of calcium is deposited in the bones. Ionised calcium plays an important role in blood clotting, maintaining normal excitability of heart muscle, skeletal muscles and nerves. Calcium regulates the activity of many enzymes, function of muscles, wound healing, hormonal transmission of stimuli, strong bones, relaxed nerves, optimism, enthusiasm, cheerful and calm mood, normal activity of the heart, normal blood clotting, iron absorption, healthy teeth, normal sleep. Calcium enables conductivity of stimuli and contractility of muscle fibres, partakes in many enzymatic processes, regulates heart rate, exerts antiallergic effect and makes biological membranes less permeable.

**Occurrence:** chocolate, figs, peas, beans, yoghurt, cooked kohlrabi, cabbage, spinach, fennel, tinned salmon with bones, tinned mackerel with bones, almonds, hazelnuts, fat milk, Emmental cheese, Ricottagouda cheese, orange juice enriched with calcium, Parmesan cheese, lentils, dried figs, camembert, yolk, poppy seeds.

### Na - SODIUM

Sodium is the most important cation of the extracellular fluid. It is accompanied by anions, usually chloride and hydrochloride. Hydrochloride anion is necessary for the regulation of acid-base balance. One of essential functions of sodium is maintaining normal osmolar pressure in body fluids. This protects the body from excessive fluids loss. Sodium is also important in maintaining normal excitability of muscles and permeability of membranes. Sodium and potassium regulate the metabolism of electrolytes and determine acid-base balance in the body, and play a key role in the conductivity of stimuli in all nervous cells.

**Occurrence:** bread, halibut, cod, turbot, milk not skimmed, olives, salted sticks, lettuce, broccoli, sardines in oil, celery, radish, Emmental cheese, Gouda cheese, Edam cheese, ham.

### K - POTASSIUM

Potassium is an intracellular ion, determining the water and electrolytes metabolism. It is necessary for the synthesis of proteins and metabolism of carbohydrates. It controls the normal function of nervous and muscular systems. Potassium is the most important intracellular ion. It plays a decisive role in heart muscle activity. Intracellular concentration of potassium is essential in many important metabolic functions, including the biosynthesis of proteins. Potassium and sodium control the electrolytes and acid-base balance, play the main role in conductivity of stimuli in all nervous cells. Potassium determines: proper oxygenation of the brain, function and transport to the cells, function of kidneys, water metabolism, normal heart activity, carbohydrates metabolism. Potassium is especially important in muscle fibres contractions, synthesis of proteins, glycogen and glucose metabolism.

**Occurrence:** avocado, bananas, broccoli, dried apricots, beetroots, wholegrain bread, beans, lima beans, dried cooked beans, cooked, soya beans, peas, skimmed yoghurt, pumpkin, cabbage, salmon, mackerel, cantaloupe melon, almonds, skimmed milk, dried mackerel, peanuts, pumpkin seeds, lettuce, celery, herring, snapper – south seas fish, fresh orange juice, tomato juice, asparagus, cooked spinach, prunes, cooked potatoes, baked potatoes.

### P - PHOSPHORUS

Phosphorus is present in every cell in the body, but about 80% of phosphorus is stored in bones in compounds with calcium. Phosphorus

plays an important role in the storage and transport of energy in the form of phosphate esters. The proportion of calcium to phosphorus in the diet influences the absorption and elimination of both these elements. If one of them is present in excess, elimination of the other increases. Phosphorus is necessary not only for energetic processes, but also in the formation of teeth and bones, acid-base balance. It is a component of phospholipids, which are material for brain and nervous cells construction, takes part in the synthesis of nucleic acids – DNA (deoxyribonucleic acid) and RNA (ribonucleic acid).

**Occurrence:** veal, milk chocolate, noodles, evaporated milk, nuts/seeds, wheat bran and germ, trout, tuna, sardines in oil, Emmental cheese, Gouda cheese, Edam cheese, cheese spread, leguminous, plants, liver, brain, pork, beef, whole grains, yolk, sausages.

### Zn - ZINC

Zinc plays a lot of important functions in the body. It is a component of many enzymes, and their activation, takes part in the metabolism of proteins and carbohydrates, and possibly also lipids. Absorption of zinc by the human body differs depending on the food and interactions between zinc and other elements. Zinc plays an important role in the reproductive system, in particular in men, and acts as a detoxicant (antagonist of cadmium and lead). The antagonism Zn-Cd and Zn-Cu is especially metabolically important. Calcium and magnesium may also limit absorption of zinc. It is necessary for the synthesis of proteins, it is a component of digestive enzymes, participates in the storage of insulin and enhances the immune system functions. Zinc plays a role in maintaining the balance between other trace elements, such as manganese, magnesium, selenium and copper. Positive zinc effects include general improvement of metabolism, enhancement of wound healing, and in particular skin defects, improvement of mental abilities, protection of the macula lutea from degenerative changes.

**Occurrence:** veal, cooked meat, pumpkin and pumpkin seeds, lobster, baked turkey, cooked crabs, beef sirloin, nuts, seeds: pumpkin, sunflower; raw oyster without shell, smoked oyster, cheese, herring, cereal, wheat bran, beef, beef and pork liver, snails, cooked veal liver, eel, cereals, yolk.

### Mg - MAGNESIUM

Magnesium plays a role in various metabolic processes. It plays an important role in muscle contractions (including the heart muscle) – maintains normal heart rate and neuro-muscular excitability (antagonist of calcium). It enhances blood coagulation process (stabilises platelet and fibrinogen function). It stimulates immune reactions of the body, and normal development of the skeletal system, exerts a sedative effect. It is a microelement necessary for normal function of cells. Vitamin B6 (pyridoxine) increases the synthesis of GABA, which is a neurotransmitter, but also enhances absorption of magnesium from the alimentary tract. Due to synergistic activity of both components, the preparation eliminates anxiety (psychic or somatic), but does not affect learning and concentration. It prevents stress, headaches and other pains. Magnesium is necessary for normal metabolism of calcium and vitamin C. It influences the metabolism of sodium, potassium and calcium. Magnesium is necessary for the synthesis of proteins, protects capillaries from damage, takes part in the synthesis of numerous enzymes and plays a key role in energetic biochemical metabolism of carbohydrates. The above listed processes are impaired in magnesium insufficiency, which is the reason of many other metabolic dysfunctions, mainly affecting the muscle, including the heart muscle. Magnesium is also important in the prophylactics and treatment of many diseases. It prevents nervous hyperexcitability, depression and vegetative dystonia.

**Occurrence:** bananas, brewing yeast, beans, peas, buckwheat, cocoa, chocolate, crabs, almonds, brazilian nuts, nuts and seeds, hazelnuts,

walnuts, peanuts, chicken, cashew nuts, wheat bran, sausages, pumpkin seeds, soya products, sea fish, lentils, spinach, ham, soya, pork, beef, potatoes.

### Fe - IRON

Iron is a part of many enzymes and metalprotein compounds, which take part in oxidation-reduction processes. It is the core of haemoglobin and myoglobin, and many other ferroporphyrins. Some part of iron is utilised by cells of the erythroblast system in the production of haemoglobin, the rest is stored as ferritin, mainly in the liver and spleen, and in other organs. The transporting protein for iron is transferrin. Iron stored in the body is maintained in a dynamic balance with its amount in the serum. Iron reserves may be present in combination with hemosiderin, which, contrary to ferritin, shows weak ability to release iron and poor solubility. Iron is a component of erythrocytes, protein (haemoglobin) transporting the oxygen and protein storing the oxygen in muscle (myoglobin). Iron regulates: the activity of enzymes, the condition of erythrocytes, cellular respiration, normal heart function, cell divisions, hormonal metabolism, development of the muscles, condition of immune system, oxygenation of cells. Absorption and metabolic function of iron depend on other elements. Antagonistic activity towards iron is showed by cadmium (Cd), manganese (Mn), lead (Pb) and zinc (Zn). In case of copper the relation is more complex, often synergistic, as both elements are involved in oxidation-reduction processes. Phosphorus inhibits the absorption of iron, as iron phosphates easily sediment in various conditions.

**Occurrence:** wholegrain bread, peas, beans, lentils, mushrooms, mussels, meat e.g. sirloin, ham; nuts, dried fruit, pumpkin seeds, liver.

### Cu - COPPER

Copper is one of the most stable components of the human blood. Its serum concentration ranges within 100 - 130 mg/100 ml. It is slightly higher in women than in men. Copper, activating the enzyme necessary for the development of erythrocytes, determines the normal function of the haemopoietic system. It also controls – via the synthesis of dopamine – the development of the nervous system and – via the synthesis of collagen and elastin – the regeneration of the connective tissue. In addition, copper together with zinc repair the damage done by free oxygen radicals. Copper is a component and activator of enzymes in numerous chemical reactions. Copper is necessary for the absorption and metabolism of iron. It plays a part in the oxygenation of vitamin C. The main biological role of copper is that it is a component of different enzymes of oxygenation – reduction processes, for example cytochrome oxidase in animals. It also stimulates the activity of hemoglobin. Copper is a component of ceruloplasmin (serum protein). In this form it is transported around the body and regulates the metabolism and transportation of iron. It influences the metabolism of lipids (e.g. cholesterol) and determines the properties of myelin cover of nervous fibres. Copper is necessary for both normal metabolism of the connective tissue, and the functioning of brain cells. Deficit of copper affects the above described processes, which manifests as diseases – anemia, growth and fertility disorders, nervous system disturbances (headaches), circulatory system diseases, and also osteoporosis. In cells copper can be found mainly in mitochondria and nucleus. Its content in particular organelles also depends on the type of tissue. Due to its ability to make compounds with nucleic acids it can cause permanent changes of their structure, and thus change of their biochemical and genetic properties. Copper easily binds to various proteins, especially to macromolecular proteins and proteins containing sulphur. Metallothionein as a protein rich in sulphhydryl groups shows large capacity in relation to copper is responsible to a considerable degree for its increased liver content.

Interactions between copper and various elements can lead to its secondary deficit or toxicity. The most common antagonism can be seen between copper and zinc (Cu-Zn), which is responsible for many

symptoms connected with copper deficit. Relative increase in the content of zinc and increased elimination of copper causes various metabolic disorders, mainly abnormal metabolism of lipids, leading to coronary heart disease or mental disorders. In animals loss of equilibrium between copper (Cu) and molybdenum (Mo) is frequently observed, related to additional influence sulphur. Increased molybdenum content eliminates copper from metabolic cycle, leading to symptoms of copper deficit. The antagonism copper - molybdenum (Cu-Mo) is intensified by sulphur. Molybdenum increases the binding of copper into non-absorbable compounds. Synergism between copper and iron (Cu-Fe) is enhancing many enzymatic processes, and particularly for the synthesis of hemoglobin. Calcium positively affects the absorption of copper by the organism, even though in general the absorption of copper is better from foods of acidic pH.

**Occurrence:** mushrooms, meat, seeds, kidneys, nuts, dried fruit, tomatoes, wholegrain products, brown rice, liver, green leaf vegetables, potatoes.

### Cr - CHROMIUM

Chromium is indispensable for normal development of humans and animals. In general its content in diet and fodders covers the requirement, which for adults ranges from 50 - 200 mcg/day. Its daily dose consumed with food in Great Britain is estimated as 320 mcg, and in United States as 50 mcg, which may not cover the requirement. Chromium stabilizes the level of sugar in the blood. It lowers the level of cholesterol and triglycerides in the blood, controls the feeling of hunger, stimulates energetic transformations and synthesis of fatty acids. It stimulates the transport of aminoacids to cells and the activity of insulin via glucose level, and increases the tolerance to glucose. Chromium is commonly present in tissues, though in exceptionally small quantity. The content of chromium in the organism of an adult male is less than 6 mg. If its content in animal fodder is very low, growth and survival may be affected. These effects disappear if the diet is supplemented with 5 ppm of chromium. On the base of observation decreased glucose tolerance was seen in animals fed on diet poor in chromium; this symptom disappeared after administration of chromium. Chromium appears in animals at +3 and +6 degree of oxidation. Because of the tendency to reduction of chromium, cation Cr<sup>3+</sup> prevails in the majority of tissues apart from the liver. Chromium binds to nucleic acids and is concentrated in liver cells. This metal plays an essential role in the metabolism of glucose, some proteins and lipids. It is a component of enzymes such as trypsin and stimulates the activity of other enzymes. In particular interesting and unexplained is its role in the metabolism of cholesterol. Increase of cholesterol in serum in older persons is supposed to be connected with a decrease of chromium content in the circulatory system, while the role of chromium in the metabolism of glucose is closely connected to the activity of insulin. Excessive consumption of sugars accelerates its elimination from the body. Elimination of Cr<sup>3+</sup> is considerably smaller than Cr<sup>6+</sup>. Some illnesses, especially of the circulatory system, affect the metabolism of chromium.

**Occurrence:** black pepper, brewing yeast, grapefruit, mushrooms, artichoke, molasses, meat, nuts, seeds, peanuts, oysters, seeds, wholegrain products, wheat and bran, raisins, brown rice, asparagus, plums, veal liver, yolk.

### Mo - MOLYBDENUM

Molybdenum is classified as one of the essential microelements, although no evident results of its deficit in humans were demonstrated. The concentration of this element in serum is 6,0 +/- 2,2 µmol. Molybdenum is a component of the following metalloenzymes: xanthine oxidase, aldehyde oxidase, sulphite oxidase and other metalloenzymes participating in the metabolism of proteins, lipids and purines. The highest concentration of molybdenum in human organism was recorded in the liver and kidneys, bones and teeth.

**Occurrence:** brewing yeast, cauliflower, seeds, nuts, seeds, wholegrain and soya products, brown rice, lentils, spinach, leguminous plants, beef liver, green peas.

### Co - COBALT

Usual content of cobalt in the body is 18,7 µmol and its serum concentration 2+/-1 nmol/l. Daily requirement is below 10 µg (below 0,2 µmol). In humans cobalt appears mainly in form of vitamin B<sub>12</sub>, the cofactor of two most important enzymes: methylmalonyl-CoA isomerase and ribonucleotide reductase. Vitamin B<sub>12</sub> participates in the formation of coenzymes transporting monocarbonic fragments and incorporating them in newly synthesized purine and pyrimidine compounds. Thus, the function of vitamin B<sub>12</sub> (and indirectly of cobalt) is closely connected with the synthesis of nucleic acids.

**Occurrence:** vitamin B<sub>12</sub>, aloe.

### Sr - STRONTIUM

The role of this element is has not been fully explained. Strontium probably plays a role in the development of bones, and prevents caries. It probably is involved in energetic processes of in cells. The content of strontium in the blood is 0,4 +/- 0,1 umol/l.

### Ni - NICKEL

The concentration of this element in the blood is 82 +/- 22 nmol/l. In humans about 18 % of nickel is contained in the skin. Comparatively high concentration of nickel was also seen in bone marrow, lymphatic nodes, testes, and also in sweat, which is the route of elimination of this microelement. The role of nickel in the organism has not been fully explained. It is thought to play a role in the transport of oxygen to tissues, in the synthesis of enzymatic proteins, in the metabolism of carbohydrates, lipids and proteins, and synthesis of hormones. Rich sources of nickel are chocolate, cereals, fish, pulse crops germs. Deficit of nickel can be caused by dietetic errors and stress.

**Occurrence:** chocolate, crabs, seeds, nuts, wholegrain products, sea fish, leguminous plants.

### Mn - MANGANESE

Manganese takes part in various physiological processes, mainly as an activator of enzymes regulating the metabolism of glucose and other carbohydrates, lipids including cholesterol and proteins. Manganese itself is not a component of these enzymes. Its function is not specific and it can be replaced by other metals, particularly by magnesium. One of the metalloenzymes containing manganese, carboxylase, can function also in connection with other metals. Manganese is an essential component of bones and is necessary for normal functioning of the central nervous system. Total content of manganese in the body is 12-20 mg. Main organs where manganese is stored are kidneys and liver. Manganese is one of the antioxidants. Its presence is necessary for the metabolism of vitamin B<sub>1</sub> and vitamin E. It activates some enzymes in the process of energy production, synthesis of glycogen, synthesis of urea and in coagulation and regeneration of the connective tissue. Manganese enhances the activity of magnesium in bones. Manganese replaces magnesium from its connections in enzymatic systems, but contrary to calcium and phosphorus it does not block these enzymes, but activates them even more than magnesium ions. Manganese as a catalyst takes part in the digestion of lipids and cholesterol. Manganese determines, among others: sexual activity, the pigment in hair, the activity of many enzymes and vitamins, functioning of pancreas. It affects the bones and teeth, participates in active cellular respiration, maintains normal level of sugars in the blood and collagen in tissues, participates in the production of hormones. The concentration of manganese in human tissues, particularly in the bones, decreases with age. Its deficit leads to bones deformations, growth disturbances and impairs co-ordination of movements (e.g. ataxia in animals). Fertility disorders connected with

manganese deficit are secondary to abnormal synthesis of cholesterol and related compounds necessary for the synthesis of sexual hormones and other steroids.

**Occurrence:** avocado, pea, tea, barley, corn, almonds, olives, hazelnuts, walnuts, peanuts, oat, parsley, wheat, rice, sunflower, spinach, whole grain, sunflower seeds, potatoes, yolk, rye.

### Se - SELEN

Selen is an indispensable component of animal organisms and it is present in all cells. The highest content of selen is in the liver, kidneys, pancreas. Its biological function is mainly connected with glutathione peroxidase (GSHPx), of which it is a component. This enzyme plays a crucial role in the protection against membrane lipids oxidation and in the metabolism of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and lipid hydroxyperoxides. Selen activity in the blood is similar to that of vitamin E (alpha tocopherol), and selen may replace it in metabolic processes on the cellular level. As an antioxidant, selen protects cellular membranes from the generation of free radicals. Due to this it reduces the risk of cancer, diseases of the heart and blood vessels. Selen is indispensable for normal course of metabolism. It is very important for proper immunological function.. It is essential for the functioning of the immune system, normal growth, reproduction and in prevention of various illnesses. It plays an important role in the transmission of impulses in the central nervous system. Selen is prevalent in animal organisms. It is present in highest concentration in the cortical layer of kidneys, pancreas, pituitary gland and liver. Most of selen contained in the organism is labile. The content of selen in food is variable and dependent on the content of selen in the soil. Some diseases in animals developed on nutritional background react to the administration of selen or vitamin E, suggesting close relationship between these two components. Selen is regarded as a remarkably toxic element. If selen is present in diet in concentration about 5-15 ppm, it becomes highly toxic. However, in concentrations below 3 ppm selen accelerates growth and prevents many diseases. It appears often in compounds with aminoacids, cysteine (selenocysteine) and methionine (selenomethionine). The role of various, recently determined, compounds of selen with proteins has not been definitely established, but current investigations suggest its important role in RNA functions and in the activity of thyroid gland hormones, regulating the transformation of active and nonactive forms of iodothyronine. The content of selen in the blood of children is about 50 mg/l and is probably responsible for disturbances in the metabolism of thyroid hormones in girls. Bioavailability of selen is individual and depends on the form in which it occurs and type of food. Selenates and amine selen compounds are absorbed the most easily. Assimilation of selen is increased from protein rich diet and vitamin rich diet (mainly E, A, C), and difficult at increased quantity of heavy metals and sulphur. Deficit of selen is connected mainly with the heart muscle damage (Keshan disease) and diseases of the skeleton (Kashin-Beck disease). Recently numerous reports have suggested a relationship between the deficit of selen and development of neoplasms, and also with the diseases of circulatory system. A study comprising inhabitants of two neighbouring housing estates near Belgrade, with different cancer morbidity, showed that the soil, food and serum of inhabitants suffering from cancer contained significantly less amounts of this element (Se in serum: range 15,238, mean 26 mg/l) than those of healthy people, where the range of selen concentration was 20,6-69, average 39 mg/l. The concentration of selen in the serum of Poles is 50-60 mg/l, and in some regions it reaches even >100mg/l. Interactions between selen and trace metals are of physiological significance. Selen compounds of metals are easily formed in living organisms (e.g. Cd, Hg, Pb, Ag, Ta). Due to their poor solubility they do not participate in biochemical processes. As a result, selen can deactivate toxic excess of metals, which are deposited mainly in parenchymatous organs. The effect of selen on increased deposition of metals, particularly mercury and lead in the intracellular

substance in kidneys and liver can be harmful for general metabolism. As the above mentioned metals show a susceptibility to bind to low-molecular proteins, they limit the assimilation of selen by the organism. An increase of the content of this element in tissues (e.g. heart, liver, kidneys) causes secondary decrease in the concentration of magnesium, manganese and copper. Subcutaneous injection of selenate sodium solution caused essential decrease in the concentration of copper in the serum of sheep. Selen is a component of one of the thyroid hormones, which explains its synergistic function in relation to iodine. The presence of sulphur decreases toxic activity of selen.

**Occurrence:** garlic, brewing yeast, mushrooms, eggs, wheat wholegrain flour, mussels, molasses, meat, roasted sunflower seeds, brazilian nuts, cooked oysters, prepared wheat (blown), brown rice, cheese, shellfish, asparagus, tuna, liver, cooked poultry liver.

### Li - LITHIUM

The concentration of lithium in the serum of healthy people reaches 10 µmol/l. Lithium salts are used in the treatment of affective disorders, especially in the prophylaxis of bi-phasic affective disease (and treatment of depression). During treatment the concentration of lithium in the blood should be maintained at therapeutic level 0,6 -1,5 mmol/l. Toxic concentration is over 2 mmol/l.

### B - BORON

Boron is not classified as essential element for humans and animals. However, its positive effects on body functions make it necessary to determine its content in food and fodder. The physiological role of boron has not been fully explained. There are reports on its influence on the metabolism of calcium, phosphorus and fluorine. Boron is thought to increase the level of steroid hormones in humans, and thus affects the assimilation of calcium and prevents osteoporosis. Boron exerts positive effects in rheumatic diseases. Boron is easily absorbed both from the alimentary tract and respiratory system, followed by immediate increase of its concentration in kidneys, and also brain, liver and fatty tissue. Boron is not accumulated in the organism and it is quickly eliminated. It is present for the longest time in nervous cells. In liver kidneys and brain similar quantities of boron were seen.

### V - VANADIUM

The concentration of vanadium in the serum is 0,5+/-0,2mmol/l. The role of vanadium in human metabolism has not yet been established. Deficit of this element has been described in animals. The biological role of vanadium is connected with the metabolism of lipids, sugars and sodium-potassium and calcium- magnesium metabolism. Vanadium plays a key role in the processes of transformation of phosphates and production of erythrocytes.

### S - SULPHUR

Sulphur is a component of cysteine, cistine, methionine, taurin, glutathion, liponic acid, biotins, vitamin B1 and coenzyme A. Sulphuric acid synthesized in the body is used by the liver in the processes of detoxication of many metabolites and drugs (xenobiotics). SH groups participate in oxidation-reduction processes. Sulphur is a component of sulphatides and mukopolisaccharides. Twenty-four elimination of sulphur with urine, in the form of inorganic sulphides, esters of sulphuric acid and neutral sulphur (e.g. cysteine, cistine, taurin) is a marker of protein metabolism and can be used to determine protein balance. Daily requirement of sulphur is closely connected with protein metabolism and vitamins: biotin (vit. H), thiamine (vit. B) and with liponic acid. Sulphur diminishes the toxicity of selen and is antagonistic in relation to heavy metals. Low proportion of sulphur to heavy metals (lead, mercury, cadmium, copper) signifies increased requirement of proteins containing sulphuric amino acids (cysteine, cistine, methionine). The content of sulphur in full blood is 38+/-10 mmol/l, in plasma 24+/-10 mmol/l and in erythrocytes 58+/-10 mmol/l. The content of sulphur

depends on the quantity of consumed protein. Increased concentration of sulphur can be seen in kidney insufficiency, intestinal obstruction, leukaemias.

### Al - ALUMINIUM

So far aluminium compounds have been regarded harmless for health. Alkaline compounds of aluminium have been used in the treatment of hyperacidity, particularly in ulcerous disease. Aluminium is absorbed from the alimentary tract and accumulated in tissues. Increased content of aluminium in tissues is harmful for health. Symptoms of excessive aluminium accumulation in the brain tissue can lead to disturbances of memory and body balance. Aluminium decreases the activity of the central nervous system, binds with DNA of nervous cells, and blocks the most important enzymes of the central nervous system: Na/K ATP-ase and hexokinase, decreases reverse absorption of basic neurotransmitters in the brain: dopamine, noradrenaline, serotonin. Recent studies have revealed a relationship between aluminium accumulation and Alzheimer and Parkinson disease. Sources of aluminium are vegetables from acidic soils (in Poland about 60% of soils is acidic). Additionally this process is intensified at the deficit of magnesium and potassium in the soil. Aluminium appears in alkylating drugs containing its compounds, in tap water (if it contains increased quantities of aluminium), in bread with preservatives. Aluminium vessels can be a source of this metal.

### Pb - LEAD

Lead poisoning manifests as: lack of appetite, colics and cramps, arterial hypertension, nervousness. Lead blocks the enzymes participating in the synthesis of haemoglobin, accelerates destruction of erythrocytes, and incorporation of calcium into bone structure, which leads to their fragility. It blocks the enzymes of the central nervous system participating in the synthesis of neurotransmitters (nervous transmitters), affects the absorption of iodine indispensable for the normal function of the thyroid. Lead can enter the human body through the respiratory system and alimentary tract, and the degree of its accumulation is dependent on many factors, including individual properties and composition of food. Average intake of lead by adults estimated for various countries is 320-440 mg/day.

### Cd - CADMIUM

Practically cadmium is not present in the human body at birth, but accumulates gradually due to its exceptionally long half-time in the organism, possibly between 16 and 33 years. Generally the content of cadmium in the human organism is about 30 mg, from which 10 mg resides in the kidneys, and 4 mg in the liver. Studies conducted on animals revealed the presence of antagonism between cadmium and zinc, and interactions between cadmium, iron and copper. Poisoning with cadmium causes: bones deformations, growth disorders, infertility, neoplasms, skin tumors. Cadmium blocks the enzymes of Krebs cycle (cycle responsible for the production of energy), directly damages nervous cells, inhibits the release of acetylcholine in the central nervous system and accelerates its decomposition (activates cholinesterase). Cadmium affects the transformation of calcium and phosphorus in the bones – causes rarefaction of the bones. It expels zinc from arterial walls, decreasing the elasticity of blood vessels, accelerates the development of atherosclerosis and hypertension. Cadmium is antagonistic to zinc, and impairs the synthesis of digestive enzymes and synthesis and release of insulin, requiring the presence of zinc. Cadmium impairs the activity of prostate gland, accumulates in the kidneys, affecting their hormonal and excretory function. At zinc deficit cadmium accumulates in the liver and kidneys. If this process is prolonged, it may lead to growth disorders and infertility, renal functions disorders and deformations of the skeleton. Absorbed cadmium (through the alimentary tract and partly via the respiratory system) creates complexes with proteins (e.g. low-molecular metalthionine), with which it is easily transported, and deposited mainly in the kidneys and liver. Cadmium is an inhibitor of phosphatase and

enzymes containing sulphhydryl groups, causes disturbances in the metabolism of proteins and vitamin B<sub>1</sub>. Interactions of cadmium with Zn, Cu and Se are based on mutual expelling from complexes with metalthionine. This is the reason why an increase of the content of these elements weakens toxic activity of cadmium. Antagonism cadmium/iron (Cd/Fe) is connected with the antagonism cadmium/calcium (Cd/Ca). It causes increased elimination of calcium. Resistance to toxic activity of cadmium is hereditary and it is connected with individual properties of metabolism.

### Hg - MERCURY

Poisoning with mercury manifests as: sight and consciousness disorders, states of confusion and disorientation, frequent lapses of memory, nervousness. About 10 % of mercury introduced into the organism with food, through the skin and lungs gets to the brain and accumulates there. It expels zinc from the brain tissue, and it penetrates to cellular nuclei and destroys the genetic material.

### Ba - BARIUM

Barium content in human blood is 0,5 -2,4 µg/l. Barium accumulates mainly in the bones (70 µg/g). This element can be extremely toxic if present in the form of compounds easily soluble in water: barium chloride BaCl<sub>2</sub>, barium nitrate Ba(NO<sub>3</sub>)<sub>2</sub> or barium carbonate BaCO<sub>3</sub>. Compounds not easily soluble in water, such as barium sulphate, are not harmful for humans and they are used in radiology as the so-called barium meal for stomach and intestines X-rays. Toxic dose for humans is 200 mg of barium, and daily intake with food about 600-750 µg. High concentration of barium in water is connected with hypertension and heart diseases. Barium poisoning in the first stage manifests as gastrointestinal disturbances, then muscular paresis, especially of the upper limbs and neck, also difficulties in breathing. Barium also inhibits the process of bone mineralisation, where it easily deposits. The mechanism of toxic activity of this element is expelling potassium and binding sulphate ions.

### Si - SILICON

In natural environment, it can be found mainly as silicon dioxide and silicates. Silica occurs very often in the environment, mainly in the form of sand. Apart from carbon, silicon is the basic element of life. In the form of orthosilicic acid, it is essential for the correct functioning of human body. Human body contains app. 6-7g of Si. It is excreted with urine, in combination with calcium and magnesium cations. Properties. Silicon is an element of many changes concerning many other elements. It supports transformations of calcium, magnesium, phosphorus, copper, zinc, and sulphur. It competes with aluminium, cadmium, lead, mercury, chromium, strontium, and potassium. Silicon assists in the excretion of toxic substances from cells. It is found mainly in the connective tissue (e.g. in sinews, cardiac valves, skin, mucuous membranes, and blood vessel walls) and in bones. Thanks to silicon, people have fit joints, strong bones, and the efficient cardiovascular system. Silicon enhances protective properties of the body against infections. It assists in regeneration of skin, improving its general appearance. It limits hair loss, accelerates hair growth, and strengthens nails. It inhibits premature ageing. As an aluminium antagonist, silicon may reduce risk of the Alzheimer disease. Deficiency. Silicon is the most important element in the synthesis of mucopolysaccharides in the creation of cartilaginous tissue; it is also essential for correct production of collagen. It has been demonstrated that deficiencies of silicon in children reach even 50% nowadays. This creates favourable conditions for the development of rickets, skin diseases, and disorders in the development of the lymphatic system.

**Dose.** Human body needs 20-40 mg of silicon daily. Higher doses are required by pregnant women, people after bone surgeries, and elderly people.

**Occurrence.** In food, silicon occurs in the form of orthosilicic acid. It can be found in oats, millet, and barley, mainly in bran and grain husks. Lots of silicon can be found in field horsetail. There is hardly any silicon in products manufactured based on refined flour. Semolina, which is intended mainly for children, does not contain this element either.

## DIARY

Dear Patient, for better control of the organism's condition during the recommended 30-day nutrition program, we suggest completing the attached on the next side table every day. In the table, you enter the weight and well-being. In the second part of the page there is your supplementation program (part one - nutritional program). You can print it and always have it with you.

We would like to remind you that only following the whole program, consisting of the recommended diet, supplementation and physical activity will enable you to attain the optimal health condition.

**Measure yourself, please and record the measurement results:**

Before the 30 – day program	After the 30 – day program
Weight= ..... kg	Weight= ..... kg
Measurement values= ..... cm	Measurement values= ..... cm
Chest circumference= ..... cm	Chest circumference= ..... cm
Waist circumference= ..... cm	Waist circumference= ..... cm

Hip circumference= ..... cm	Hip circumference= ..... cm
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NOTE

Check your weight in the morning, before eating, after urinating, with no clothes on.

Record the subjective assessment of your condition every evening: **1 - good, 0 - bad**. After completing the table, all the data in the SUBJECTIVE CONDITION column should be summed up.

**SUBJECTIVE CONDITION: 30 - 15 SCORE:**

Congratulations! Your health and psychosomatic condition is good. The second part of the supplementation program should stabilize good health tendencies. If your subjective condition remains good during the second part of the program, then you can undergo Nutritional Status Diagnostics (NSD) within the next two years (from the date of the first Elemental Hair Analysis).

**SUBJECTIVE CONDITION: 14 - 8 SCORE:**

Regular use of the first part of the supplementation program for a further month is recommended. More attention should be paid to appropriate diet and physical activity. If the psychosomatic condition is good during the second part of the program, Nutritional Status Diagnostics can be performed within the next 2 years (from the date of the first Elemental Hair Analysis).

**SUBJECTIVE CONDITION: 7 - 0 SCORE:**

Continuation of the first part of the supplementation program for further 3 months is necessary. More attention should be paid to the diet. Regular physical activity is necessary. A medical consultation and control examinations are recommended.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30		


Weight



Subjective Condition

Supplement	morning	afternoon	evening
Vit. C 240 mg from acerola and citrus every day, for one month	2 before meal	2 before meal	0
B-complex every day, for one month	1 after meal	1 after meal	0
Calcium 300 mg + Magnesium 125 mg every day, for one month	0	0	1 after meal
Magnesium 200 mg every day, for one month	1 after meal	1 after meal	0
Iron 6 mg every day, for one month	1 before meal	0	0
Selenium 50 mcg every day, for one month	0	1 after meal	0
Zinc 15 mg every day, for one month	0	0	1 after meal
Omega-3 (EPA 180 mg, DHA 120 mg) every day, for one month	0	2 30 minutes before meal	2 30 minutes before meal
QUERCETIN 500 mg every day, for one month	1 after meal	0	0
LYCOPENE 10mg every day, for one month	0	0	1 after meal
Black Cohosh 40 mg every day, for one month	1 after meal	1 after meal	0
Lecithine 1200 every day, for one month	0	0	1 after meal
Silymarol (extract from milk thistle) 70 mg every day, for one month	0	1 after meal	1 after meal
Vitamin D3 2000 IU every day, for one month	0	2 30 minutes before meal	0
Protein nutrient 5 g every day, for one month	1 With breakfast	0	0







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