
HEALTH ON THE TIPS OF YOUR FINGERS

Dr. Konstantin Korotkov





To my beloved wife Irochka,
to a friend and an assistant,
illuminating my life,
and filling it with joy.

This book is about modern ideas in health, the joy of life, the beauty of the World, and the beauty of a person. It addresses a wide range of issues that affect our lives in one way or another, from biology and medicine to physics and consciousness theory. What concerns us the most in this World? What should we fear and strive for? Naturally, the author does not ignore the burning theme of coronavirus. The second part of the book presents practical information that helps you understand how to treat your health, what to eat, and what water to drink. But the central message of this book: your life and health depend on you, it is on the tips of your fingers, and you can make your life full and rich, despite all the difficulties of the modern World.

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Introduction

What is our life? The play of passion.
Our mirth? The music of division:
Our mothers' wombs the tiring-houses be,
Where we are dressed for life's short comedy.
The earth the stage; Heaven the spectator is,
Who sits and views whosoe'er doth act amiss.
The graves which hide us from the scorching sun
Are like drawn curtains when the play is done.
Thus playing post we to our latest rest,
And then we die in earnest, not in jest.

Sir Walter Raleigh (1552 – 1618)

This book is about modern ideas in the field of health, joy of life and beauty of the World, and the beauty of a person. The topic is not new, a whole library of books devoted to this problem is published in recent years. So why do we need another one? Each author seeks to present original thoughts and ideas, and serious people have their own, not just copied from someone's publications. The title of this book is not accidental – it has a double meaning. First it represents an idea that your health, your life is in your own hands. You can make yourself healthy and maintain that condition, or you can ignore yourself and spend years buying medications. All ideas are best tested on yourself. As a child, I was a sick child which caused a lot of grief to my mother, and without any chance to make any sport, I grew up fat and clumsy. But when I was 16, after reading *"What to be Done?"* by Russian philosopher and revolutionary Nicolay Chernyshevsky (1828-1889), I decided to remake my body and began to exercise with dumbbells, carefully repeating all the exercises from a thin brochure. Three months of daily exercise did their job: I started to look like a man, at least much better than before. And from that time on sport became an organic part of my life, and when I gave up training for a few years in the stormy nineties, I started getting sick.

It was the same with the food. When I was 20 years old, I found myself sometimes getting sick of milk and my side starts to grow. Since then, I don't drink milk or eat flour, although I like kefir and natural yogurt, but it's bacterial products. Regular exercise and proper nutrition allow me to maintain my health, although occasional problems such as varicose veins, hemorrhoids and diverticula occur, and then I have to consult specialists. At the same time, I have kept the habit of annual blood tests and examinations since sports time. So, a lot of what you will read about in this book (if you do not abandon it after such an introduction) is the fruit of many years of research and personal experience. I constantly follow the world trends in health maintenance, nutrition and gerontology, and in this invaluable help is provided by my wife Irina Dmitrieva, a wonderful doctor and a person of rare kindness.

Secondly – for many years I have been developing the direction of research of human energy and environment with the help of the of Gas-discharge Visualization method (GDV). I apologize for the scientific term – I will try not to use it anymore, though much in this book is based on modern scientific information. So, when we measure human energy, we do it from the tips of our fingers, process the signal using a set of programs located on the server, and it allows us to obtain information about health, psychological state, and identify weak areas of the body. That is, it is part of preventive medicine, health medicine, although the last GDV device, Bio-Well, is not positioned as a medical device (www.bio-well.com). This device is used to assess the energy of health.

The GDV devices are widely used in medicine, sports, more than 3000 devices work in many countries of the world, hundreds of scientific articles and tens of books are published. (Many of them are available at www.iumab.club). Many years ago, I wrote a book called *"Mysteries of the Living Glow,"* but it has long since disappeared, preserved only on the bookshelves of true fans of the method. Therefore, it makes sense to remember the pages of history again, especially since in the future I will often refer to the results of the GDV method.

Enigmas of the Life Glow

What am I, Life? A thing of watery halt
Held in cohesion by unresting cells,
Which work they know not why, which never halt,
Myself unwitting where their Master dwells.

John Masefield (1878-1967)

The history of GDV soon counts 250 years: in 1777, the German philosopher and naturalist Georg Lichtenberg (1742-1799) fixed the glow, later named after him, on the plates covered with sulfur. Georg Christoph Lichtenberg was a brilliant representative of his time. He was born into a family of a village pastor. As a child, he had a hump that stopped his growth and made him forever painful. He was a professor of physics and astronomy in Göttingen, and a foreign honorary member of the St. Petersburg Academy of Sciences. As a scientist, Lichtenberg was famous for his lectures on experimental physics, which he explained with the help of his own advanced instruments. It was he who was responsible for introducing the designations of different types of electricity with "+" and "-" signs (positive and negative voltage). This is the historical significance of Lichtenberg as a physicist. Before Lichtenberg, electricity was known by other designations – "glass,"

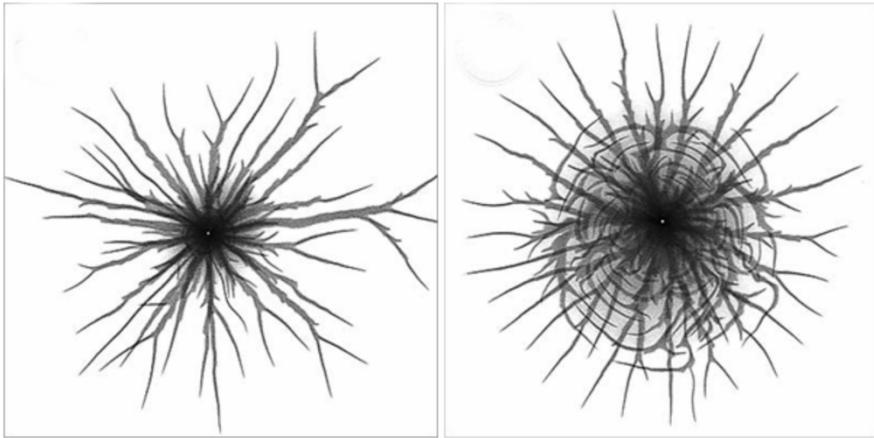


"gutta-perch," "amber," and "wool," etc... As a critic and publicist, he was close to the top German philosophers of his times in the breadth of philosophical views and the independence and subtlety of critical judgments. His polemic articles and notes – in which he is ironic to sentimental fantasy and all sorts of mysticism and quackery of the era of "storm and onslaught," as well as a number of small articles, witty and joking – describe Lichtenberg as a first-class humorist and satirist, the German Swift. In Germany, he has even received two monuments. Here are some of his aphorisms.

Georg Lichtenberg statue in Göttingen, Germany.

- Some people have the ability to seem stupid before they discover the mind. In girls, this gift is particularly common.
- The most dangerous lie is a slightly twisted truth.
- The healthiest and most beautiful people are those who are not annoyed by anything.
- Where there used to be boundaries in science, now it's the center.
- Man loves society, if it were even a society of a lonely burning candle.
- A sharp mind is a magnifying glass; wit is diminutive.
- The most interesting surface on earth for us is the human face.

The Lichtenberg papers are still quoted in the books on gaseous discharge, as they have been so neatly written. And further research has shown that electric glow is not so rare in nature...



Lichtenberg figures.

In the nineteenth century, the secrets of electricity were revealed to people. One of the great inventors, thanks to whom we have our bulbs and TV sets today, was Nikola Tesla. He invented the alternator. However, if it wasn't him, someone else would have done it. Discoveries come into being when public demand matures. That's when different people start coming up with the same ideas at the same time and independently. This is due to the fact that ideas have their own logic of development, and inventors only need to intuitively feel this logic.

What do the experiments of Lichtenberg and Tesla have in common with the glow on the icebreakers? In all these cases, a gas discharge occurs near the sharp conducting object. When the subject is placed in an electric field, near its sharp end, an electric field strongly increases its power; the electrons that are always present in the air or emitted by the subject begin to accelerate in this field and, at a certain speed, ionize air molecules. Those, in turn, emit photons, mainly in the blue and ultraviolet regions. That's where the glow comes in. And from the point of view of physics, this subject may be the metal rod, an ice pick, a finger, or the man himself. It all depends on the scale of the field.



Nicola Tesla.

And so, when images began to register and study, not just to admire them, it was found that the picture of the fingers' glow depends on health and mental state. When a person becomes nervous or, conversely, falls into a meditative trance, the photograph reveals how the glow acquires a different form.

A great contribution to the study of these photographs in the late 19th century was made by the talented Belarusian scientist Jakob Narkevich-Iodko (1848-1905). He was a wealthy landowner and spent most of his time in his estate above Neman. There he was actively engaged in experiments with electricity, applying it in agriculture and medicine. Reading the description of Narkevich-Iodko's experiments to stimulate plant growth – through electric current, electrotherapy, magnetism – you see direct parallels with what is happening in modern medicine. But the scientific achievements of our time are not just "new – well forgotten old. It's a new spiral of knowledge.



Jacob Narkevich-Iodko developed his own original method for obtaining electro-photographs. He received more than 1500 photos of fingers of various people, leaves, grains, and in the 1890s, these studies attracted the attention of the scientific community. In 1892, Narkevich-Iodko made a presentation to the professors at the St. Petersburg Institute of Experimental Medicine, after which he was appointed "Associate Member of this Institute" by the highest order of Prince Oldenburg's trustee.

The results of Narkevich-Iodko's work made such an impression on the scientific community that in 1893 at St. Petersburg University, a conference on electrography and electrophysiology was organized. In the same year Narkevich-Iodko traveled with lectures on scientific centers of Europe: Berlin, Vienna, Paris, Prague, Florence. The importance and perspective of his research on electrography was recognized everywhere, Narkevich-Iodko received medals of several exhibitions, and at the Congress in France in 1900 he was awarded the title of Professor of Electrography and Magnetism.

His scientific activities were combined with those of the public sector in Narkevich-Iodko. In his estate he set up a sanatorium, where he received people from various social circles: from nobles to ordinary peasants. With the help of the latest methods for those times, he cured a wide range of diseases. After his death, the works of Narkevich-Iodko were quickly forgotten by his contemporaries. He made an interesting discovery, but failed to overcome the barrier that always stands in the way of wide implementation. How many interesting methods, inventions, developments we can find in the history of science that disappeared along with their authors!?

For public recognition, it is necessary to introduce the new idea deep into the collective consciousness by creating a scientific movement with devoted pupils, followers, and associates. It is essential to have publications, articles, books made by different authors and, preferably, in different countries. Different researchers should independently check the new idea and make sure it is effective. For this, they should still want to do it! And "overcoming a potential barrier" usually takes more than one decade. If the author has enough perseverance, energy and optimism to achieve it, the idea begins to live independently of the author, and sometimes he gets the dividends. If not, then not. And, of course, much depends on the benevolence of "Madam Good Luck."

Almost at the same time, on the opposite side of the globe, in Brazil, similar experiments were conducted by the Catholic monk Padre Roberto Landell de Moura. He was a funny little man with a long nose and his disappointment in the hustle and bustle of worldly life made him decide to devote himself to the service of the Lord. Poor monastic life left a lot of free time after reciting prayers and performing rituals. Some of the monks were engaged in gardening and sometimes, like Georg Mandel, discovered new laws of nature; some explored ancient civilizations in South America found at every turn; and Padre de Moura took up inventing. He invented the method of photo-registration of electric lights and began to lecture and write petitions to his superiors, trying to draw attention to his brainchild. But Brazil isn't the United States.



For many centuries it was an agricultural country without its own industry. But in the middle of the twentieth century, they were able to transform their country and modern Brazil has its own industry, highly developed science and technology. Apparently, much has changed in 100 years! But at that time, the invention of Padre de Moura caused a lot of admiring shouts, congratulations, banquets, but the accolades were never widely spread. After some time Padre Landell de Moura invented radio (almost simultaneously with Popov and Marconi). Yet again he failed to attract wide attention, even from the military. Generals admired, immediately understood the importance and potential of wireless communication, promised to send a colonel tomorrow and allocate funds... but an hour later, would be leaving for an evening banquet, having forgotten about everything.

As with Padre de Moura in Brazil, the same thing happened with Narkevich-Yodko in Russia and with many other researchers around the world. Their achievements aroused interest and recognition, but they lacked the organizational skills and business acumen to overcome the infancy of their inventions. The first step was taken but it was not enough. It took another half-century for the next steps to follow. At the beginning of the twentieth century, no one remembered the mysterious glows. Before that: wars, revolutions, new era in physics with quantum mechanics, the discovery of antibiotics and X-rays – scientists were convinced that there was very little left to complete their whole understanding of Nature.

After much social turmoil, only by the 30s of the twentieth century, life had become stable, more or less. And here again, mysterious lights appeared. Their new discovery happened as if by accident, but in each accident lies a hidden pattern.

Effect Kirlian

Every human thought, every mood and feeling is immediately reflected in the radiation. These radiations are expressed in lights, colors and glows clearly visible to the subtle vision... Human auras shine and play with shades of all kinds of colors. Pure, beautiful thoughts and feelings evoke appropriate colors; dark, low lust, emotions and passions generate dark, smoky, muddy, ugly forms of low lights... The aura of a person present either health, joy and light or disease, grief, suffering and darkness.

Agni Yogi, Leave Ethics. 1969

For many years we have been developing scientific lines which are somehow related to the Kirlian effect. I want to say a few words about its creators. In 1977, we received an invitation to participate in a conference dedicated to the 80th anniversary of Semyon Davidovich Kirlian. The conference was held in Krasnodar, the birthplace of the inventor. By that time, he was already alone – his wife Valentina died in 1971. He was a small, seemingly modest old man, whose whole behavior showed that the walls of the home laboratory for him is more comfortable than an honorary chair at a scientific meeting. But at the same time, it was felt that he knew his place and took for granted such a representative meeting to mark his anniversary.

Semyon Kirlian spent most of his life with his wife Valentina in a simple two-room apartment on the corner of Gorky and Kirov streets in Krasnodar. The wooden two-story house, in which they began their family life, was swept away by progress – a construction program that turned a small provincial town on the bank of the Kuban river into an industrial center. Today, Gorky Street is built up with brick five storey buildings. On one of them there is now a memorial plaque in memory of the Kirlians. He was a mechanic; she was a school teacher. He had the practical brain of a born inventor, which later brought him the honorary title "Honored Inventor of the USSR" and world fame. She was an intellectual, a university graduate who went to his apprenticeship.



S.D. Kirlian at the conference and in his lab with his wife.

The main asset of the Kirlian spouses was their laboratory. Their tiny bedroom was filled with equipment. Every night to go to bed, they had to remove photographic plates, chemical reagents, and induction coils from their bed. The black monster in the corner was a Tesla high-voltage generator assembled with his own hands. By all accounts, the original Kirlian equipment was primitively simple. He built it from parts brought home from hospitals. Fixed assets were spent on technical literature, which he bought and brought home. Valentina, in love with photography, was engaged in display and printing. This is how the Kirlian spouses describe the discovery of the most interesting feature of glow – the dependence on the psychophysiological state (Kirlian S.D., Kirlian V.H. In a world of miraculous discharges. 1964, M., Knowledge.):

“The demonstration starts. Putting the hand under the transparent electrode and looking into the ocular, the author turns on the generator with his foot. From the very first second the transparent electrode starts playing up, the background is not clear, and the channels have no brightness. The author asks the guest to excuse him. The electrode is quickly disassembled, everything is cleaned again, tooled, the generator is turned on – but the same unfocused picture in the ocular.

Recalling that the working time is already over the author finishes the demonstration, looking into the ocular himself beforehand. He is more surprised than the guest: the visibility is excellent. This unexpected case has become a whole revelation for us. Isn't it strange: five transparent electrodes suddenly and at the same time stopped working well with one particular object, or rather, subject, and suddenly unexpectedly worked properly with another one? It was impossible to stand such an intriguing situation indifferently. The diseased author got up from his bed and we began checking the work of five devices together on one another. There were no doubts: electrical pictures of the diseased were chaotic, pictures of the healthy represented clear play of magical discharge flow. This is where every cloud truly has a silver lining! This is what we found through quite an unhappy fact – vasospasm. The vasospasm brought about disorder in the observed picture of electrical state.”

Their work was virtually unknown in the West until 1970, when two Americans, Lynn Schroeder and Sheila Ostrander published their book, *“Psychic Discoveries Behind the Iron Curtain.”* One of the most extensive investigations was carried out at the UCLA Center for the Health Sciences, where Moss and Johnson took more than 10,000 ‘modified’ Kirlian photographs, including the fingertips of over 500 people and over 1,000 leaves. They reported that human energy fields were affected by numerous factors, such as ingesting alcohol, performing yogic exercises and during hypnosis. They confirmed that the changes were most dramatic when experiencing different emotions, and that they frequently differed when the researcher and subject were of different genders, as opposed to same sex experiments. A strict authority figure, such as a senior skilled researcher, tended to elicit a much smaller corona compared to a more informal and friendlier assistant of lower status.

In most books on the Kirlian effect, it is associated with the abnormal phenomena of the human psyche, and, from the beginning, there was mysticism around this topic. One could find explanations for the effect, on the one hand, very far from scientific paradigms, such as the manifestation of cosmic energy on human fingers, or the emanation of Deity energy. Representing the other pole, were the articles that showed the named effect was no more than a change in sweating. As is often the case, the truth is somewhere in the middle.

So, what glow does the Kirlian effect register? It's light emitted by different objects, including our skin. Do we glow? Turns out we do!

Back on the 30th of the last century, outstanding Russian scientist, Alexander Gurvich showed a role of quanta of light in processes of vital activity. At that time, his discoveries were not accepted, and his ideas were discredited in many respects. After many years, Gurvich's discoveries have been confirmed with the help of highly sensitive detectors of photons. The German scientist, Fritz Popp, created the bio photonics field. He showed how light radiation is an integral part of all quantum processes. If a leaf of a plant or a human hand is placed in an absolutely dark chamber, it is possible to fix a weak glow. All depends on the state of the object under study. The fresh leaf glows brightly, when the leaf dries out, the glow fades. That's how a person fades in sadness, and it can now be fixed with a scientific device. The method of GDV does not require a dark room or any special conditions. It can be done in an ordinary room, even in the street, and during expeditions to the most exotic places.



Recently we have developed a new device that runs on batteries and transmits all the information to the cell phone via Bluetooth. It can be placed in a lady's handbag and used anywhere. Even in the absence of the Internet, data is taken and processed whenever connection to the Internet is established. This device is available in two versions: for mass use and for professionals. Naturally, they differ in functionality and, more importantly, in price. Now you can monitor your condition every day, determine the effects of stress, various products, exercise, meditation. For many years now I have been using this in my life and it helps me to stay cheerful and healthy. All information can be found at **www.bio-well.com**.

Part 1. WHAT IS OUR LIFE BUT NOT A GAME...?

Health in your hands

For years I've been thinking about the life.

All is clear to me under the moon.

But I know I know nothing!

Here's the last truth that is clear to me.

Omar Khayyam (1048-1131)

I have been studying health for many years, both my own and many people in the world. During more than 25 years of doing GDV Bio-Well method, I have analyzed the bio-grams of thousands of people, a huge amount of material was collected by doctors and researchers in different countries. Nowadays, several thousand people all over the world are using Bio-Well devices and their number is constantly growing. Over the years, the idea of what health is and what you have to do to spoil it, and vice versa, has developed. That's what I want to talk about... illustrating the story with interesting bio-grams.

We develop all these ideas together with my life partner Irina Dmitrieva. She is an excellent doctor with many years of experience, and maintaining the health and beauty of patients is her care is her job. Together we travel around the world, discuss new ideas together, and her deepest knowledge helps to take a new look at many things. So, she is invisibly present behind every line of this book.

We have to travel a lot, speak at the conferences, communicate with people. And every time – during consultations and just conversations – we wonder how little people know about their bodies and how little they care about their health, and even with attention, how one-sidedly most people approach the issue of their health.

According to the WHO definition, "health is not the absence of disease per se or physical deficiencies, but a state of complete physical, mental and social well-being." It is a complex value, consisting of various factors. The study has engaged many reputable scientists in many universities. And slowly, we are coming to an understanding of what should be done to keep yourself healthy for many years to come.

Let's talk about it right away – we value and respect modern medicine and the people who work in it. Medicine has achieved colossal success in the last century. The main indicator is life expectancy and child mortality in developed countries. You have all heard these figures, so let me offer a few of my own impressions on this issue.

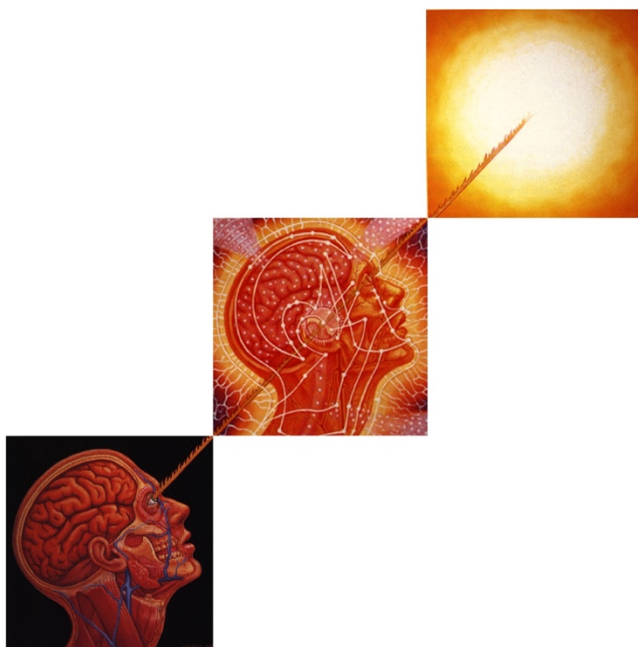
Once in Florida, I witnessed the following picture. A bunch of elderly people were sitting in a bar eating hamburgers with fries, and drinking beer. One of them, with thin tubes in his nose connected to some device hanging from his belt, was telling a loud story that made his elderly buddies roll around laughing. Then he got up, said goodbye, slowly left the bar, sat down in a red sports car and hit the gas. I was curious:

"Excuse me, gentlemen, how old is your friend?" I queried.

"Eighty-eight," was their answer.

In Kyoto, we were struck by the sight of old ladies in kimono walking leisurely through the streets, relying on carved wooden sticks. Their appearance contrasted amazingly with flocks of cheerfully chirping young girls in colorful kimono.

So, the progress of medicine in the world is huge, but the dead ends of modern health care are global. Medicine, and above all, pharmacology, has become a huge business, rivaling the oil industry. People spend half their lives earning money and then spend it all on drugs.



On the one hand, we see tremendous progress in some areas, and on the other – the dragging of patients into the swamp of pharmacological mire, with the elimination of some symptoms, and the inevitable creation of "side effects" requiring new expensive drugs. So isn't it better to be healthy and spend money on travel, books and music than on medication! We decided to describe briefly what we know about this issue, both for our patients and for everyone who is interested. Our approach is based on the model of the triple nature of a person:

The triple nature of a person: Body => Mind => Soul

The first two components are in one way or another present in every living creature, be it a flower or a dog. Cleve Baxter and his followers convincingly demonstrated that plants react to human behavior and emotions and can even distinguish caring owners from uncaring people who extinguish their cigarette butts into flowerpots. Any cat or dog owner will tell a lot of stories about their pet's intelligent behavior. And a certain level, intelligence can even be found in a snake. It may be no less for a regular beer bar haunter, but the soul is only human.

The soul is what sets us apart from the animal kingdom, which spiritualizes life and allowed humans create a Civilization. This was beautifully written about by an outstanding Russian philosopher, Father Alexander Men:

"It seems unnecessary to prove that man is deeply different from the nature around him. One could even say that the distance separating the root from the orangutan is less than the distance separating the orangutan from Goethe. And no one would argue that this colossal difference is not in the physical structure and functions of the body; in this respect, man undoubtedly belongs to the natural world and is firmly connected with it...

"And yet man is a mysterious Stranger among animals. In all things similar to them, associated with their blood kinship, he became different; for even such an amazing apparatus as his brain is not as sharply different from the brain of mammals, as the spiritual nature of man from the mental life of animals...

"Each stage of evolution is a kind of stage to overcome chaos and decay, and at the top of this staircase, there is a hearth of new vital energy unknown on the Earth. If in the biosphere the battlefield is the material layer of the universe, then on the level of noosphere in the battle with disintegration enter beings armed with spiritual charge. Not only the gene pool and physiology, but also the trans-physical dimension of existence put an obstacle to dying and chaos. It can be found in humans, who concentrate in themselves thought, consciousness, creativity and freedom. The mind realizes its life principle differently from the organism, spiritual activity saves its fruits from the claws of time in a more perfect way than the genetic information. It is this unique phenomenon that brings man beyond the limits of biological development."

It is clear that man is not the result of a random mutation, when the weak newborn hairless monkey suddenly managed to fertilize all their congeners and spawn a new generation of creatures. It's complete nonsense, if you think logically. Darwin's theory, for all its beauty, is fundamentally wrong. Darwinism has played a huge role in freeing science from theological chains, but now it's time to get beyond its limitations.

Man is not a naked monkey, nor a product of gradual evolution. Man is a cosmic creature in a perishable body. We received the body from the animal world, but we received the Soul from the Supreme Mind, and we will talk about this subject later. At the moment, we will not go into the depths of metaphysical discussions – we can find beautiful books on this subject by many philosophers. Let us deal with the physical body, and for this, we will turn to simple analogies. We will compare a person with a car and its driver.

Consider there is the material carrier – the car itself, which needs to be fed with gasoline and oil, and cared for; there is mind – human mind; and there is the directing force presented in the form of a society dictating the Rules (in this case – traffic), with different restrictions preventing person to jump in his "Porsche" and drive along the streets of the native city with 180 km/hour speed. Let's start in order.

Every car owner has to spend more or less time on servicing their car. The owner must pass regular inspections, change worn-out pads, levers and wheels, change oil, and do other boring but inevitable things for the life of the car. Without maintenance, your iron friend at some point will stop, and you'll be forced to take special measures for your vehicle's rehabilitation and treatment.

For some reason, we do not apply the same principles to our own life and health. Recently, after a long break, I met an acquaintance professor – an intelligent person who is also engaged in the field of medical instrumentation. He looked bad, limped a lot.

"How's it going?" I asked, "What happened to your leg?"

"It's bad," he replies, "Imagine – my leg got sick in autumn. I went to the doctor. They took X-rays, tests, and they said I have gangrene and am danger of losing my leg. Well, the reason is I have had serious diabetes, apparently, for years now."

"So you didn't know about this? What, you've never done a blood test?"

"No, I was always healthy, I wasn't sick, I never thought about it."

That's it. That's even though there are regular preventive checkups at universities where the main tests are done. This professor didn't have time. Why would he do that? "I'm healthy enough as it is." Yet, he used to drive his car for periodic preventive maintenance regularly.

Except for the illnesses revealed through bad feelings, fever, cough and other obvious symptoms, there is a bouquet of the insidious illnesses presenting themselves at very late stages of their development. These include, above all, diabetes, hypertension and, of course, oncology. But in addition to such terrible diseases, the bodies of most people experience constant fluctuations around the center of equilibrium. In science, it's called homeostasis. Homeostasis is the optimal balance between the body and the environment, when the body adjusts its functioning to the fluctuations of the environment.

Let's imagine a pretty girl lying on the beach next to a big rock. The bright southern sun shines, and after a couple of hours the stone heats up, so it hurts to touch it. However, the girl's body temperature remains constant, although she gets the same amount of heat energy as the stone. This is homeostasis. The body redistributes heat energy, increases sweating, and in case of critical overheating turns off the consciousness – fainting – to limit the activity (or attract the attention of others).

We have an amazing mechanism for adapting to the environment. People live in Siberia's plains and Australia's deserts and can withstand both the bitter cold and the terrible heat. The body reacts flexibly to all adversity. But of course, up to certain limits, and for a certain amount of time. At some point, even the strongest organism can break down.

Besides, there are a lot of new harmful factors in our habitat, which we'll talk about later. Negative changes accumulate, the system rehearses them and keeps us healthy. When suddenly something unexpected happens – either an outbreak in the sun, or an accident at a chemical plant in Mexico with acid precipitation, or just more stress at work – the weak spot asserts itself. There is a break down in the genetically weak physiological system. The speed of the process and the placement of components depends on many factors, including luck. What should we do? The answer is simple – treat yourself as your favorite car.

Modern medicine has developed a lot of effective methods to treat various diseases. These methods give excellent results, but mostly in the early stages of the disease. The insidiousness of many terrible diseases is that for a long time, they develop almost without any symptoms. A person sometimes feels weak. There are incomprehensible temperature fluctuations, unpleasant feelings, but all this is not repeated. It's systematic, and in the hustle and bustle of life, a person does not pay attention to it. And suddenly, at some point, quite unexpectedly – heart attack, stroke, or oncology of 3-4 stages. Was it possible to avoid? There is no doubt about it! It would have been enough to make certain tests on a regular basis and maintain health condition by simple natural means, which we will talk about later.

But first let's agree on what we mean by health. For this we will use the definition of health from the book *"The Logic of Health"* by Moscow doctor Anatoly Volkov.

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1. Person is a process, not a portrait. Any analysis of his condition is only a statement of fact on the already gone process of time, the real idea of the organism gives only knowledge of the laws of the system in which it is embedded and part of which it is. The human body is a self-regulating system, which can only be adjusted slightly, but by no means not regulated from the outside.
 2. Health – is the optimal state of the body, which implies adequate responses to any external stimuli. The body that reacts adequately to external stimuli does not need medications. Therefore, the sphere of application of medicines should be only the sphere of emergency medicine (medicine of temporary or irrevocable loss of functions).
 3. The two main life-supporting functions of the body are absorption of food and breathing. Quality of both cardinally influences its adaptive functions. Correction of both gives a serious therapeutic effect.
 4. Everything around us – living and inanimate – exists in an inseparable unity. A person is only a part of this system and obeys the general laws of Nature. (The coronavirus situation has clearly demonstrated how vulnerable people and our entire social systems are, and how little modern medicine can do, although it tries to...).

Can health be measured?

A baby in the cradle, a dead man in the grave:
That's all that's known about our fate.
Drink the bowl to the bottom and don't ask too much:
The Master will never reveal the secret to the slave.
Omar Khayyam (1048-1131)

Seems like a stupid question. You are tested for blood, urine, cardiogram, and the doctor will tell you if you're healthy or not. Indeed, a good doctor can determine a lot from the tests, but first, you need to get an experienced doctor – and they are all missing – and second, most people do not take tests, even once a year. When was the last time you did that? If you are practically healthy, and these are our main readers, it is unlikely that you will willingly sit in line to get tested.

In addition, recently, there has been a whole class of patients, whose blood and urine are both normal, and a dozen other studies do not show anything, but the person feels bad. He wakes up in the morning with a feeling of fatigue, drinks two cups of strong coffee, is gradually drawn into daily activity, but the feeling of fatigue does not diminish, and in the evening he cannot fall asleep. A trip to an expensive resort helps, but not for long. It's chronic fatigue syndrome, which in many countries already belongs to the register of serious chronic diseases.

Uninformed doctors may be dismissive, saying, "It's okay... it's just nerves, drink Valeriana and it'll pass." Even the name "psychosomatic diseases" was coined. In the worst cases, prescribed are strong tranquilizers and sleeping pills, which have a lot of side effects. So what is to be done in this case? Where should a peasant go? Is there a method to identify the real cause of ill health?

Yes, there is such a method – the already mentioned GDV method – the analysis of psychophysiological conditions using the fingertips. In this case, it is not chiromancy (which also has the right to exist), but a serious scientific method based on the principles of quantum biophysics. Whomever is interested can find a large number of publications on the site www.iumab.club.

A specialist, in only a minute, captures the glow of your fingers in the electromagnetic field. Immediately after, the results of the analysis are presented in the software package. In the last GDV device Bio-Well (www.bio-well.com) the result happens almost instantly. Look at the pictures below: even without any training, it is easy to distinguish a healthy, energetic person from a cheerful and painful person under severe stress. After the many years of practice, the classification of **Energy Fields** has been created.

The first level represents an apparently healthy person, i.e. a person who wakes up cheerfully in the morning, perceives life with pleasure, and enjoys every day (naturally, not always and not everything, if he or she is reasonable enough). Based on the information obtained by measuring the glow of fingers in the electromagnetic field, the Bio-Well program creates a picture of the human energy field, which reflects the physical and emotional status of the person (Fig. 1 of the color insert). This picture is based on the concept of acupuncture points and has been verified for over 20 years of clinical research. We denote this level by the Latin letter **H**, from the word Health.

As we can see, a healthy person's field is flat, dense, without gaps and without significant outbreaks. It's like a shell that surrounds our physical body. And in Figure 1, it's not just a picture, but a reflection of physical reality. We emit electromagnetic waves, and this is our brain, our heart, our muscles, in reality it's every cell of our body. Everybody is used to measuring cardiogram, encephalogram, myogram, but, as it follows from the principles of physics, if there are electric potentials on the surface of the body, they generate a field in space.

It is the law of physics. **We emit photons, quanta of light. We are creatures of Light!** It's a proven scientific fact. But photons are both particles and waves, so we emit waves over a wide range of spectrum. Besides, we emit molecules, we smell, and every person has a different smell. And that's part of the biological field, too. So, there's nothing mystical about the Bio-field, and it's now officially recognized in the scientific world. (Anyway, articles with this term are accepted in American scientific journals. In Russia in the Academy of Sciences we have a Pseudoscience Commission fighting this, which is typical in Russia.

We've been fighting with genetics and cybernetics, now we've taken on other new directions). Besides the electromagnetic component, there is a quantum field within the bio-field, which allows us to talk about the Field of Consciousness, and the Field of Collective Consciousness. But this is another topic, and its discussion will take us far. Materials on this topic can be found in my book *"The Energy of Consciousness"* on Amazon.com.

The bio-field is our first level of protection and our level of interaction with the outside world. We feel each other with our bio-field. English biologist Rupert Sheldrake conducted a series of experiments to test the "back look." We all know how it feels when you feel someone looking at you, and when you turn around, you really see that look. Sheldrake proved that many people can really do that, and they can feel other people from a distance. Of course, that happens if you have any sense of intuition. If you don't, you don't pay attention.

Little children have a stronger sense of their bio-fields – they can feel who is a good person and who is better not to deal with. With age we stop trusting our intuition. In women this property is developed much stronger, and many women use their intuition, sometimes even unknowingly. In the Bio-Well programs, we build a picture of the bio-field based on measurements from the fingertips, and in this book, we will be actively using such pictures. In addition to the bio-field, we measure stress and energy levels.

The stress level is measured in relative units from 0 to 10, where 10 units correspond to the maximum stress level.

0 - 2 – a completely relaxed person, which may be due to several reasons: deep meditation, full inner peace; influence of psychedelics; deep sleep in a calm phase; chronic depression, etc. This may be both a natural state for certain rare people and an indicator of stagnation, pathology.

2 - 3 – a normal calm state.

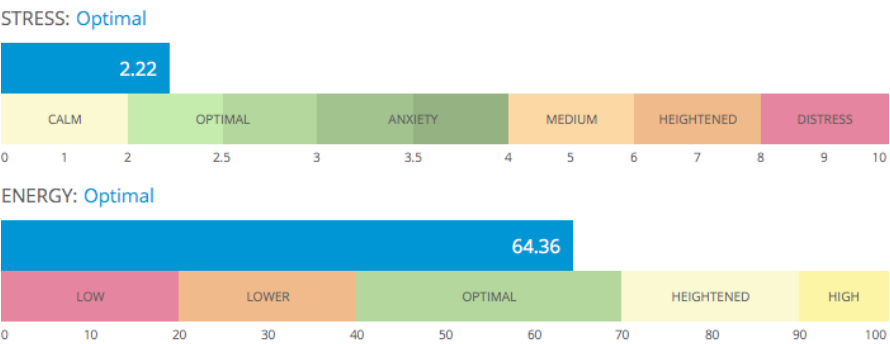
3 - 4 – a state of anxiety. In the chronic phase, it can be the cause of many functional disorders.

4 - 6 – excited state, typical for active work, emotional excitement, stressful activity. A state typical for managers of good level, military, responsible employees.

6 - 8 – at least four possible situations:

Reaction to a previous stressful situation (unpleasant conversation, sickness, driving in stressful conditions, etc.). In this case, the patient should be reassured and the measurement repeated in half an hour. Excessive nervousness, accumulated stress over a long time, emotional tension, vegetative disorders. People with a special type of mentality, able to quickly switch from a state of extreme excitement, nervousness, to a calm state. Children in a state of nervous excitement.

8-10 – very high stress level, peak of an emotional excitement.



Measurement of Stress and Energy levels in the Bio-Well program.

Energy Fields – The Good, The Bad and The Ugly

Hipóthesis non fingo.
I'm not inventing hypotheses.
Isaac Newton

The Energy Field of the individual in Figure 1 is uniform, has no gaps, holes or strong outbursts, and is of optimal size. This would likely represent the type of field seen in someone who not only has no physical problems, but is also not stressed and in a very good mood.

With appropriate dietary and other lifestyle changes and medication, when needed, they lead an active life, have few complaints, and would be considered healthy. However, many healthy people may not be aware of asymptomatic weak or abnormal Energy Field findings. In some instances, these could be precursors of dangerous conditions such as a heart attack or stroke that might be prevented if appropriate measures were taken.

With Bio-Well, we are measuring the energy of photons emitted by the fingers. This is a characteristic of the physiological energy of the body, and from empirical experience with thousands of patients in different parts of the world, we have been able to obtain certain correlations:

0 - 20 J ($\times 10^{-2}$) – low energy (may be due to both energy deficiency and meditation conditions);

20 - 40 J ($\times 10^{-2}$) – low energy;

40 - 70 J ($\times 10^{-2}$) – optimal energy level;

70 - 90 J ($\times 10^{-2}$) – increased energy – typical for active people;

90 - 100 J ($\times 10^{-2}$) – high energy – typical for athletes, managers, but may be a sign of inflammation.

A person in Figure 1 has an optimal energy level of 62 J ($\times 10^{-2}$), the stress level is 2.5, which is optimal.

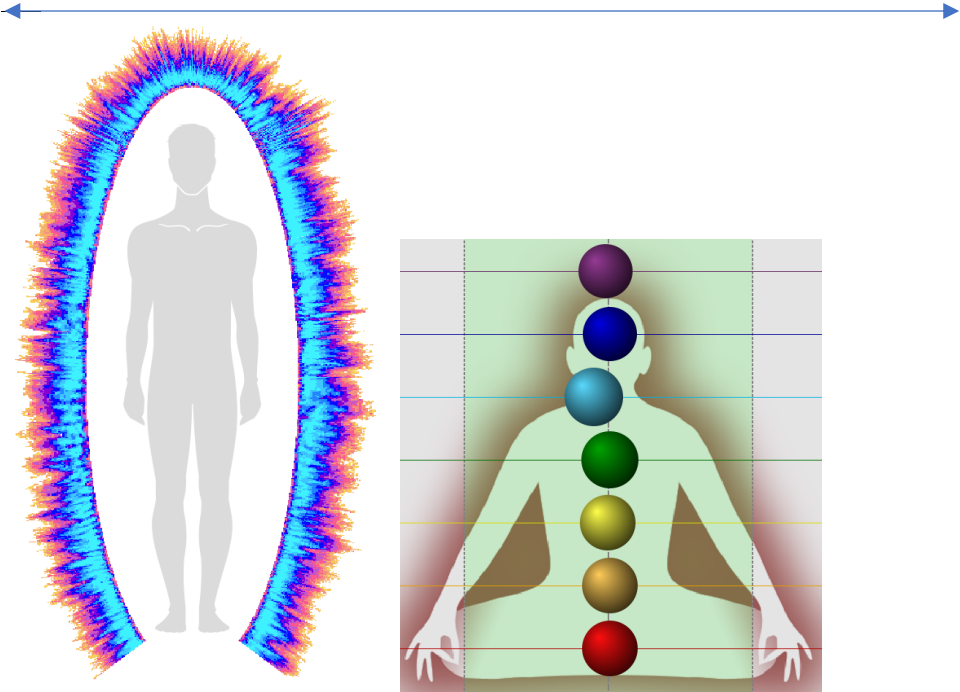


Fig.1 Energy Field and Chakras.

Chakra Measurement

According to Eastern metaphysical theories and principles of Ayurvedic medicine, there are seven “Chakras” or integrated energy centers that affect physical, mental, emotional, and spiritual well-being. These energy “disks” are positioned or embedded into the spinal column at various locations, starting at the coccyx and rising to the crown of the head. Each Chakra is thought to resonate at different frequency levels. Bio-Well software now makes it possible to quantitatively estimate the energy of Chakras, display their level of activation, and indicate whether this level of activation is above or below the average values found in a large number of healthy controls. The distribution of the Chakras is most important. Ideally, they should be aligned along Sushumna – the central line of the spinal cord, as shown in Figure 1. Such optimal states are uncommon and it is more likely to find misaligned chakras that have shifted from their central position and are smaller. This is particularly true when individuals are under stress or emotionally disturbed.

In Ayurvedic medicine, many properties are attributed to the Chakras – color, sound, the nature of rotation, and this is the basis for many concepts of treatment. In Western medicine, the Chakras correspond to vegetative nerve centers, also located in the spine. In the Bio-Well programs, the position of the Chakras relative to the central line is decisive, and the deviation in one direction or another characterizes the nuances of the psychological state. The experienced psychologist can provide detailed psychological characteristics of a person by the Chakra picture.

The more central they are, the more the person is psychologically stable. We usually see the ideal Chakra line in people after meditation. As a rule, in a calm person with normal stress level the Chakras are slightly unbalanced, or some of them deviate from the central line, characterizing a certain psychological state. This is the picture we see in Figure 2, big size of a heart Chakra Anahata indicates that this person is experiencing emotions about someone close to him.

The next level is a person who has certain health problems, but does not have acute diseases and leads a normal life. Most people around us belong to this type. Depending on their current condition, time of day, fatigue, and above all the level of stress, their condition will change, which is reflected in the picture of the field. All these factors must be taken into account when analyzing the condition. This level is referred to as **HS** = Health + Stress. Figure 2 shows an example of such a bio-field.

As we can see, the field has gaps, heterogeneity, it is asymmetrical, although strong enough. The stress level of 3.79 is elevated, typical for people with chronic anxiety. Their condition, and therefore the picture of the field, can vary greatly depending on the psychological mood. An experienced specialist can identify areas of attention and recommend what tests should be done and what measures to take to prevent disease. The energy level is 51 J, which is optimal.

The Chakra picture (Fig.2) gives us the key to understanding the psychological causes of anxiety. As we can see, the 4th Chakra is shifted to the right, which characterizes the concentration on inner feelings. This is a subtle sentient person immersed in inner reflections.

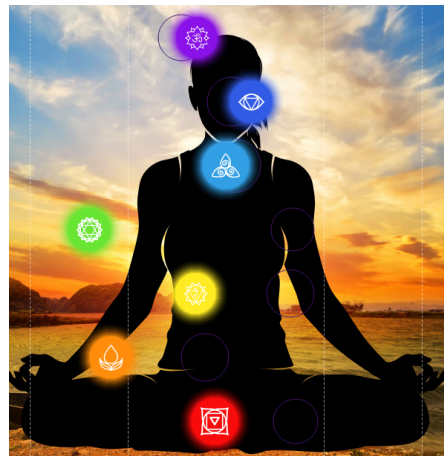
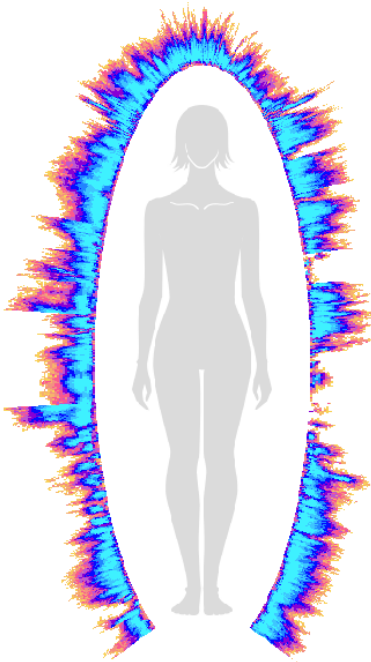


Fig.2. Energy Field and Chakras.

Another example of a human HS level biofield is shown in Figure 3. In this case, there are no gaps in the field, but there are sharp emissions and irregularities. Each of these emissions is related to the state of certain systems and organs, and an experienced person can easily determine the degree of health hazard. The fact is that any disease generates an increase in body energy. Our temperature rises, blood pressure rises, and the immune system starts to work actively. All this requires energy, and energy is primarily oxygen. The heart receives signals from all body systems and reacts, redistributing blood and sending additional doses of oxygen to the bodies in need. Not every government can respond so quickly to calls for help. The emissions in the picture of the biofield characterize this process. If there is an emission, there is an increase in energy consumption in this part of the body, so there is a problem. And the expert will understand how serious it is, for this purpose Bio-Well has a whole set of programs that analyze different parameters of the glow and present the result in a visual form. This person has a stress level of 4.27, which characterizes not just anxiety, but moderate stress. However, the energy is in the optimal range of 63 J, which is a good indicator.

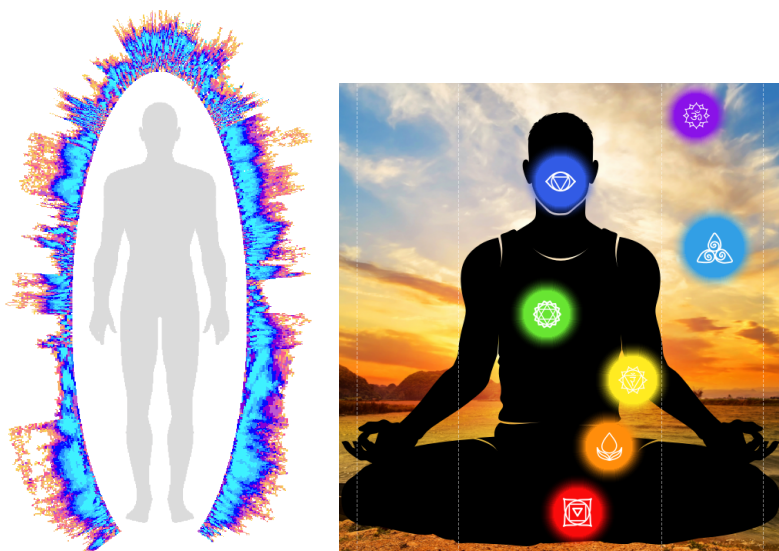


Fig.3. Energy Field and Chakras.

The chakras are shifted to the left (Fig. 3), which indicates certain problems with other people. The shift of the 6th Chakra – Ajna – characterizes a person's dependence on someone else's opinion, self-confidence and anxiety about it. The shift of the lower three Chakras indicates that the problems are on a practical level and are not directly related to personal life. It is most likely a job, maybe friends or close people.

I remember a middle-aged woman who had a big problem with the boss she worked for. She didn't know what to do, she tried several times to explain her discomfort to him, but he didn't pay attention to her pleading. Like many dominant men, he was sure that if he paid good money, he could dispose the lives of his subordinates. Years of stress have led to health problems, and going to the doctors had not yielded much results. Her field at that time is shown in Figure 4. As you can see, this field has many gaps, it is heterogeneous, and although the energy is not low, the level of stress is significantly higher than normal. In the end, she left this job, and when we met two years later, her field looked very different (Fig.4) and all the parameters came back to normal. Naturally, she had all the prerequisites for that, high energy and a good health reserve.

All she had to do was to get rid of negative factors in her life.

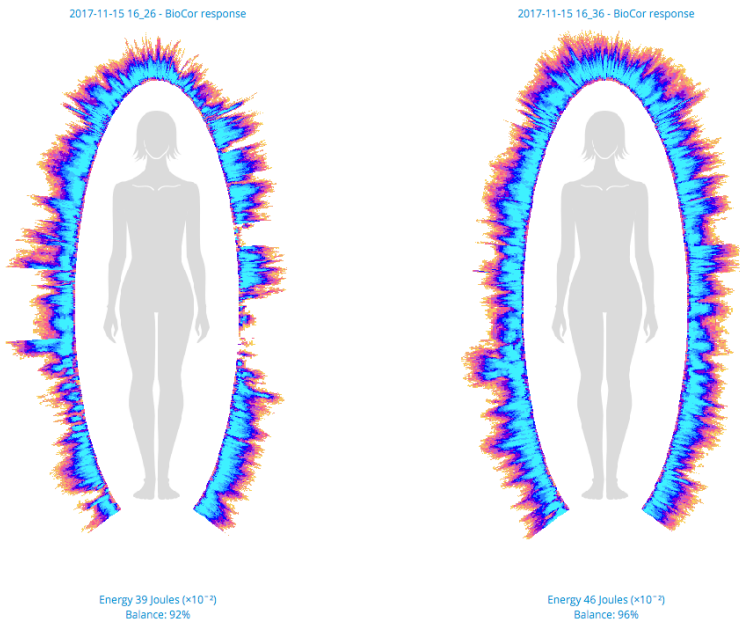


Fig.4. Energy Field initial and two years later.

This is further proof of the role of stress in our lives. We will talk about it again, but for a more convincing conversation, look at what the human bio-field looks like under stress (Fig.5). In this case, the stress level is 7.6 and the energy level is 33 J – that is, the stress is high and the energy is low, which should be expected. The chakras are much smaller than in previous cases (Figure 5), the upper chakras and the two lower chakras have been shifted to the right, indicating strong emotional feelings associated with the loss of meaning in life (the upper chakras) and problems in personal life. We will give more pictures of the stressful state, but this issue needs to be discussed in more detail.

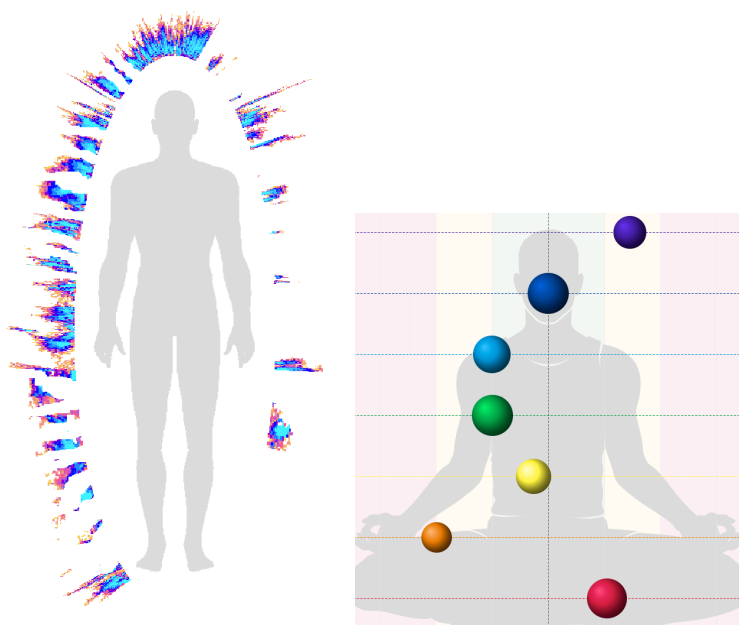


Fig.5. Energy Field and Chakras.

As can be seen from these examples, abnormalities requiring further investigation may be manifested as outbursts as well as gaps. In both cases, the overall contour is not uniform, and there are marked irregularities at various sites. More sophisticated studies reveal that gaps in the Energy Field are very often correlated with microcirculation blockages. In some cases, the differences between Energy Fields of apparently healthy people and those suffering from chronic problems are so faint that they are difficult to distinguish. An accurate assessment in this and other instances can only be made by an experienced investigator with special training in programs that provide illustrative examples and information. A major purpose of the Bio-Well device is to serve as a screening tool to determine the need for further investigation and to recommend treatment that will provide preventive or therapeutic benefits.

It should also be emphasized that a very large energy field is not always indicative of good health and there is an upper as well as lower range of normalcy. Since this may vary with different individuals, an internet based assessment is being developed to assist in evaluation, which would otherwise require consulting a qualified expert.

Altered State of Consciousness This is a very specific condition that can result from diverse situations ranging from deep meditation, intensive prayer, artistic creativity and hypnosis, to sleep or oxygen deprivation, trauma, severe infection, psychedelic drugs and temporal lobe epilepsy. In most cases an Altered State of Consciousness will have a specific influence on the Energy Field, as shown to the left in Figure 6. This image was obtained during an Ajurvedic ritual involving a homemade alcoholic drink and rhythmic music that induces a trance like state. As can be seen, the image is very distorted, the left and right sides are not balanced and there are large gaps. This condition is of particular interest to neurologists, psychiatrists and researchers who are actively involved in investigating the nature of consciousness.

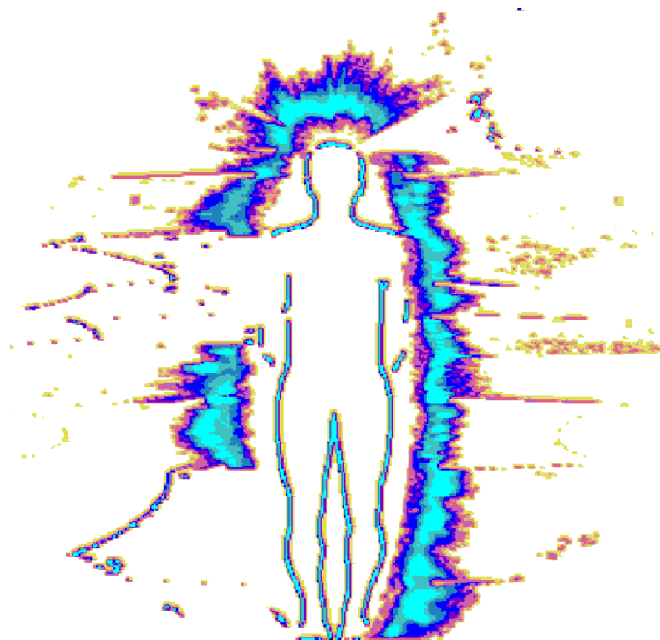


Fig.6. Energy Field in Altered State of Consciousness.

Stress is the lead killer

Person does not choose his disease, but he chooses stress –and it is stress that chooses the disease.

Irwin Jaglom. When Nietzsche cried.

Companion none is like Unto the mind alone;
For many have been harmed by speech,
Through thinking few or none. Fear oftentimes
restraineth words, But makes not thought to cease;
And he speaks best, that hath the skill
When for to hold his peace.

Thomas Vaux (1510-1556)

As proven by recent scientific studies, the main cause of most cardiovascular diseases is chronic stress. Cholesterol has nothing to do with it: it's a consequence. But it's not the only outcome of stress. By and large, stress is the internal cause and trigger of most health problems. In medicine, this fact is considered in terms of psychosomatic and autonomic disorders, and numerous works over nearly a century have shown that these disorders are the cause of dysfunctions of virtually all body systems and are the root of many diseases, including sleep disturbance, migraine, fibromyalgia and autoimmune diseases.

The first reaction to stress occurs in the adrenal glands and is related to the historical nature of man. We have existed as a species for at least 200,000 years (or maybe a million years – anthropologists are constantly finding new remains of ancient people, and therefore, have no consensus on the age of mankind). And most of the historical development took place in the struggle for survival in the wild, among enemies and predators. From here, a man has developed a persistent syndrome: at the sight of danger the choice is to either fight or flee. In science, it is called the Fight or Flight Response.



This reaction activates all body systems through the activation of the sympathetic nervous system: the heart beats faster, lungs breathe more often, blood glucose levels rise, there is a powerful release of adrenaline, noradrenaline and cortisol. The system prepares the body for active physical activity and, depending on the situation and type of nervous system, a person either rushes into battle, or quickly runs away, or falls into a stupor. How fortunate you are to be born. Please note: these reactions can be trained primarily in sports.

But what happens to modern man? For all our civilizational development, we keep an ancient man within ourselves. Even more so, we are half animals (Fig.7). Our reptilian brain defines many moments of our behavior, and above all, sexual and stress reactions. But instead of running or fighting, we sit and do not move. We get nervous and stressful and at best, we start pacing around the room. And all the processes mentioned above are idle. There is a hypertension of sympathetic parts of the nervous system responsible for activation and, if there is no adequate response by the parasympathetic system responsible for relaxation, the system remains for a long time in an excited state. And with chronic stress, this excitement becomes a habitual state of the body. That is, a person cannot relax even at night, even when sleeping, he or she continues to experience the events of the day, mostly unpleasant. Dreams are disturbing, terrible. A person wakes up in the morning in a broken state, and it further aggravates the situation.



Fig.7. Homo Sapiens Sapiens.

Over time, this condition shatters the body. The body fights as much as it can, but in the end, cracks appear in the concrete building, person have one disturbing pain, then another, although doctors are not able yet to find anything, but in the end there comes a breakdown in the weakest place and it leads to disease – hypertension, diabetes, gastrointestinal disorders – depending on the characteristics of the individual body.

It has been shown that myocardial infarction was preceded in 20% of patients with acute mental trauma, 35% had long-term mental tension, 30% had fatigue, hard work for a long time, and only 4.5% had physical overstrain.

The first link in the response is the autonomic nervous system (ANS), which is responsible for the activity of the internal organs. Disorder in the work of the ANS is manifested by a number of symptoms:

- pronounced sweating, especially in the armpits, palms and feet, their constant humidity;
- bright red dermographism (vasomotor spots), often in the form of a vascular necklace (red spots in the neck area, especially in case of excitement);
- joint pain (psychogenic arthralgia) and muscle pain at rest;
- ascular dystonia and panic attacks.

The main thing is to understand that without solving the problem of chronic anxiety and stress, there can be no radical long-term improvement in health. All long-livers have a calm positive attitude to life. All problems will pass, and you will finally be alone with yourself – so enjoy yourself and your life!

We all know the saying: "All diseases are from nerves, only some from pleasure," but only now do we begin to understand how true this is. In principle, the connection of the psyche with diseases has long attracted the attention of researchers. Back in the early nineteenth century in Germany, the term "psychosomatics" was first used, but only a century later, in 1922, a German doctor named Fritsch Deutsch introduced in the medical lexicon the concept of "psychosomatic medicine." This concept originally combined such diseases as coronary heart disease, arterial hypertension, gastric and duodenal ulcer, bronchial asthma, psoriasis, etc... in the pathogenesis where a significant role is played by unfavorable mental conditions.

This time gap was determined by the prevalence in European medicine of the reductionist, mechanistic concept of the human being and his corresponding attitude towards health. The human being was seen as a set of independent organs, like a watch made on a conveyor, in which a broken wheel can be replaced, screws tightened and everything works as in all other similar mechanisms. The individuality of each organism was never taken into account, and no one even mentioned the personality. Scientific research of mental phenomena did not exist until the beginning of the twentieth century, before the works of Sigmund Freud. The concept of consciousness in modern science is still poorly formulated.

Nowadays, the term of Psychosomatic Disorders is understood as diseases or painful conditions caused mainly by the patient's mental processes (fantasies, projections, ideas, etc.) than by any physiological reasons. A disease can be classified as psychosomatic if it is the result of emotional conditions such as anger, anxiety, depression, guilt, death of close relatives, divorce, stress at work, and prolonged conflicts that traumatize long lasting events.

Psychosomatic disorders typical of women are particularly prominent:

- premenstrual syndrome, menstrual cycle disorder;
- pregnancy depression and postpartum depression;
- menopause depression syndrome;
- hysteria in elderly people etc.

It is often common to associate certain diseases with mental health conditions, although these are very conditional and serve as a warning rather than an indication. Consider the psychological basis for some diseases. (Of course, this is from a certain point of view, which is not the truth in the last instance, and which reflects only one facet of the problem. However, we will not go into the detailed analysis – read and decide to what extent you agree with it).

Bronchial Asthma

- Inability to breathe for one's own good. Feeling depressed. Containment of sobs. Fear of life. Unwilling to be here. A person with asthma feels like he or she has no right to breathe for themselves. Asthmatic children are usually children with a highly developed conscience. They take the blame for everything.
- Asthma often occurs when there is no love in the family, the child feels fear of life and does not want to live anymore.
- Problems with lungs are caused by inability (or unwillingness) to live independently, as well as lack of psychological life space. The lungs represent the ability to take and give life.

Stomach diseases, gastritis, ulcers.

- The stomach is sensitive to problems, fears, hatred, aggression and concerns. The suppression of these feelings, the unwillingness to admit them to oneself, the attempt to ignore and "forget" them instead of understanding, awareness and resolution can cause various stomach disorders.

- Fear of the new. The inability to learn new things. Not knowing or understanding how to assimilate a new life situation.

- Stomach functions are often frustrated in people who are afraid to show love to another person. In other cases, the conflict is expressed in feeling guilty about some situation.

The reason why the stomach functions are so vulnerable to such conflict is that food is the first explicit satisfaction of a receptive-gathering desire. In a child's mind, the desire to be loved and the desire to be fed are very deeply interconnected. At a more mature age, the desire to get help from another causes shame or shyness, which is often the case in a society whose main value is independence, this desire finds its regressive satisfaction in the increased craving for food.

This craving stimulates stomach secretion, and a chronic increase in secretion in a predisposed individual can lead to overweight and different stomach problems.

Impotence

- Male erectile dysfunction is most often caused by physical factors such as high blood pressure, diabetes and genital damage. In addition to purely physiological problems, emotional factors also contribute a significant proportion. A list of emotional factors that can cause male incompetence in bed:

- feelings of depression, anxiety and nervousness;
- stress caused by work, family or financial problems;
- feelings of embarrassment and shyness; fear of being overwhelmed;
- fear of rejection.

These are just a few examples, and the list could be continued. But the main thing is to know that about 75% of problems have a psychosomatic background that is associated with stressful states, negative emotions. We live in the world of feelings, both positive and negative, which affect the state of our entire body. This property connects us to the animal world. Many dog owners know that when a dog owner goes away for a long time, a devoted friend misses him, often refuses to eat and lies sadly on his bedding. We've seen some amazing examples.

An acquaintance, a professor of biology, kept a couple of Rottweilers in his apartment for fear of robbers. When visiting guests, the dogs were securely locked before opening the door – their reactions could be unpredictable. One day, the dogs played with each other and the funny jumps developed into a fight. The owner came up and ordered them to disperse. These specially trained dogs usually obeyed their owner's commands. This time they just couldn't hear the commands and kept chewing furiously. Then the master grabbed their collars, ordering in a loud voice: "The place." In a fit of rage, one of the dogs grabbed his wrist and almost gnawed at his hand with powerful jaws. At the cry of the owner his relatives ran in, put on a tight bandage and, calling an ambulance, brought the professor to the hospital.

(The man was lucky – he was taken to the Institute of Human Arm, where after an 8-hour operation his arm was sewn on and it took root). The rottweiler, conscious of his guilt, squeezed himself on a bed in the corner. When the family returned home, it was dead. The emotion was so strong...



If, in the animal world, emotions play such an important role, what about humans? It used to be thought that this was mainly true for neurotics, hysterics and hypochondriacs. Now the attitude is gradually changing. Naturally, doctors do not have time and professional knowledge to deal with all psychological problems, but no doctor denies the importance of this issue anymore. The other thing is what they can do. In the best case – send for a consultation with a psychologist. But the psychologist should be specially trained to be really efficient. To resolve this situation, a new scientific and practical direction has been created in Russia – neuropsychology. Neuropsychology is a scientific direction lying at the junction of psychology and neuroscience, aimed at understanding the connection between the structure and functioning of the brain, mental processes and behavior of people. Neuropsychology applies the scientific method and considers individual mental processes as information processing. This concept came from cognitive psychology and cognitive science. It is one of the most eclectic disciplines of psychology and intersects with research in philosophy (especially mind philosophy), neurobiology, psychiatry and computer science.

On the one hand, neuropsychology is a scientific direction studying the connection of the psyche with subtle processes in the brain, and on the other hand, it is the practice of working with patients, both adults and children. A number of Russian universities train neuropsychologists and in many cities are professional neuropsychological centers, which have already helped thousands of patients. This is especially important for children. All over the world, the number of children with psychological problems is growing, a problem for parents and a significant punishment for teachers. Troubled children are unable to learn, cannot concentrate, are nervous and excitable or, on the contrary, slow down.

Their problems can only be solved on a professional level. All this suggests that our health will largely depend on how we treat ourselves and how we control ourselves, and in many ways on a subconscious level.

Anatomy of Fear

Hell is Empty,
All the Devils
are Here...

W. Shakespeare "The Tempest".

In the animal world, animals and birds are afraid of predators – no predators, no fear. When people first came to the expanse of Africa, where no human had walked, elephants and antelopes did not pay attention to them, until they realized human were the most dangerous predator. In the Galapagos Islands, pelicans and seals still do not pay any attention to people, except when they can spear a fish. Being in one of those places, I was swimming for an hour with a friendly seal. Then she accompanied our ship for a long time, looking with sad eyes. She must have liked me.

Naturally, there is also the fear of the strong and the unknown. But this mainly refers to living in a hierarchical herd or getting into unfamiliar conditions, the latter does not often happen in the natural world.

That's not so for people. A person is born with fear. A small child is afraid of everything new and afraid to be alone. As it grows older, the child begins to be afraid of the dark, then fears become more complex – a terrible man, a terrible beast, a terrible monster. At the same time, children love when they are scared, they love frightening stories. All ancient tales were terrible and cruel. In the forest lived a terrible Baba-Yaga; who occasionally had little girls for breakfast, the wolf has long been pestering Little Red Riding Hood, and in the end ate her together with her grandmother; Cinderella's sister in the original version of the fairy tale, cut off her toes to get the glass slippers to fit, and so on. And what about adult fairy tales like Edgar Poe and gothic literature? People have always been drawn to the scary, hence the predictable success of horror movies and vampire stories.

What's that? Could it be a manifestation of some atavistic traits embedded in us in prehistoric times or some special feature of the human brain?

Many people panic when they see snakes, spiders or mice. This is an example of quite common phobias – uncontrollable irrational fears popping up in certain situations. It is logical to assume that the fear of snakes or spiders has survived in some people at the atavistic level from primates, for whom it was a real danger. In urban life, it does not interfere much. A person suffering from such a phobia may never meet a snake in real life, except in the zoo. In the countryside, this kind of fear is almost never encountered.

Much worse is agoraphobia – fear of open space, open doors, fear of leaving the house or a small familiar "safe" area and possible subsequent panic attacks, or claustrophobia – fear of being in a small closed space.

Phobias are already considered to be a mental disorder, peculiar to a certain percentage of people, and in severe cases, requires psychiatric intervention. Hypnosis is a good way to deal with such conditions. But even mentally healthy people often have uncontrollable fears.

The most common is the fear of heights and the fear of flying on an airplane. The first is understandable – a manifestation of the instinct of self-preservation, and such a person should not be a mountain climber. Fear of flying is a manifestation of some atavisms (a born crawler cannot fly), and such people can always choose a train or a car. So, it does not interfere in life too much.

But it's much worse that most people in our society live in a state of constant anxiety and fear. This is primarily provoked by mass propaganda: in newspapers and on television, there is constant talk of disasters, deaths and killings. American cinema has swept the world with horror stories, detectives, scenes of murder and brutality. There used to be some gradations and limitations, but with the development of the Internet, all this has lost its meaning. People watch some horrors every night, and it inevitably affects their consciousness. It has a particularly strong impact on the subtle psyche of children and, having survived childhood fears, such a person, growing up, carries their fears into adult life.

We are not talking about mass intimidation of people with coronavirus, when people were afraid to pass by another person, afraid to go out for fresh air.

Governments are consciously trying to create a society based on fear because frightened people are easier to control. Such people will obey all orders and regulations without protesting or thinking about the consequences of their actions. For thousands of years the activity of the Christian church has been built on fear. People were frightened by the paintings of hell and the horrors of the afterlife, though this notion is not in the Bible. But it was the easiest way to fight dissent, destroy heretics and pump out the last money to enrich the church.

Fear may come and go, but it creates a feeling of constant anxiety. People do not feel free when something is constantly disturbing them: they do not sleep well, and have bad or terrible dreams. All this leads to constant stress, the dominance of the sympathetic nervous system, and the inevitable diseases that we have already talked about. And millions of people in our society exist in this excited state.

Well, what do we do? Is there any other way out but sleeping pills and antidepressants?

No doubt about it. To fight fear, you must consciously learn to overcome your fears, catch them, take control and destroy them. Fears are brain parasites, worms that crawl into your mind and destroy it from within. We have to clean up and get rid of them.

In St. Petersburg, Russia there is a society called "Life without Fear." The Society unites young, and not very young, people who want to get rid of their fears and phobias. The guys meet regularly. During the summer, they organize multi-day seminars in nature, and learn to overcome their fears. They will invite a person who keeps live snakes (not poisonous ones), to bring his pets. A combat dog trainer shows how to defend against the attack of the beast, and everyone tries it on himself. Climbing trees, walking on a thin pole at a height, going down a rope – a lot can be dealt with. The program includes meetings with people who have managed to overcome their fears – travelers, rescuers, and people who have overcome nature. Disabled people, who have reached heights in life despite their physical handicaps – Paralympic champions – are also invited to share their stories. This movement is very popular among students. Participation in such sessions have already helped many people to start perceiving the world in a different way.

This kind of training is also important for children. You have to teach them to overcome their natural fears. Now almost everywhere, you can find rope towns with routes of various complexity, climbing centers, playgrounds, where children can gradually master more and more complex elements and become bolder. Active sports are a prerequisite for the harmonious development of children. They not only develop the body, but also teach discipline, hard work and the ability to take defeat with dignity. Long hikes, where it is necessary to get tired, overcome yourself, feel discomfort brings up the will and character of a developing child.

But adults, above all, need to get rid of anxiety. This is the disease of modern society, eating the man from the inside. To get rid of anxiety, first of all, we must try to determine its the basis. We have to analyze: "What is the cause of my condition? What am I afraid of?" In most cases, it's easy to find the cause of concern about children, family, work, the future. There are two ways to get rid of such fears.

The first is to imagine the worst that can happen in a frightening situation. A boss who yells at me all the time, what can he do? Fire me? In that case, I'll sue him, and the court always takes the side of the person who's been hurt by the employer. In the worst case, I'll have to look for another job, and just in case, I have to dig up some money to be enough for a rainy day.

Is there a business problem? Who doesn't have it! In an unfavorable case, I'll have to cut my employees; but in the worst case, there's bankruptcy. Nobody's ever died from it. In our country it doesn't surprise anyone.

Did Grandma get sick? We must take all measures to treat her and in every possible way to support her mood, to show care. But if she's 88 years old, and has been sick for a long time, then in the worst case – we should all go to a better world...

And so on. Turn your situation to the end, imagine that the absolute worst can happen and you will understand your situation is not the worst. My father spent 8 years in Stalinist camps, my mother worked as a doctor in besieged Leningrad – what could be worse than that? Even in such cruel conditions, they did not lose their optimism, and lived with dignity many subsequent years. What are our problems compared to this?

This way of thinking about your concerns helps to prepare you for the worst, and then to rejoice when the worst does not happen. It works well in many situations and helps to live in peace and stay healthy. Another way is to accept life as it is. Whether you like the self-isolation mode or not, no one is asking you. The only thing you can do is to walk away from police supervision. You have to do everything possible in those situations that somehow depend on us, and submit to fate when nothing can be done. In other words:

*Do what you can,
With what you have,
Where you are.*

Our life is a motley cloth woven from the threads of the fates of many people who have been with us in life. Some threads are long and leave a noticeable mark, while others are short stitches. The curves of the fabric depend on the situation in the country in which we live, but the idea of the Weaver is unknown to us. We can only follow a certain path, passing through obstacles and bifurcation points. Of course, any exercise that trains the brain and body helps us overcome anxiety. Meditation, yoga, tai chi, qigong, running in nature, just long walks – all these are medicines for anxiety. If you want to understand in detail the philosophy of fear, you can turn to special studies. But to walk through such folios, you need to have a lot of patience. I don't always have enough patience. Another way is to fence yourself off from your problems, to stop paying attention to them, to go into a state of healthy ignorance. Let's not develop this topic. It is clearly described in Mark Manson's book *"The Subtle Art of Not Giving A F*ck,"* which is easy to find on the Internet.

There are still many problems and fears that come from childhood and sometimes from other lives. Numerous studies show that children who were loved in childhood live their lives much more successfully and happily than those who've had an unhappy childhood. Childhood traumas do not heal all their lives. To get rid of them, the help of a professional psychologist is needed. In some cases, regression therapy helps well, when a person is returned to his or her past, up to the previous incarnations, and helps him or her to get rid of the psychological traumas received there.

One can believe or not in reincarnation, but in many cases it works. We talk about fear, but it's important not to confuse fear with caution. I'll tell you a story from my own life. After entering the institute, I began to actively engage in rock-climbing, went to training, climbed the rocks, participated in competitions. All turned out well, and in summer I went to the Caucasus in a mountain climbing camp, where I was trained under the guidance of experienced coaches. In the Soviet Union, there was an excellent system of organization of mountaineering where there were many camps in the Caucasus, Pamir, Tian Shan. To obtain a permit to the camp, it was necessary to train in a club, to compete, and with good results, your permit could even be free. The camp gave out equipment, at that time quite simple, we could only dream about Italian boots.

There was a doctor in the camp, a rescue team consisting of experienced mountaineers, and depending on your experience, you could claim a more or less difficult climb. At first you had to walk with an instructor, then you could do it yourself. This system allowed thousands of young guys and girls to walk in the mountains, and it was available to everyone. A couple of years later I successfully passed all the preparatory stages and together with my friends, started to make our own ascents. I climbed rocks well, walked confidently in crampons on steep ice, so in group climbing, I usually worked the first. When I climbed the rope length – 40 meters – and set up a safety point on the belay, I hung up the rope for the comrades. After a couple of seasons of successful climbing, I felt like I could do anything and I had nothing to fear.

It's a very dangerous feeling! Having nothing to fear often occurs in people who start out in extreme sports and learn the first steps. A person can already do a lot, and it seems to him he can do everything. But in reality, he does not realize his limits and capabilities, he cannot yet fully appreciate the situation and he loses caution. After that, he often puts himself in a dangerous situation. And he is lucky if he comes out of there alive. That's what happened to me.

One spring, we went to the rocks in the suburbs of St. Petersburg. Preparing for the new season, we were training at any free minute. After warm-up, I went to the vertical rock and climbed up free, without belay (the securing of a safety rope to an anchor point). Easily climbing up by ten meters, I grabbed some ledge with the intention of pulling myself up.

But the very moment I moved my entire body weight to that ledge, it swayed and came off the cliff. Along with me. The flight wasn't long, but when I came up, I felt pain in my whole body. As the guys said, I flew backwards and landed flat. Everybody ran to me, but I already opened my eyes and moved. After a while, I tried to sit down. I did it. I moved my arms, my legs. I did it. Thank God! My spine is intact! With the help of friends, I got to the train station and we took the train to an emergency room near the station. Surprisingly, the X-rays showed that all my bones were intact. Then I was sick for a long time, but it was gone by summer. And here's another mountaineering season. My friend Tolya and I were going to climb a difficult mountain. We had to climb vertical rocks.

My friend moved ahead. One rope, the other, a steep wall hanged over us, but the climbing path was clear. At some point I climbed another rope and Tolya said to me: "Now it's your turn. Come on, move forward." I took the hammer and suddenly realized I couldn't climb. I was afraid. It was an animal fear that was impossible to overcome. I returned the hammer to Tolya: "I can't." He spited aside, said a few non-polite words and climbed up. When we came down, I realized that if I could not overcome this fear, I could no longer be able to walk in the mountains. What's worse, I would lose the respect of all my friends, but above all, I would no longer respect myself. After all, mountaineering is in many ways overcoming yourself, overcoming your weakness, your fear. I decided I would break my fear. I started with relatively simple ascents (and went first all the time), gradually moving on to more and more difficult ones. At the end, I chose a difficult rocky peak and took a young girl as my partner, so it was clear that I couldn't count on her. When everything went perfectly, I realized I had prevailed over my fear.

Since then, for many years, I have climbed the most difficult peaks in different parts of the world. There were many different dangers: avalanches, falling rocks, bad weather, the death of friends, but apparently, the Angels guarded me and my own intuition helped more than once. And the invaluable experience gained during the years of travel was very useful in life. But that's another story.

Epigenetic revolution

The future will change the way
We look at things,
And in some things,
Looking back from afar,
Someday we won't be able to believe.

Boris Pasternak,
Russian poet (1890-1960)

The DNA molecule is the keyboard of
life. Aging and Illness is a change in
the motive played from the genes.

V.V. Frolkis,
Russian geneticist (1924-1999)

A major problem in the United States has been the increase in autism among children, especially in the southern states. According to a study by the U.S. Center for Disease Control, one in every 88 children in the United States suffers from autism. During the first three years of a person's life, autism is a disorder resulting from impaired brain development, characterized by a pronounced and comprehensive lack of social interaction and communication, regardless of gender, ethnicity and socio-economic status. As a result, the incidence of autism has increased by almost 23% in the last few years!

It is noteworthy that this disease is five times more common among boys. There's one autistic in 54 healthy boys. For girls, this figure is 1 in 252. Moreover, the experts noted a significant increase in children with autism among Hispanics and African Americans. The UN called on governments around the world to increase efforts to identify and treat people affected by the disease and to prevent discrimination against them. The UN Postal Service has issued six stamps and two envelopes of paintings by autistic artists, stating that "creativity and talent live in each of us."

Scientists at the University of Jackson, Mississippi, conducted a large study using a GDV device in which they examined families with autistic children. It turned out that all family members have the same profile of health, physiology, energy. That is, they all suffer from the same diseases. But at the same time, one of the children becomes autistic, and the rest develop quite normally. That is, the disease acts selectively, affecting one victim in the whole family. Scientists can't yet make sense of this situation. Why, in a family where everyone has the same living conditions – the same diet, the same protein structure and the same genetic apparatus – does the disease develop in one child and not affect the rest? Hopes of deciphering the genetic code to help solve this problem have not been realized. In October 2010, one of the world's leading scientific journals, *Scientific American*, published an article by Stephen S. Hall entitled "The revolution is delayed: why the human genome project brought disappointment."

This paper discusses the situation. After many years of work and 6 billion dollars spent on the project, scientists have made sure that knowledge of individual genes does not allow humanity to get rid of its most common diseases. The presence of these or other genes are important, but most important is their expression, i.e. launching into action. And this event is determined by a mass of interrelated factors, including the joint action of many thousands of genes. Therefore, genetic analysis turns out to be a complex task, which is currently available only to high-class specialists. Genes can be compared to icons on a computer screen. They can hang there for years, but until you click on them, the program associated with this icon will not be used. The same situation applies to genes – you need external factors to activate most of them. Genetic analysis currently identifies several major groups of genes, for example: Toxic sensitivity genes; Drug sensitivity genes; Glucose sensitivity genes; Cholesterol genes; Vascular genes; Stress genes; Weight regulation genes; Bone system genes and several others.

Each group of genes is responsible for a particular factor, and it is possible to assess whether they are in a stable state or require increased attention. For example, if glucose sensitivity genes are in the risk area, a person has an increased risk of developing diabetes. And this is one of the dangerous factors in modern life. Even if you have these genes, it doesn't mean you will get 100% sick. In the same family, twins have the same set of genes, but one is sick and the other is not. A lot depends on how you keep yourself.

Scientists from Stanford University (USA) conducted two unusual experiments in which more than 200 volunteers participated. The

participants were promised that after the tests they would receive recommendations on nutrition and physical activity, taking into account their genetic profile. In one experiment, the subjects were determined to have two variants of the CREB1 gene, one associated with increased physical endurance and the other with high fatigue. Before and after the announcement of the test results, the subjects had to run on a treadmill. In this case, they were randomly divided into two groups – irrespective of the real genotyping results. The first group was told they have a "weak" version of CREB1; the second group was announced to have a "strong" version. After that, the participants of the first group showed the worst results in running, regardless of their real gene constitution. Moreover, their lung capacity was reduced and their ability to remove carbon dioxide from their bodies was impaired. On the other hand, the participants of the second group showed some increase in endurance, also irrespective of the variant of the CREB1 gene they were carrying. The second experiment was conducted in a similar way, only in this case different variants of the FTO gene were analyzed, one of which is related to the development of obesity as a result of over-nutrition. The subjects were fed a certain amount of food, then asked to estimate the degree of saturation. The results were also similar. Those who were confident that they were carrying a fast saturation version of the FTO gene had a higher estimate of their saturation, and there was indeed a higher physiological satiety marker in their blood, a glucagon-like peptide-1. All participants in the other group felt normal after the second meal. In this way, an astonishing thing was discovered. The very knowledge of a person's genetic variants can affect not only his or her behaviour, but even physiological parameters! This effect is similar to placebo and nocebo, which are means that do not have real pharmacological activity, but have a positive or negative effect on the patient.

Do these results mean that it is not "worthwhile" to be tested for, for example, gene variants associated with cancer risk? It is known that placebo can change the functioning of the cardiovascular, endocrine, immune and nervous systems, and if the tumor growth is not related to the operation of these systems, it is unlikely to be affected by the "genetic placebo." However, older people, informed they had a genetic variant that increased the risk of Alzheimer's disease, began to do worse with memory tests. Thus, the specialists face another ethical problem: whether or not to tell the patients about the results of their examination, if this knowledge can harm them. It's not easy to solve. To do this, you need to know how the risks of pathologies change after informing people about their diagnosis and the effects of information obtained from other sources. For example, do we know

if this or that disease is in our family history, or if it is the result of our unhealthy lifestyle? This is a very complex issue. Any policy decisions can have tragic consequences, both communicating and hiding the whole truth, especially to the elderly.

In general, the results of these experiments have confirmed the popular claim that thought is material.

So At the same time, it is known from many years of experience that the vast majority of the population is diagnosed with certain factors affecting the quality of life. This does not necessarily mean that you have serious illnesses. Quality of life determines the level of activity and performance, the degree of fatigue, mood, the absence of any unpleasant feelings in the body. There is a well-known saying: "If you wake up after 50 and nothing hurts, it means you are already dead." We strongly disagree. A man should be healthy and cheerful. We are made for the joy of life. In the morning a person should get up rested and cheerful, in the evening, go to bed and fall asleep without worrying thoughts. Not everybody is able to do that. Sometimes, it hurts in one place, sometimes it squeaks., let's think well, and first about ourselves!

Knowing these "weak" places, you can think about how to behave in life—what to eat, what to avoid, what to be afraid of and what to expect. For a certain percentage of people, genetic analysis reveals genes that significantly increase the risk of developing serious diseases, such as breast cancer for women or prostate cancer for men. This does not mean that the disease will necessarily develop, but warns of the need for regular diagnosis. One of the important parameters of the body, identified by genetic examination, is the ability to detoxify or remove toxins formed in the course of life, from the body. Knowing this parameter, a doctor can recommend measures to significantly improve the quality of life, preferably without the use of medication.

The only problem at the moment is that there are not many doctors around the world who are able to understand and interpret the results of genetic analysis. If you bring an expensive analysis to an average doctor, he would be right to send you to a genetic testing center.

Of course, now scientists are developing new approaches to genetic testing. For example, the New Life Genetics team consists of scientists who specialize in nutrigenetics, genetics, health, sport, nutrition and nutrigenomics, dietetics and human nutrition. This unique cooperation between biotechnology, genetics and dietetics has led to the creation of the foremost leading health concept, NewLifeGenetics.com. They are sending kits for saliva collection to do at home and send back to their lab. After some time, you'll receive results of your genetic profile. Other laboratories offer tests by blood, urine, saliva, body tissues, bone marrow, hair, etc. The material can be submitted in a tube, on a swab, in a container, or frozen. Once received in the laboratory, the genetic material is removed from the sample and analyzed. It is good to know, but we need to remember these results are not the final verdict. After years of work and billions of dollars spent, scientists have concluded that health is determined not only by genes, but also by the environment. Well, thank God! This insight took "only" 200 years. The fact is that back in 1809, Jean Baptiste Lamarck (1744-1829) in his book *"The Philosophy of Zoology"* put forward the ideas of variability of organisms under the influence of the environment and, most importantly, the possibility of hereditary transmission of these signs.

"If circumstances lead to the state of individuals becoming ordinary and permanent for them, the internal organization of such individuals eventually changes. The offspring of such individuals, retains the acquired changes and, as a result, a breed is formed which is very different from that of individuals who have always been in conditions favourable to their development."

This idea became the basis of the science of evolution, but with the advent of Darwin's theory in 1859 was completely rejected, ridiculed, and Lamarck was remembered only by historians of biology. After all, according to Lamarck, there is an interaction between living beings and their environment that affects heredity. That is, descendants inherit the positive qualities acquired by their parents during their lives. According to Lamarck, the evolution of living creatures is purposeful, it selects the positive signs under the influence of the environment.

According to Darwin's theory, evolution is ruled by chance, new signs arise in random mutations and then there is a struggle for survival between them. The strongest one wins! (Although perhaps not the smartest. According to Darwin's theory, we would have to live in a world of powerful big men with big fists, and all high-browed swaggers would have died out long ago). Darwin's theory responded to the spirit of the time, the need to overcome

the pressure of the church, to free ourselves from the dogma of purpose. It was therefore enthusiastically welcomed by the advanced public devoted to the anathema by the Church. Lamarck was denied.

In the twentieth century, Darwin's concept was supported by genetic theory. The belief emerged that all life is dictated and determined by genes. As American scientist Church Dawson writes: "In a variety of popular sources, the gene has evolved into a 'supergen', an almost supernatural entity that has the power to determine personality, human affairs, relationships and to explain social problems. In this construction, people in all their complexity are seen as products of molecular text" (Dawson C. *Mind to Matter*. Penguin Random House, 2012). The idea of genetic predetermination has gone beyond the walls of laboratories and is deeply rooted in popular culture. In 1909, on the centenary of the publication of the *"Philosophy of Zoology,"* a monument to Lamarck was unveiled in Paris. One of the bas-reliefs of the monument depicts Lamarck, who lost his sight in his old age. He sits in a chair and his daughter, standing next to him, tells him: "Your descendants will admire you, father, they will avenge you." Looks like this moment has finally arrived. Recently, the concept of epigenetics has gained an increasingly strong position in biology. In scientific language, epigenetics can be defined as the process of interaction between the genotype of an organism and its environment in the formation of the phenotype. When translated into human language, this means that the genotype is only some instruction laid down in the body from birth, and determines the possible ways of development, and its specific performance depends on the influence of the environment. The genotype shows there are several possible ways of development. Which one will be chosen depends on many factors, mainly in the first years of life.



Monument to Lamarck in Paris

This is no longer a random-chaotic process, but a directed one. And what is important is the chosen path can be inherited by descendants, if they develop approximately the same conditions. You can imagine the genome of a newly-born man in the form of a locker with many drawers. One drawer is responsible for musical abilities, one for mathematical abilities, and one for resistance to diabetes or oncology. The drawers are of different sizes and are locked.

From a classical point of view, all of them will simultaneously open and begin to participate in the formation of an adult. From the epigenetic point of view, locks can only be opened under the influence of environmental conditions.

The brightest example is infants raised by animals. There are a lot of such cases already accumulated. Children were brought up by orangutans, goats, wolves, but when they return to the human environment, they never become human. They were still monkeys, wolves or goats. The moment the boxes were to be opened was irrevocably lost.

Now, scientists have conducted hundreds of experiments proving the correctness of epigenetic theory. One of the first experiments was conducted in 1988 by British molecular biologist John Cairns. Cairns took bacteria, whose genes did not allow the production of lactose, the enzyme needed to digest milk sugar and placed them in petri dishes where lactose was the only nutrient. To his great surprise, within a few days all the cups were filled with bacteria that had learned to eat lactose. The bacteria's DNA changed in response to the environment.

Another brilliant experiment demonstrating epigenetic possibilities was conducted by American scientists Randy Jirtle and Robert Waterland from Duke University in the USA. They introduced the aguti gene to mice, making the rodents not only red, but also thick and painful. In addition, they brought in unhealthy redheads. When pregnant females were put on a diet enriched

with folic acid, the mice began to give birth to healthy calves of normal coloration. Thanks to folic acid, the aguti gene was turned off.

Commenting on his experiment, Randy Jirtle uttered a phrase that became textural: "Epigenetics proves that we are responsible for the integrity of our genome. We used to think that only genes predetermine who we are. Today we know for sure that everything we do, everything we eat, drink or smoke, affects the activity of our genes and the genes of future generations. Epigenetics offers us a new concept of free choice."

Recent research has shown conclusively that smoking, or rather some tobacco smoke substances, contribute to cancer. They silence the p16 gene, which normally inhibits tumor growth. There is also a special section of epigenetics, which deals with the dependence of epigenetic processes on nutrition. These features are especially important in the early stages of the body's development. For example, when a baby is fed – not with mother's milk, but with dry nutrient mixtures based on cow's milk– epigenetic changes occur in the cells of the body, which, fixed by the mechanism of imprinting, eventually leads to the beginning of the autoimmune process in beta cells of the pancreas and, as a consequence, diabetes of type I.

Thus, it is reliably shown that the epigenetic changes induced in early ontogenesis can be fixed by the imprinting mechanism and change the entire subsequent fate of a person (including psychotype, metabolism, predisposition to disease, etc.), as well as in certain cases be transmitted to the next generations. This fundamentally changes the way biologists look at the process of development and has important practical implications for you and me. In fact, it only confirms the well-known ideas: we ourselves are the creators of our bodies. It is only up to us as to how we develop and how we will resist the pressure of the environment. This is especially true for children. Their lives are fully determined by the conditions of infancy and early childhood, and your attitude to yourself and to life, which we will talk about again.

The Body Energy

Thought after thought, wave after wave...
Two manifestations of the elements of one:
Whether in the heart, in the boundless sea,
Here, in detention, there, in the open,
It's the same eternal surf and retreat...

Feodor Tutchev,
Russian poet (1803–1873)

We are surrounded by electromagnetic fields. They illuminate and heat our lives, provide communication and drive thousands of machines around the world. Anyway, it's hard for us to imagine our life without electricity. But less than two hundred years ago, homes were lit with kerosene lamps and millstones were turned by horses. Even the big scientists of that time perceived electricity as a curious phenomenon. Very few could imagine what would come out of experiments with frog legs twitching.

Something like that is happening now in biology. Nobody denies that electric processes play a role in the body's work, but this process is not being paid due attention. Molecular biology plays a major role in explaining life processes. In 1971 Nobel Laureate Albert Saint-Derry wrote: "I am deeply convinced that we will never be able to understand the essence of life if we limit ourselves to the molecular level... The amazing subtlety of biological reactions is due to the mobility of electrons and can only be explained from the standpoint of quantum mechanics." Saint-Derry was one of the first to pay attention to the importance of the phenomenon of electron transfer from one molecule to another. A question on existence of the phenomenon of semi-conductivity in biological objects was put to them. At that time, no one paid attention to these ideas, although they open up new perspectives in understanding the secrets of life and direct ways to influence the body through electromagnetic fields. Only now, 50 years later, are these directions beginning to actively develop.

We live by the way of quantum processes. The food we absorb is decomposed by the gastrointestinal tract to its constituent elements, and energy is extracted from it in the form of electronically excited states, which are transmitted through chains of protein molecules and, ultimately, provide the energy of the body through complex processes in the mitochondria of cells. That is, for the work of the organism, we need only energy, and it does not matter from where it can be extracted. In principle, the body can only exist through solar energy, air and water—as plants do. They say that some people have already come to this realization. There are press reports about people who meditate in the morning and drink clean water without eating any more food. Naturally, such people can only live in warm countries where there is no need to waste energy on heating the body. Whether it is so or not is unknown, though, in principle, it is possible. But in any case it's very boring. Food for us is not only a source of energy and useful elements, but also a part of life's pleasures. Culinary skill is one of the highest achievements of human civilization. An important part of any trip is becoming acquainted with the culinary achievements of other countries and nations—of course, if it is cleverly organized and you appreciate the joys of life.

Energy is the ability of a system to do its job. Only because we live on Earth, in a gravitational field, do we already have energy reserves. Energy is not destroyed or lost, it only goes from one form to another. When we climb a mountain, we use up kinetic energy, but acquire potential energy. To roll a sled on a slide, we have to put in work, but from the slide, they will ride with us. Plants gain energy from the sun, water and earth, when we eat them, this energy is indirectly transferred to us. Animals store much more energy in their cells, so the protein food provides more energy. When we burn firewood, oil or gas, the energy condensed in them becomes heat.

And this cycle of energy takes place constantly, every second across the entire universe. The task of civilization is to provide itself with energy with minimal harm to nature. So far, we've been doing this badly. We destroy forests, pump out subsoil, destroy fertile land with water reservoirs. Few environmentally friendly energy sources — solar panels and wind generators and some others — have made significant contributions to energy.

But back to the humans. Internal quantum energy provides our life activity. Russian-Hungarian scientist Erwin Bauer defined the living as a system in stable disequilibrium. It's a system that must constantly respond to the environment and constantly change. The simplest example is bike riding. In order to keep in balance, you must move constantly. If you stop, you fall. An unbalanced system, to maintain its stability, requires an incessant consumption of energy—the constant cost for an active life. We can talk about normal, reduced and high energy balance. At the same time, the more energy is required to maintain life activity, the less energy is available for active work. "Pumped up bodybuilders can't bear long physical activity, such as a walk in the mountains. The body's efficiency factor for performing work is very low. Too much energy is spent on meeting the needs of muscle mass of the body. A crocodile can quickly run a short distance, but must then rest to regain energy.

A man eats large organic molecules and inhales oxygen. It works like a car, only the car burns gasoline with sucked air, and the man, food. With the help of oxygen, the body slowly burns the organics. The result is combustion products and energy, like in a furnace. In a living cell, energy is produced by a flow of electrons falling into a potential pit — from high potential organic molecules to low potential oxygen. In doing so, quanta of energy is emitted.

For many years, the whole world has been fighting free radicals, recognized as the main enemy of humanity. But for some reason, the organism constantly produces them in large quantities. In the process of all biochemical reactions, free radicals are formed. Is nature so irrationally arranged that the body itself produces harmful substances? That's hard to believe. For many years Professor V. Voeikov from Moscow University has been talking and writing about the need for free radicals in life. But only recently has this been confirmed in American laboratories and officially recognized. Now there is no need to fight free radicals anymore! The fact is, the free radical is a reaction-ready molecule, which has an unpaired electron on the outer electron shell. Free radicals transport energy in the body and deliver electrons to the reaction site. We may say that a person feeds on electrons. They accumulate in mitochondria and, at the right time, are released in the form of ATP.

Mitochondria is the cell's energy station. Their main function is to oxidize organic compounds and use the energy released during their decay to generate electrical potential, ATP synthesis, and thermogenesis. These three processes are carried out through the motion of electrons in the electron transport chain of proteins in the inner membrane. One of the main functions of mitochondria is the synthesis of ATP, a universal form of chemical energy in every living cell. The mechanism of supplying energy to a living cell is described in detail in biology textbooks. But that does not mean that it explains all the subtleties of this process. Let's give one example.

A simple question: can a bird fly over the ocean? It turns out that from a scientific point of view, it is impossible. You have to use energy for any job. The plane takes off from an airfield with full tanks; at the end of the flight the tanks are empty. All the energy stored in the fuel was spent on the flight. The same process must happen to birds: they must use the most energy-intensive product of their bodies: fat stock. That is, according to calculations, during a migratory flight, birds must lose up to half their weight. But this does not happen. As exact measurements have shown, they practically do not consume their body matter during the flight. So where do they get their energy from? This question is still open, although we have proposed a biophysical model for this process. But still, from a scientific standpoint, migratory flights are not possible. (It's a good thing the birds don't know that!) The same applies to many sporting events. The most impressive in this respect are the triathlon "Iron Man" competitions: swimming – 3.86 km; cycling – 180 km; and running – 42.195 km. All this happens without a break – the best results are about 8 hours. It is not clear how the human body can withstand such loads. Where does it get its energy from?

Therefore, the study of the energy state of the whole body and individual functional systems can provide valuable information about health and problems, both current and potential. The GDV method provides indirect information about your energy and the best ways to use it.

How long are we destined to live...

Everything dies on land and at sea,
But the man is severely condemned:
He must know about the death penalty,
Signed when he was born.
But knowing lives are fleeting,
It's the way he lives, against everything,
It's like living forever,
And this world belongs to him.

Vladimir Anisimov,
Russian oncologist,
Vice-President of the Anti-Aging Society

"Three whales of health" is the title of a book published in 1991 by Yuri Andreyev, the first publication in Russia dedicated to the comprehensive health of man. Yuri Andreyev was very interesting. As a Doctor of Philological Sciences, he worked for many years in the Pushkin House; authored more than 500 scientific papers, 40 books and monographs. He was also a Sambo martial art coach, the creator and director of the "Temple of Health," a healing center in the village of Komarovo, near St. Petersburg.

People came to this Center from all over the country, soaked in a sauna, ran along the shore of the Finnish Gulf and improved their health in various non-traditional ways. In his book, Yuri Andreyev developed the idea that 75 years is only the middle of human life. With the right attitude, you can live far beyond 100, which was what he intended to do. He failed. Yuri Andreyev died 2 months after his 79th birthday. So it was written in his destiny...

A Healthy Lifestyle (HLL) allows you to maintain the quality of health and feel cheerful and energetic until the oldest years, but it does not guarantee a long life.

I've often met people who are serious about their health. Many of them are planning to live a century.

As statistical studies involving tens of thousands of people around the world have shown, life expectancy is not directly related to lifestyle, nutrition or material wealth. Among century-old veterans, there are also millionaires, beggars, vegetarians and meat-eaters. In this case, it is important not only to live long, but also to remain sane with some memory recall. And yet, with a careful analysis, we can draw certain conclusions. It is possible to formulate clearly what to do and what to avoid in order to live a cheerful, energetic life, keep a clear mind until old age and avoid outright traps on the way to longevity. Though, the end point will still depend on the will of the Creator. We can only help Him make our lives happy with our weakness, or prevent us from doing so. At the same time, there are evidential statistics.

As you may know, the longest life expectancy is in Japan. In 2020, Watanabe Timuetsu, the oldest resident of the planet at that time, died at the age of 112 years. He was born on March 5, 1907 in a peasant family and at the age of 20 he moved to Taiwan, where he spent 18 years before returning to his homeland. Before him, Masadzo Nonaka from Hokkaido was considered the oldest person in the world, who died at the age of 113 in 2019. Life expectancy in Japan is 81.5 years for men and 84 years for women, with the number of people over 80 years of age exceeding 10 million as early as 2015.

In Russia, life expectancy for men is currently the lowest in Europe, at 65.92 years for men and 76.71 years for women. The highest life expectancy in Russia for both sexes is 80.05 years in the Republic of Ingushetia, followed by the city of Moscow, 76.77 years and the Republic of Dagestan, 6.39 years.

Below are the figures for Tajikistan, Pakistan and African countries only. Russia ranks 183rd in the world by the life expectancy of men and 164th for women. The main causes of mortality in Russia and the USA are given in the table. As we can see, the figures are slightly different (this difference may be due to different observation periods), but the general trend is the same. The first and second causes of death are given to circulatory system diseases and oncology. Obviously, this is not due to geographical location or income level, but to lifestyle. Jordan and Israel, for example, share the same climate zone, but in Jordan about 50 men aged 55-65 die of coronary heart failure per 100,000 people, while in Israel more than 600 die.

Japan and the United States have high living standards, but atherosclerosis mortality rates are 165 in Japan and 933 in the United States. A detailed analysis of national traditions and lifestyles provides insight into the reasons for these differences.

Table. Main reasons of death in the 20th – 21st centuries

	USA %	Russia %
Diseases in the circulatory system (including heart attack and stroke).	38	47
Oncology	22	16
External causes	3	7
Diseases of the digestive organs	6	5
Diseases of the respiratory system	5	3
Infectious and parasitic diseases	4	3
Other reasons	22	19

At the same time, these figures differ significantly for different professions. Famous Russian oncologists Prof. Gennady Mikhailovich Zharinov and Vladimir Nikolaevich Anisimov have collected large statistics on life expectancy of people of different professions. It turned out that scientists and musicians live the longest. And, this phenomenon is observed, since the seventeenth century when the exact biographical data became available.

As we can see, classical music performers live much longer than musicians of other genres, and a significant part of them crosses the 90 years or even the 100 year threshold. And these results are not much different for men and women. Apparently, the sounds of classical music have a harmonizing effect and memory has to be trained all the time. The musicians with the greatest longevity are organists and conductors, and they remain creative into their old age. Perhaps this advantage over other musicians can be explained by their great physical activity.

Table. Average death age (ADA) and longevity of musicians of the 20th century taking into account the music genre

Genre	N of people	ADA years	90+	100+		
	N		N	%	N	%
Men						
Classic	9 100	73,7	986	10,8	50	0,5
Jazz, pop,	7 974	67,4	428	5,4	28	0,4
Rock	3 144	52,0	12	0,4	0	
Women						
Classic	2 339	77,2	504	21,5	51	2,1
Jazz, pop	1 770	67,5	163	9,2	9	0,5
Rock	254	46,5	1	0,4	0	

There is a very interesting music museum in Vienna where you can try to be a conductor in one of the halls. And the orchestra on the screen plays according to your movements. It turns out that even 10 minutes of this lesson is not easy to endure, not to mention undergoing a few hours. Naturally, a lot of energy, both physical and mental, is consumed. I once had the opportunity to try on the energy of an outstanding world conductor both before a concert and after two hours of conducting an opera and watching both the orchestra and the singers. Look at the picture in Figure 8 – the starting field was quite decent, but after the concert, it practically disappeared. From the practice of sports science, we know it's not just the level of energy costs that counts but also the speed of recovery. When I tried on this man an hour after dinner with a bottle of good wine, the field was even better than the original one.

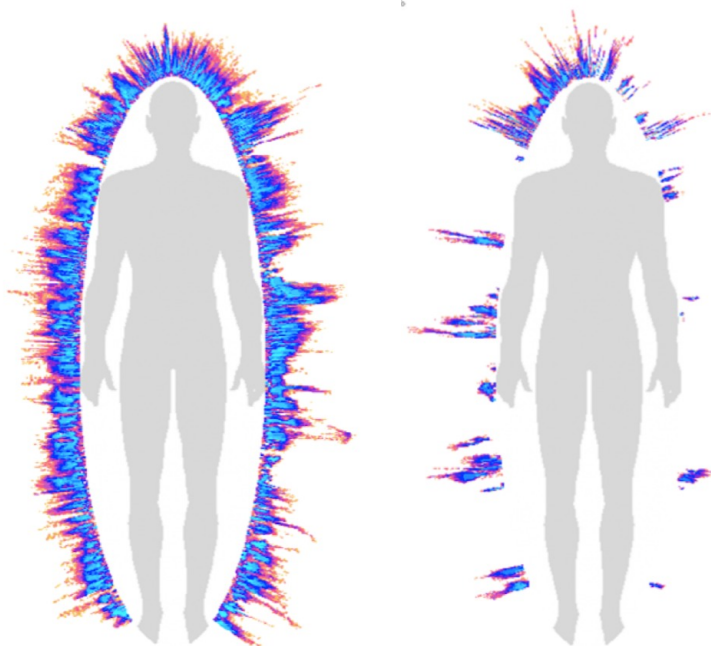
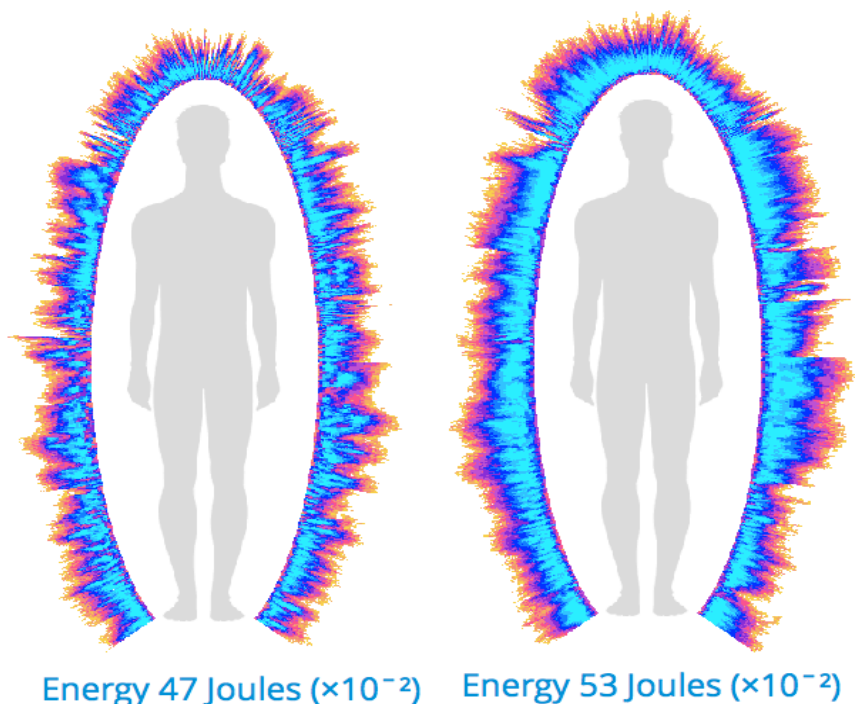


Fig.8. Conductor's energy field before and after the concert

The physical load of conductors is undoubtedly higher than that of composers. Maybe that's why a composer who undertakes conducting adds years to his life. It is interesting to note that a similar phenomenon, but directed in the opposite direction, is observed in poets and writers. Writers live longer than poets, but writers who sin by poetry shorten their lives. The physiological mechanisms of these phenomena are unknown and require study. The health benefits of classical music are a well-known fact. There have been many studies on the effects of classical music on children, people with mental disabilities, and even cows. In particular, the *"Harp Therapy Journal"* published an article by Mary Milroy entitled "Measuring the bio-field before and after harp therapy," where she shows that after playing the harp, the bio-field increases and the chakras align. We have made such measurements at classical concerts many times, and we have always seen positive effects. Below is an example of measuring the human bio-field and chakras before and after listening to Symphony No. 3 in La Minor by S. V. Rachmaninoff at the St. Petersburg Philharmonic Hall. As we can see from figures 9, the field became much denser, the gaps disappeared, and 4 chakras were leveled. The heart chakra characterizes a person's emotional reaction, which affects his entire physiology, as the lower chakras show

Naturally, not all people react in the same way. Classical music requires training, although experiments with playing music in prisons have shown that the level of aggression by prisoners generally decreases. We once conducted experiments to register a group of people listening to Dmitry Shostakovich's Fifth Symphony. One of the additional electrodes to the Bio-Well device is a conductive glove, which records the emotional reactions of a person over a period of time. All listeners reacted actively to the music with the exception of professional musicians. Apparently, this music was so familiar to them, it did not produce an emotional response, only a professional analysis of the character of the performance.



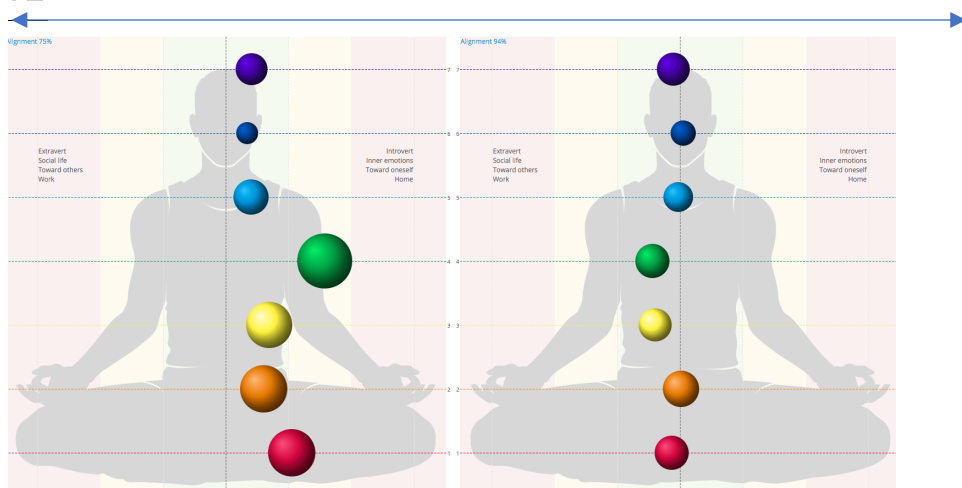


Fig.9. Human biofield and chakras before and after listening to Symphony No. 3 in La Minor SV Rachmaninoff in the St. Petersburg Philharmonic Hall.

One of our goals is to show that music not only affects people, but also changes the energy of the space in which it is played. This only happens when performed live; digital recordings do not produce this effect. We have done a lot of experiments with a Sputnik sensor (www.sputnik.bio-well.com) at various concerts, and always obtained interesting results. For example, in July 2009 in St. Petersburg, there was a TV filming the performance of world opera stars René Fleming and Dmitry Hvorostovsky in the palaces of St. Petersburg (fig.10). The performance consisted of two sections with repetition of the same program twice, which was dictated by the shooting requirements.

On July 13, only technical staff and organizers were present at the shooting, the shooting took place in the large hall of the Peterhof Palace. It was constantly raining outside. July 15 was open to the public; shooting took place in a large hall of the Yusupov Palace. At the end of recording, a strong storm broke out. In both cases, performances were accompanied by a symphony orchestra conducted by Konstantin Orbelyan.



Fig.10. Performance by Rene Fleming and Dmitry Hvorostovsky in the Peterhof palace of St. Petersburg in 2009.

We were lucky to be present at these events and to record the Sputnik sensor signal. The recording was carried out in automatic mode. Figure 11 shows graphs of signal changes during July 13 measurement. Darkened areas on the diagrams show the moments of the artists' performance. Obviously, at the moments of performance the sensor's signal increased sharply and decreased during the moments of pause. I believe that these changes in the energy of space are an additional factor affecting the public. It is not without reason that we experience different emotions while in the hall during a concert performance, or listening to the same music at home. That's why the concert halls are filled every evening with people who want to get an emotional charge and experience the beauty of music.

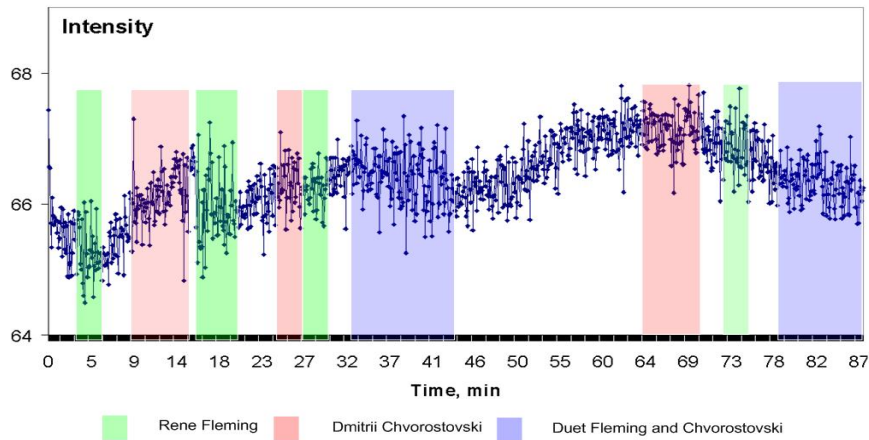


Fig.11. Changes of the sensor signal during a concert by Rene Fleming and Dmitry Hvorostovsky. Darkened areas - the moments of artists' performance.

Sadly, rock musicians live far fewer years than classical performers. We know a lot of stories about drugs, alcohol, stormy lifestyle, but I think the frequency spectrum of rock music and the deafening volume during concerts contribute. Rock music has been found to cause aggression, contribute to depression, and the development of cardiovascular disorders (Burns J., Labbé E., Williams K. et al. Perceived and physiological indicators of relaxation: as different as Mozart and Alice in chains // Appl. Psychophys. Biofeedback. 1999. 24. 197–202). By the way, rock musicians have the highest number of suicides and violent deaths, while classical musicians cannot compare.

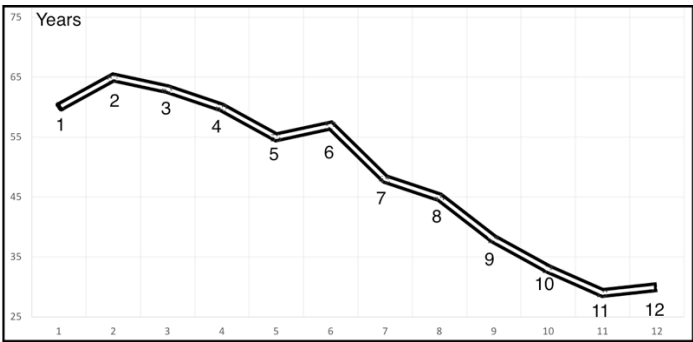


Fig. 12: Life expectancy of rock musicians of different genres according to data from 1950 to 2014: 1- blues, 2- jazz, 3- country, 4- gospel, 5- pop, 6- folk, 7- rock, 8- electronic music, 9- punk, 10- metal, 11- rap, 12- hip-hop.

Intuitively, this is due to the higher stress levels of rock musicians compared to other professions. But in the U.S., in an analysis of the causes of death of 12,665 musicians who died between 1950 and 2014 (90.6% of those who died were men) It was found that musicians who performed blues, jazz, country and gospel, had cardiovascular diseases and oncology as their main cause of death, and their average life expectancy was lower than the average for the US population (78.8 years).

But when we move on to musicians performing more aggressive music, the situation dramatically worsens (Figure 12). The highest mortality rate is observed among peers. Almost half of them were killed, which is related to their way of life in the USA. And for punks, heavy metalists and rockers, the main causes of death were accidents, which is also understandable. Adrenaline, which activates the body during a concert, requires an exit... And isn't it wonderful to race at great speed on the night roads, and even before that, having a hard drink or a shot?

It is intriguing to observe a higher incidence of malignant neoplasms compared to other problems in folk and jazz performers. It is not an accident – oncology accounts for more than a quarter of deaths, but there is no clear explanation for this fact. Naturally, there are happy exceptions. Mick Jagger was born in 1943; Sir Paul McCartney in 1942; Duke Ellington lived 75 years (which was quite a lot in 1974); and Ella Fitzgerald died at 79. There are many more examples, which once again shows how much depends on the individual person. But there is also an objective impact.

We made measurements at rock concerts and found an interesting effect: at first the energy increases, but then it drops. Young people's rise can last for hours – all night – but then it inevitably goes down. For me, a person who is not young, the fall at a rock concert starts in a few minutes. Naturally, it also affects the energy of the body, which is what we see in Figure 13.

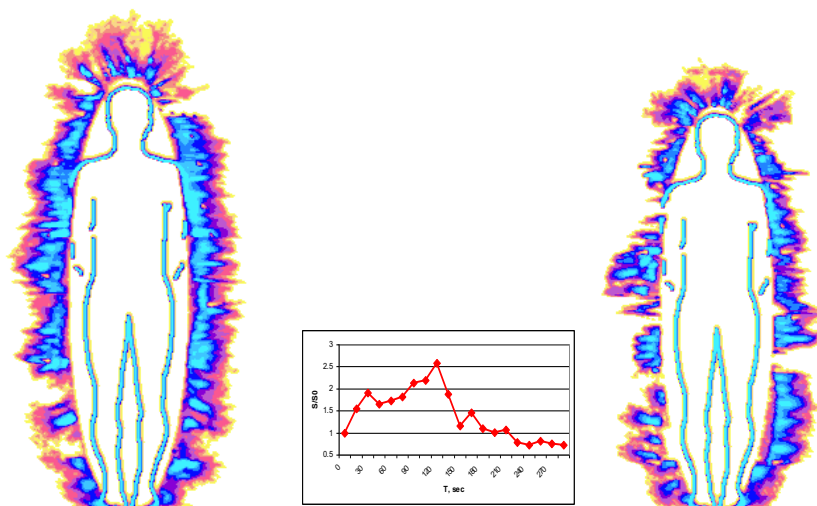


Fig.13. Change of energy during a rock concert.

The works of G.M. Zharinov and V.N. Anisimov also showed that the risk of death was inversely proportional to the level of education. Moreover, such conclusions were made by many researchers in different parts of the world. One recognized indicator of age is the length of telomeres, tiny formations at the end of each chromosome that have a protective function. In each division cycle, telomeres of cells become slightly shortened, this process takes many years, but with age it becomes more visible. It has been found that in persons with higher education, telomeres are longer, which suggests that they will age later. However, telomeres can also increase: their length increases with each new stage of education. The higher the qualifications, the longer the person will live.

As famous Russian neurologist Academician N. P. Bekhtereva wrote: "It is the involvement of the subject in the creative process with all the rearrangements in the brain and organism that leads to the statistically justified, perhaps, surprising situation that "the smart live longer."

Russian writer Mikhail Zhvanetsky: "To be educated is to live longer. I don't know how it works, but an educated person lives a lot longer and better.", " Russian Professor O.U. Schmidt: "What can a man do against death and its forerunner, old age? His only weapon can be the mind in its highest manifestation – in science."

Statistics show that scientists live longer than people of other specialties (not counting musicians, but if a scientist also plays an instrument, it additionally prolongs his life. Remember Einstein with a violin in his hands?) Nobel laureates live longer than PhDs, and those, in turn, longer than ordinary researchers. Perhaps satisfaction with the results achieved increases self-esteem and helps reduce stress. This effect has been known for many centuries. Let's remember a typical image of sages in legends and fairy tales – an old man with a long white beard. It is known that in the Middle Ages the life span of ordinary people was 35-40 years, and even kings rarely crossed the 60 years mark. Here is a list of the life spans of a number of French kings:

Gugo Capet	56 years (10 century)
Robert II Pious	59 years (11th century)
Henry 1	52 years (11th century)
Phillip 1	56 years old (12th century)
Louis VI Thick	56 years old (12th century)
Philip II August	58 years old (13th century)
Phillip IV Beautiful	26 years old (13th century)
Louis X Svarly	27 years (14th century)
Charles VII Victorious	58 years (15th century)
Francis I Knight King	53 years (16th century)
Henry IV of Navarre	57 years (16th century)
Louis XIII Fair	42 years (18th century)
Louis XIV "the sun king."	77 years (18th century)
Louis XV	64 years (18th century)
Louis XVI	39 years old - lost his head in the revolution.

At the same time, medieval scientists have lived more than 70-80 years, both in Europe and in the countries of Islam.

So, if you want to live longer, train your brain and listen to classical music (even better, play something)!

But this barrel of honey has its own spoonful of tar: In the twenty and twenty-first centuries, women with high education often had a shorter life compared to their less educated peers. This is due to the peculiarities of our society, where the key positions are mainly occupied by men, and women still have to constantly prove their worth. This happens in many "male" dominated areas: business, science, politics. That is why women have a much higher level of stress than men in the same positions. We must also consider that women have a biologically higher level of stress. The biological role of women is as the Guardian of the Hearth: the Mother must take care of her family and her children. Whereas, a man is a hunter, a miner, a warrior: his biological role is to conceive children and the grass does not grow further. In today's Western world, this attitude is gradually changing, but it is still far from being equal. We know outstanding women: Nobel laureates, Presidents, owners of large businesses, but they are a minority in comparison with men. And there is no need to recall that the Islamic world still has medieval ideas about the role of women. In Saudi Arabia, women were only recently allowed to drive a car. When I was in that country at an international conference, the organizer of the conference, the director of the medical institute, invited us to his home. He introduced us to his sons, but we never saw his wife and daughters.

Another way to prolong life is through sports and physical activity. The conclusion is: athletes live longer than their non-sports brothers. Researchers from Finland have compared life expectancy and health data for 900 Finnish athletes and their brothers who are removed from sports. On average, the athletes lived longer and suffered less from chronic diseases. Athletes also lead healthier lives in old age and are more likely to be in a good mood. Representatives of sports requiring endurance, on average, live longer than professionals in strength training.

The study used data on male athletes representing Finland at international competitions from 1920 to 1965. To exclude the genetics factor, the athletes' health condition was compared with that of their next of kin. Only men took part in the experiment. The study was published in the British *Journal of Sports Medicine* in 2018.

More and more data like this is accumulating. There is no doubt that moderate physical activity at any age contributes to maintaining health and prolonging active aging. While skiing in the mountains, I often meet elderly skiers. But it is not necessary to travel to the mountains (although it gives a powerful incentive to the immune system); it is enough to walk for an hour or two every day. Naturally, walking is better in the park or in nature. It's also better to listen to classical music. This will be a combination of pleasant and useful and will allow you not only to extend your life for a number of years, but also dramatically improve its quality. In the middle of the last century, the phenomenon of a sharp increase in life expectancy appeared. As you can see from Figure 14, in the beginning of the nineteenth century, only a quarter of the world's population reached 40 years on average, most lived to 30. After 1950, life expectancy increased dramatically in Europe, the USA, China and Cuba. In the twenty-first century, there was a rise in most countries of the world. The number of older people who have crossed the 80-90-year mark is increasing, which leads to another phenomenon.

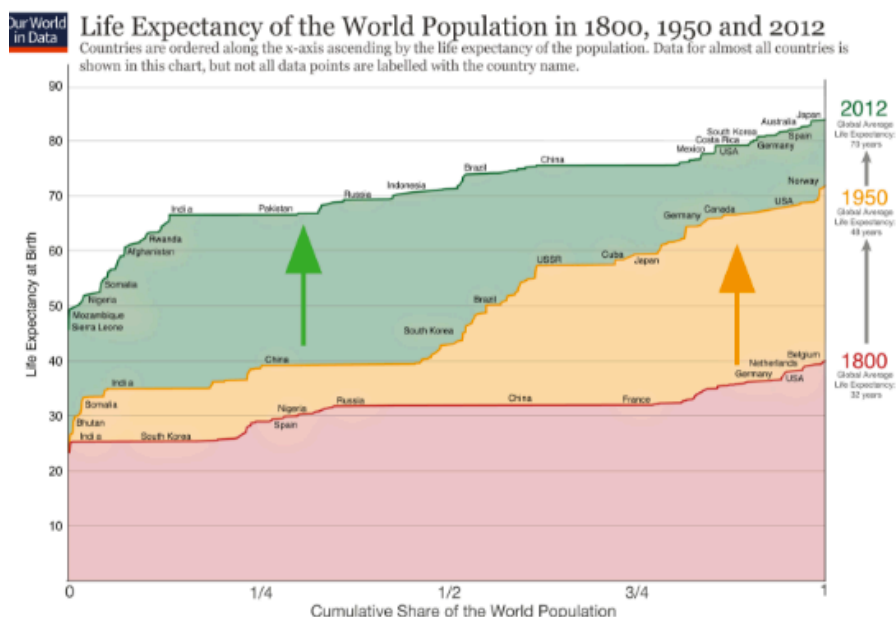


Fig. 14: Life expectancy of the Earth's population in different historical periods.

As geneticist Evgeny Levitov notes:

"It is believed that the main result of increased life expectancy is that older people now live longer. But it isn't. The main, huge, strategic, changing before our eyes all of humanity as a result of the jump in life expectancy is not that old age now lasts longer, but that it starts much later. For those who are 40, 50, 55 years old today, the old age will only start at 75-80 years old. That is a quarter of a century for the good 25 years! – later than for our parents' generation. Until quite recently there were only 3 main periods in human life: youth, maturity, old age. Now "maturity" happens at 50 and marks the beginning of a completely new, simply not existed before a stage in human life."(<https://spektrnews.in.ua/news/nemnogo-faktov-iz-mira-genetiki---evgeniy-levitov/41137>)

What do we know about it?

1. It lasts almost 30 years, from 50 to about 75.
2. Contrary to previous conceptions, a person's physical and intellectual capacities do not decrease during this period with the right approach and remain at least as good and in some cases better than in youth.
3. This is potentially the best, highest quality period in human life because it combines health, strength, and life experience. "If youth knew, if old age could" is no longer about us. According to all statistics of recent years, the happiest time in life, its peak can now come at about 65 years.
4. Those, who are 55-65 years old today, are first to live during this period in the history of mankind. It simply hasn't happened before, because people have aged much earlier.
5. In the next few decades, people aged 50-75 will be the largest age group on the planet.

According to all statistics, for those who are 50-55 or so today, the old age will not start before 80 years old. It's certainly very, very nice. We just have an additional 25 years of an active and rich life. After 50 years in life comes a wonderful moment when there is time, health, strength, experience, and before the beginning of old age, by modern standards, a quarter of a century of active life!

If you are over 50, then absolutely everything is possible for you today: new hobbies, new joys and impressions, new career, new love, new travels. And the quality of these life experiences far exceeds everything that was available in green, unskilled youth or burdened with obligations of maturity.

Do not waste this time in vain. Then you will be very sorry!

But don't ruin your own life. Back in 1932, a study was published by an insurance company about the life expectancy of a large group of people in 10 years. It turned out that people aged 50 to 59 years, whose weight exceeded the norm by 15-20%, had a mortality rate 17% higher than the average population. If the excess weight was 25-34%, the mortality rate was 41% higher! And the mortality rate of fat people between 20 and 29 years was 80% higher than the average. Now you won't find such data – it's insensitive – chubby people can get hurt. Once again, I emphasize that negative emotions, uncompensated stress is one of the main provocateurs of cardiovascular disease and the main cause of death. So do not be afraid of cholesterol, eat fat and fatty meat, and smile. Also, evil, irritable people do not live long – as well as thieves, rapists, murderers. Except in a prison bed with a life sentence – spite the state!

Thirteen effective ways to extend life (recommendations of the University of Geneva):

- 1. Set nontrivial tasks for your brain.**
- 2. Eat tomatoes.**
- 3. Get rid of the alarm clock.**
- 4. Ignore public opinion.**
- 5. Get a pet.**
- 6. Love the chocolate.**
- 7. Get some faith.**
- 8. Learn a language, learn to play a musical instrument.**
- 9. Listen to classical music.**
- 10. Be friends with the sun.**
- 11. Dance!**
- 12. Laugh more often.**

Dangers of Modern Life

Death comes to us in black and with scythe.
And to flies, in slippers, pajama and with a newspaper.
Honeybunny

It's customary to scold the conditions in which we live. That's fair, of course, but not new. Civilized people rarely lived in good conditions. Naturally, some civilizations managed to create a good environment for their upper class. First of all, the Roman civilization comes to mind. Viaducts carrying clean water from mountain springs, public thermae and baths in every home, sewers in cities, roads that have survived to this day. All of this, of course, happened, but such conditions could be enjoyed by a handful of aristocrats, and most of the population, not to mention slaves, stayed in gloomy wet shacks.

It gets worse from here on out. Medieval towns had cesspits in the streets, stench and mud, night pots poured out of windows, people washed twice in life – in a baptismal font and on their deathbeds. Washing was considered unhealthy. Clothes were worn for years, and the parade gown was passed on as an inheritance. The only important thing about clothes was their appearance. Such necessary things as the toilet and panties appeared, according to rumors, only at the end of the eighteenth century, and then, only in high society. They became wide spread only at the end of the nineteenth century (it is difficult to even imagine the situation for the beautiful part of humanity for thousands of years...). Unsurprisingly, life expectancy rarely exceeded 40 years. Sixty-year olds were considered deeply old. In the villages, there was a constant threat of looting, war, and hunger. (So, it's a good thing they don't use a 3D scent system when showing historical movies. I don't think any modern man could stand it.)

We are used to bathrooms, warm toilets and heating. But all this is relatively new. One of the authors of this book was born in the center of Leningrad, on Pushkinskaya Street, spending his childhood in a communal apartment without a bath and with only a stove for heating. The same situation existed in most countries into the mid-twentieth century. New times allowed people to forget about many previous troubles, but also brought new troubles. First of all, there's air pollution. Thousands of cars poison cities with their exhausts with the pipes of factories contributing, not to mention periodic man-made disasters, which throw thousands of tons of polluted or radioactive dust into the upper atmosphere to be carried around the planet. The ancient Indian treatise Ayurveda relates the best water falls from the sky. But today, it can be dangerous to walk in the rain. Who knows what kind of chemical plant this nice cloud came from...?

The level of negative ions in the air is directly related to pollutants. In the mountains, at sea, and in a pine forest, you can literally drink air. That's because the air there is rich in negative oxygen ions. Outstanding Russian scientist Alexander Chizhevsky (1897-1964) showed without these negatively charged molecules, life pans out. It is possible, of course, to live, but badly and not for long.

Another problem in many apartments is very dry or very humid air. For normal living, the humidity has to be around 40-50%. With modern airtight windows, especially with steam heating in winter, the humidity in an apartment can drop to 10%, which is bad not only for expensive furniture and paintings, but also for our health. Dry mucous membranes, irritation of eyes, bronchi, bad sleep are just some of the consequences of this situation. The use of air conditioners in hot seasons only aggravates this problem, because they provide dry air, and few people monitor the cleanliness of filters.

In general, when inspecting modern apartments and houses, we often face the problem of a lack of properly organized ventilation. If the living room draws smells from the kitchen (agree, they are not always tempting), it means that your home has poorly organized air circulation. It's even worse when there's a lot of synthetics in the apartment. Synthetic palaces, rugs, wallpaper, furniture constantly emit gases harmful to life. All assurances of manufacturers that they are "absolutely harmless to health, even for babies" is a deception based on intricately organized tests. Remember the terrible cases of people dying from suffocation in fires because of burning synthetics? But even without burning, the gases evaporate all the time—sometimes more, sometimes less. And it's not the scent of a blooming orange. It's the poisonous breath of modern civilization belching the stenc of its waste.

So it turns out: the windows are blocked; the kitchen exudes the smell of frying fish; on the floor is synthetic carpet; while the TV and computer fill the air with harmful ions. And we wonder why the child has an allergy.

The other danger is the water we drink. It's been known since ancient times that bad water causes a lot of diseases. Even if we assume that the communal water treatment system works perfectly, they still pour chlorine into the water. There's not a cheaper disinfectant than this. Chlorine is a terrible poison, and if the chlorinated water is boiled, the dissolved salts turn into killer compounds that slowly accumulate in the liver. In swimming pools, the chlorine often makes your eyes sting. Another problem is the mineral composition of water and the level of pollution. There are not many clean drinking water sources left in the world.

The industry is making every effort to put an end to this. Dumping waste into water, tanker crashes, accidents with underwater oil wells – all this can be read regularly in newspapers. And how many cases do not reach the newspaper pages? Civilized countries have taken strict financial measures to protect natural waters. A fine for dumping waste can ruin a small enterprise. The result has not slowed down: if in the 60s of the last century in the river Rhine, it was forbidden to swim. But now you can drink from it (although of course, it is better to filter the river water so as not to swallow the mass of animals living within it).

Many countries are still far away from this. The pipeline system in most cities leaves much to be desired. Sometimes you open the crane, and something brown, though liquid, flows from there. Not to mention the fact that oil production is based on injecting water into underground layers to displace oil. Naturally, the water itself doesn't get any cleaner from that.

The mineral composition of water is highly dependent on the terrain. Sometimes, in a couple of weeks, the new kitchen kettle is covered with a layer of scale. In St. Petersburg this problem does not exist. But, as it turns out, there is nothing good about it either. Water with bicarbonates, sources of the limescale, proved to be the most healthy according to recent scientific studies. Although, as we know, such conclusions often change dramatically. In any case, there are standards for the content of certain substances in the water. If you take water from natural sources – like springs or wells – we recommend checking your water for the mineral composition, especially in spring. Who knows what poisons may have been dumped near a seemingly pristine brook?

In general, garbage has always been a big problem for our civilization. Any civilization is characterized by the level of garbage it produces. There's nothing cuter for archaeologists than digging in an ancient dumpster. We have achieved the highest level of craftsmanship in garbage production, primarily due to the chemical industry. This industry has learned to produce polymers that will not be destroyed for a millennia, and this is the basis of bottle and packaging production.

Now it is typical: you swim by the sea in a faraway exotic country and all around pieces of bags and bottles from all over the world solemnly pass by you. So, throwing bottles with notes into the sea, as was once customary in adventure novels, now is pointless – another piece of garbage. And often it is a shame to walk along the shores of sea or lake where people had picnics, drank, and all their garbage is spread evenly across the shore, as if they never planned to return.

This is ecological fascism. All this garbage comes back to us later – through the air, through water, through fish and animals that foolishly swallow it. Everyone seems to understand this, but few take action, even though it is not difficult. We were in the Philippines. On some islands, the use of plastic bags is already prohibited. In the marketplace everything is placed in paper bags. But in rich countries, corporate profit seems more important than the public's health.

Recently, a new phase of global garbage generation has begun. We have begun to pollute the outer space surrounding the earth. The consequences are already being felt. A few years ago, a new Russian communications satellite, Express-AM11, unexpectedly ceased to function, and television broadcasting in Russia's eastern regions was interrupted and the Internet began to be seriously disrupted. According to the experts the accident was caused by "external influence of some foreign object." Most likely, this mysterious "something" was space debris chaotically spinning within the Earth's orbit. ISS pilots have to change their trajectory several times a year to dodge the large debris flying in space. And this is just the beginning of the space age...

Finally, the latest achievement of mass civilization: electromagnetic fields (EMF) and radiation. This environmental factor didn't exist 20 years ago. Who would ever have guessed then that walking through the jungles of Venezuela, it would be possible to discuss cases with partners who have no idea where you are. The global Internet system has changed the face of our civilization. We are all now figuratively connected. We can communicate without paying attention to time and distance (and you do not need to pay attention to phone bills). The world has become transparent. It has its own positive and negative sides.

By your individual phone number, it is possible at any time to determine where you are (which is good when you are concerned about the whereabouts of your children), and listen to what you are talking about with a friend. The TV in the iPhone does not surprise anyone anymore. You can't give it all up anymore. But you have to pay for everything. I don't mean the cost of communication and the Internet, but the impact on our health. There's more and more evidence that electromagnetic fields are affecting our health, although it's difficult to investigate.

Electricity has always been near man, and it has always been a dangerous force that carries the carnage of the gods in the form of lightning and the thunder of heaven. Only recently have people learned how to tame this terrible power and drive it into electrical outlets. But even a tamed beast periodically shows its teeth, and thousands of people have fallen victim to accidental touching of wires or a carefully designed "electric chair." But only recently has attention been paid to another dangerous side of electricity – the influence of electromagnetic fields.

At the end of the twentieth century, mankind took the internet and mobile phones to the next level. We live within this electromagnetic field – it is invisible, intangible, it has practically no barriers, and we are under its influence 24 hours a day and 7 days a week. You go into the forest, you go into the mountains, and this field is still all around you. Naturally, we can't live without the internet and phones anymore. All over the world, people have no idea how they used to manage without the opportunity to press a button and hear the voice of a loved one or find out the schedule of planes. In the most remote parts of the world, a person can walk barefoot, but he will have a mobile phone in his pocket.

Scientists have known about the negative effects of electromagnetic fields on humans for a long time. But their knowledge was limited only by the influence of powerful fields emitted by power lines, electric transport, powerful radio installations, etc. Therefore, the protection of the population in developed countries could be provided by observing the relevant sanitary norms and regulations, which specified the minimum permissible distances from residential buildings to stationary emitting objects, such as power lines. At the same time, in the Soviet Union, these norms were much stricter than in Western countries. In our country, housing construction and human activities in the vicinity of high voltage transmission lines are prohibited, while in most countries such restrictions are absent. The high-frequency antennas of telephone companies are densely networked and nobody cares how they can affect health.

One day I got a call from a friend who worked at one of the Moscow Ministries. He told me that recently many of his employees had started complaining about bad health and headaches, and asked me to investigate. Once in Moscow, I went to their Ministry and took measurements. The electromagnetic background was hundreds of times above normal. Only an hour later, I also began to feel the weight in my temples, which passed as soon as we left the building. As it turned out, just under the window of the office, a powerful high-frequency cable was recently installed. Yet again, no one even thought about how this could affect people's health.

However, numerous studies of scientists in various countries (Russia, Germany, USA, Switzerland, etc.) show that powerful cables and antennas are not the only danger for humans.

Weak electromagnetic fields (EMF), whose power is measured in percentages of a Watt, have been found to be, in some cases, no less dangerous than high power radiation. Scientists explain the intensity of weak electromagnetic fields is commensurate with the intensity of the radiation of the human body itself – its internal energy, which is formed by the functioning of all systems and organs, including the cellular level.

Numerous studies of the biological action of electromagnetic fields determine the most sensitive systems of the human body are: nervous, immune, endocrine and sexual. The biological effect of EMF in conditions of long-term exposure can lead to the development of remote effects, including degenerative processes of the central nervous system, blood cancer (leukemia), brain tumors, hormonal diseases, etc.

EMF are particularly dangerous for children and pregnant women (and embryos), as an undeveloped fetal organism is highly sensitive to such fields. People with diseases of the central nervous system, hormonal, cardiovascular system, allergy and people with weakened immunity are also very sensitive to the action of EMF.

As part of the biosphere, humans are subject to its laws and behave according to its rhythms. Therefore, in order to ensure biological safety and comfort, the human being simply needs to worry about protection from all harmful influences.

The topic of the harmful effects of mobile phones confidently ranks second after the harm of smoking, in terms of the number of discussions about its impact on human health. It should be noted that today the opinions of doctors, various research groups, and mobile phone companies are fundamentally divided, which is not surprising. Some are doing their job, while others are protecting their business.

In 2003, British specialists called for a ban on the use of mobile phones for children whose bodies (primarily the brain) are most vulnerable to various diseases, including cancer. Moreover, medical experts argue that radiation from mobile phones can cause biological mutations, which can lead to unpredictable consequences. It is no longer a matter of some banal "overheating" of tissues, but of possible epigenetic changes caused by the EMF of mobile phones. At least this conclusion was reached by scientists who worked for four years on the Reflex project (a project funded by the European Union). Scientists have found that electromagnetic radiation damages DNA.

More and more people reported suffering from "electromagnetic allergies." Even after a short time with the computer, they experience all the unpleasant symptoms of allergies: itchy watering eyes, runny nose, red skin. But even in the absence of such a pronounced reaction, electromagnetic fields can lead to unpleasant consequences, such as:

- bad sleep and morning weakness;
- headaches;
- loss of appetite and impaired digestion;
- bad mood and depression.

Naturally, such symptoms do not develop in all people. Fortunately, they are quite rare and depend largely on the parameters of their environment. It is very difficult to trace the dependence of negative symptoms on electromagnetic fields. Additionally, the effects are cumulative. It accumulates gradually and can manifest when the body is weakened by stress or disease. A lot of data has been published proving the negative effects of electromagnetic fields, and almost as many studies proving their safety.

The truth is in the middle. There are people who are completely immune to the effects of electromagnetic fields, while for others, this leads to the development of electromagnetic allergies with all its ensuing consequences. Naturally, it depends on the intensity of the field – if you have a powerful antenna installed on your roof, sooner or later it will have its effect.



There is no doubt that microwave radiation (or microwave ovens) is the most dangerous to health. The operating frequency of microwave ovens is 2.45 GHz. Modern microwave ovens are equipped with sufficient protection to prevent the electromagnetic field from breaking out of its working volume. At the same time, part of the electromagnetic field for cooking is penetrating outside and this is already dangerous for health. Radiation leaks are particularly intense, usually in the area of the lower right corner of the door. There is also evidence that when food is heated in microwave ovens, free radicals are formed in them, which are extremely dangerous for health. Of course, if you warm your porridge at work or make a hot sandwich once a day, it is unlikely to affect your health. At the same time, we have no idea what industrial and military devices are near our home or our summer cottage, so it is not uncommon for measurements to show high levels of electromagnetic fields that are not safe for health. Measurements of the intensity of electromagnetic fields on the microwave component repeatedly record that the values of the density of energy flow in the apartments of a number of districts of Moscow and St. Petersburg significantly exceeded the maximum permissible norms established for industrial conditions.

In the second part, we will discuss what can be done about it, but in the meantime, let's talk about a very relevant topic – viruses and bacteria.

The curse of the city of the monkey God and the world pandemic

And then leave the village!
Go somewhere,
Where would you be able
To sweeten and rest your martyr soul.
And when the plague is over,
Visit my poor ashes;
And Edmond will not leave.
Jenny's even in heaven!

A.S. Pushkin.

A Feast during the Plague.

After the conquest of the Inca and Maya empires in South America, there were always legends of ancient cities lost in the jungle. Many expeditions went in search of them, and only a few participants were able to return. But in the 21st century, modern technology helped find lost cities. A group of American archaeologists used the most modern lidar laser technology: in a small plane they flew over a large area of the jungle in the valley of the Mosquito mountains in Honduras, scanning the jungle with laser pulses.

This allowed them to discover an ancient city and build a three-dimensional map. Then, with the support of the Government of Honduras, an expedition was organized to explore the city on site. In 2015, a helicopter landed in the valley with a group of scientists and three British jungle warriors, whose job was to protect the lives of archaeologists – not from jaguars, but from bandits wandering in the jungle. For two weeks, archaeologists had pierced through the jungle, opening up more and more ruins of the ancient city every day. Jaguars wandered near their tents every night along with other beasts. Scientists encountered deadly snakes every day.

Fisher, chief archaeologist of the expedition and professor of anthropology at the University of Colorado, eventually discovered about 5 hundred sculptures and fragments in a relatively small area. The objects were left behind at the same time that people left the city.

Most of the artifacts were ritually broken up to free their souls, a common practice for cultural objects in North and South America. All these statues were not the tombstone of one person, but of the whole city. This story is fascinatingly told in the book *"The Lost City of the Monkey God"* by American journalist Douglas Preston, who participated in archaeological expeditions. But the story of this amazing discovery is only half the book. The second half is a story about a serious illness that befell all the expedition members. A few months after their return to their homeland all of them felt severe sickness, headache, broken joints. Every day the symptoms increased, and doctors could not determine the cause of the disease. One of the doctors advised Preston to find a doctor in New York who deals with rare tropical diseases. It turned out that they were all affected by a rare tropical virus. In the jungle, the worst dangers weren't jaguars and snakes, but mosquitoes. Those insects were circling in clouds over wet thickets and no repellents could protect people from being bitten. Special treatment at the New York Clinic took several months, but all the symptoms of the disease could not be eliminated.

This unpleasant story describes the danger that each of us face in our daily lives. The world does not belong to you and me, nor to plants and animals, but to microorganisms, bacteria and viruses. Bacteria, fungi and viruses represent more than 95% of the diversity of life on the planet. They can live in virtually any environment: in permafrost, in the springs at the bottom of the oceans under gigantic pressure and in the mad salt concentration in the Dead Sea in Israel. An interesting illustration of this is in Space History.

In 1997, an emergency occurred on board the Russian Mir space station: the control unit of the communication device failed. As the devices in space are usually redundant, communication was established through a backup system. However, the reasons for the failure remained unknown until the faulty instrument was delivered to Earth. After the autopsy of the device at the Institute of Medical and Biological Problems (IMBP) of the Russian Academy of Sciences, it turned out that it failed due to the reproduction of mold fungus on the insulation of the wires: it was practically destroyed, and on the wires observed numerous outgrowths of blue color (presumably, oxides of copper), which is why the short circuit occurred.

The situation was all the more dangerous because the mold mushrooms did not reproduce on the "Mir" station alone: the astronauts noted that the station smelled of rotten apples. The reason was the same – mold mushrooms. Mildew gradually destroyed plastic parts, and the enzymes released in this process produced the smell of rotten apples. Naturally, would such aggressive mushrooms begin to multiply on Earth, it could pose a significant threat to our entire civilization.

However, it turned out that when the mushrooms entered the Earth's atmosphere they lost their aggressiveness and returned to the Earth's life. Here's an example of the adaptability of microorganisms. Two "Potok" modules were delivered to the "Mir" station. They affect microorganisms in the air with weak electric current pulses piercing holes in the cell walls of the microbes, and they die. Thanks to the work of "Potokov," the concentration of mold fungi in the air dropped below sanitary standards. The air was rendered clean. But, unfortunately, it was impossible to completely clean the walls of the station. Cleaning with the help of a vacuum cleaner and tissues soaked in hydrogen peroxide proved not to be effective enough.

Bacteria and fungi can accumulate in secluded areas, for example, under plastic covers or wall panels. The outside aluminum walls of the station were subject to large temperature drops, and the inside of the station was continuously air-conditioned, causing condensation in the gaps between the inside and outside layers of the cladding, from where the microorganisms draw moisture. In such places, their concentration was particularly high – with corresponding consequences. This mold was one of the reasons for the decision to stop working and flood the station. The biological threat was taken into account in the design of the international space station ISS. But in 2001, there was another emergency on ISS. On board the station there was a Russian fire alarm sensor that recorded a number of micro-particles passing through the air. Due to the growth of microorganisms around the sensor's recording needle, it began to give false signals about the fire, which seriously unnerved the crew.

In this case, the only solution was to return the sensor to Earth where the cause of the malfunction could be determined. It should be noted that the consequences of such failures would have been much more serious if they had affected the air conditioning or oxygen regeneration systems as neither of them on board the ISS has full redundancy.

Since then, of course, the communication systems and fire safety sensor at the station have been improved so that their bio-fouling is difficult. But the

plastic insulation of the wires still attracts bacteria and at any moment their proliferation can affect some device. That's why it's so important to control the number of germs in the station and keep it within reason. The composition of samples delivered from the ISS in the 2019 study was interesting.

The cultivation method was able to identify 133 species of bacteria and 81 species of fungi. The most common were staphylococcus (26% of all species), genus *Pantoea* (23%, enterobacteria, including opportunistic pathogens) and *Bacillus* (11%). Golden staphylococcus was the leader among species, accounting for 10% of all found bacteria. One can confidently speak about the discovery of *Escherichia coli* – a conventional pathogen.

Clearly, as long as the astronauts are healthy, they're not in any particular danger. But in case one of them needs surgery or takes immune-suppressant medications, the situation could get noticeably worse, as with any epidemic situation, be it the flu or coronavirus. It was somewhat unexpected that the species composition of the ISS microbiome was very different from other media, which, logically, should be close to "space."

Neither in the NASA "clean rooms" (where the assembly of space equipment is done), nor in the rooms where the experiments are conducted on long flights to Mars and the Moon, such a microbiome, as on the ISS, has not been identified. Not only have many fewer bacteria and fungi been found there, but other dominant species have also been identified.

But the ISS microbiome is very similar to the one found in most earthly buildings regularly visited by people – fitness centers, offices, hospitals. The same bacteria and fungi as those found on the skin of animals and humans inhabit both earthly buildings and the inside of the ISS. Typical examples include staphylococcus, the usual inhabitants of our skin and parts of the upper respiratory tract. In other words, the microbiome of an orbital station probably came mainly from the skin of crew members, rather than from some other source.

In nature, the microorganisms form a complex community. The members of the community depend on each other, help each other, sometimes try to deal with competitors – all like humans. Without them, our life would be fundamentally impossible. The human body consists of about a trillion cells. And inside our body there are dozens of times more bacterial cells. Most of them live in the intestines and actually form a single huge organ – a microbiome. It's the largest human organ by weight, larger than the liver or brain. Intestinal bacteria produce a number of vitamins and amino acids that are essential for life. They contribute greatly to the immune system and produce important anti-inflammatory compounds. However, many diseases such as diabetes, autoimmune diseases, even schizophrenia, can be caused by pathological changes in the composition of the microbiome.

In addition to our own bacteria, we regularly inhale and eat a large number of outsiders, some of which are pathogenic. Most of them our immune system successfully destroys. When it cannot cope, we get sick. Scientists at the Lawrence National Laboratory in Berkeley found that an air sample taken in the state of Texas contains at least 1800 different types of bacteria. These included germs from meadows, water treatment plants, hot springs, human gums and a surprisingly large number of bacteria living in old paint. Some of the germs found in the air have travelled a great distance: dust from the desert of China flies across the Pacific to North America and further on to Europe, circling the globe. Dust clouds bring bacteria and viruses from the soil over which they have formed, and they fly away with the smoke of fires and sea mist. Take a breath, and you'll taste the whole world. Germs don't just inhabit the air, they created it, at least the air we depend on. When life was born on earth, there was almost no oxygen in the atmosphere. This gas is a by-product of photosynthesis, cyanobacteria "invented" it over 3 billion years ago. They are directly responsible for half of all the oxygen released on Earth in a year, indirectly affecting most of the rest. Inside plant ancestors, bacteria have turned into chloroplasts – photosynthetic plant cell reactors that produce oxygen. No matter how carefully you wash your body, there is not a single scrap that is not covered with microscopic creatures. These include not only bacteria, but also viruses, mushrooms and archives.

A biology teacher's wonderful lesson was given to her junior high school students. She brought a Petri dish with a nutritious medium to the class and asks students to put their fingers on the substance.

Then they close the cups with lids and leave them standing on the window sill in the class. The next day she opens the lids and the children see the colonies of microorganisms that have grown in place of their fingerprints. After this lesson, all the kids start washing their hands thoroughly.

The virus is a separate domain of biological nature, "an organism on the edge of life." The term comes from the Latin word virus, meaning poison. A virus is a microorganism that invades the cells of all living things. The virus is not a cell, but a DNA or RNA molecule (ribonucleic acid) packed in a protein shell – capsid. The size of viruses is less than one hundredth of the average bacteria. The number of viruses studied in detail reaches five thousand, but it is believed that the actual number of viruses exceeds one million. Viruses live like real parasites – they cannot reproduce on their own because they have no cellular structure. They penetrate a living organism or bacteria cell and force organoids (ribosomes) in the cell to synthesize viral proteins, from which multiple copies of the virus are then collected. When viruses leave a cell, they usually die. New viruses capture other cells with great speed. This is how viruses make the body work for them. That's how infections actually progress. The virus either destroys the host cell or provokes an immune system response, which manifests itself in symptoms such as fatigue, fever, and even severe tissue damage. Sometimes, with acute respiratory infections or flu, people rush to the pharmacy for antibiotics, not realizing that the viral disease cannot be cured. After all, antibiotics are aimed at suppressing pathogenic bacteria, but not viruses. Only antiviral drugs are effective with the latter. Mankind has always lived under the threat of epidemics. In the Middle Ages, epidemics of cholera, plague, and dysentery took millions of lives, turning Europe into a desert land for many decades. In the early twentieth century, the epidemic of "Spaniards" took 50 million lives – far more than in World War I. No one knows how many millions of indigenous people in North America and other countries conquered by Europeans died of the smallpox epidemic. Authorities were handing out smallpox-contaminated blankets to residents, and in cold blood, they watched thousands die in agony.

Vaccinations have helped us cope with most of these diseases, but the flu has come to the fore.

In 2020, the entire world faced a formidable new danger: the coronavirus pandemic. Millions of people were infected and many died. Unprecedented measures were taken in all countries. The coronavirus affects deep parts of the respiratory tract and lung alveoli. Like any virus, coronavirus primarily affects people with a weakened immune system, taking certain drugs, and

the elderly. The primary mortality from this virus in all countries was in older people. After 9 months of pandemic development, the course of the pandemic can be analyzed, and it is important to do this for each individual country.

The genome of influenza viruses consists of 8 separate segments of RNA, which are collected in virions in the host cell. If a cell is simultaneously infected with two influenza viruses, these are already 16 segments that can be collected in different combinations. In theory, 2 influenza viruses can give 256 different combinations. Resorption is one of the main mechanisms for the emergence of pandemic viruses. A striking example is virus A(H1N1)pdm09, which caused a pandemic in 2009. A(H1N1)pdm09 is the product of resorption of human, swine and poultry viruses in swine organisms.

The new coronavirus SARS-CoV-2 is not the first coronavirus that mankind has encountered. The coronavirus became known back in the mid 1960s. In 2002, the SARS-CoV coronavirus caused an epidemic of severe acute respiratory syndrome (SARS). A total of 8437 cases were reported, of which 813 resulted in deaths - 9.6%. Ten years later, another coronavirus, MERS-CoV, started raging, causing Middle East Respiratory Syndrome (MERS) with a 35% mortality rate! Both of these viruses, as well as the new coronavirus, came to man from bats, who were unaffected. But unlike the avian influenza virus, coronaviruses are easily transmitted from person to person. Previous coronaviruses have been relatively quick to contain due to high mortality and relatively rapid development of symptoms. Oddly enough, the more lethal the virus is, the easier it can be localized. With new coronaviruses, infection is in most cases mild, allowing the virus to gain time and spread further.

As demonstrated by the analysis, the damage from the global economic shutdown was the most severe outcome of all the years of this epidemic.

This was yet another lesson for the world's governments.

The rhythms of our cosmic life

And again and again, the stains have risen in the sun,
 And sober minds were darkened,
 And the throne fell, and were inevitable
 Hungry pestilence and the horrors of the plague.
 And the shaft of the sea boiled with hesitation,
 And the noord sparkled, and the tornados moved,
 And in the field of competition
 Fanatics, heroes, and executioners were born .

A.L. Chizhevsky (1897-1964).

We are moving all the time, even when we're sitting still or sleeping. We are moving with the Earth around the Sun, and with the Sun around the center of our Galaxy. And all these movements generate cycles of day and night, seasons, decades and eras. We are part of the living, pulsating matter of the universe. These rhythms leave a huge imprint on our lives and our health.

The most obvious rhythms for us are daytime. The sun rises and sets. We wake up in the morning and go to bed in the evening. Anyway, that's how it should be, and we'll talk about it later. But there's our circadian rhythm of the day. It's already our own, biological rhythm. Like most processes in our body, it is dictated by the balance of several hormones. The main one is cortisol, the hormone of survival. It is cortisol that controls the reaction of "fight or flight." It decides how the body behaves in a stressful situation: to oppose the danger or run away as soon as possible. But a complete list of functions that the hormone performs is much greater:

- controls the use of proteins, fats and carbohydrates (which is why stress affects body weight so much);
- inhibits inflammation;
- regulates blood pressure;
- increases blood glucose content;
- increases energy levels so that the body can cope with and recover from stress;
- is involved in regulating sleep and waking cycles;

That's what we'll talk about. Look at the cortisol level measured by saliva every 4 hours during the day:

Cortisol level range in a healthy person (nmol/L)

Time, hours of the day	8	12	16	20	24	4
Cortisol level	5.50- 24.80	3.80 - 13.20	2.20- 9.40	1.60- 4.40	0.80- 3.30	1.10- 9.40

As we can see, cortisol levels in the morning should be at its highest (cortisol is hormone of activity). Then it drops during the day, reaches its lowest level at midnight, and then starts to rise again. Having this cycle, the circadian rhythm the person wakes up cheerful, energetic, is active all day, and goes to bed in the evening with pleasure. If we measure the energy parameters of a person in the morning and in the evening, we get slightly different numbers. For example, Fig.17 presents a picture of a healthy person's field early in the morning and late in the evening. As we can see, the configuration of the field is very similar, but in the evening, it is weaker and not so active.

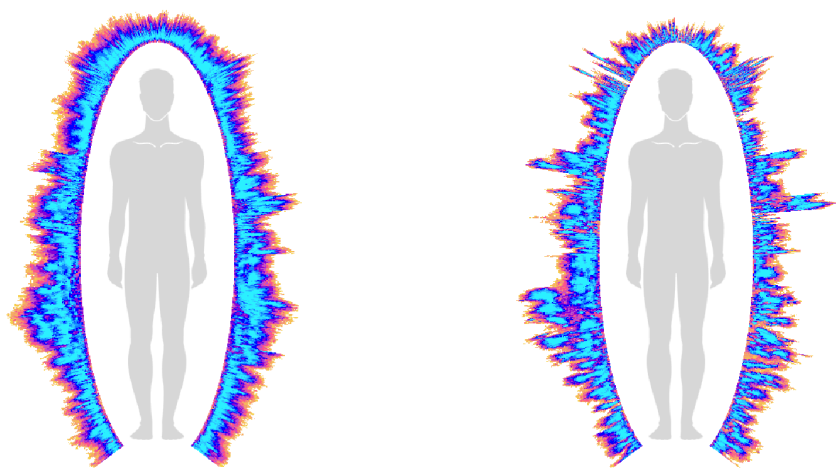


Fig.16. Energy field of a healthy man in the morning and in the evening.

The cortisol level figures show that measuring it once during the day makes almost no sense. Look. In the morning there is a variation of parameters for a healthy person from 5 to 25. If you have 15 in your analysis, it doesn't say anything. You have to measure every four hours, but not many labs do this kind of analysis. As it turns out, with the Bio-Well instrument, it's easy to make that measurement. We take readings from two fingers, it takes less than a minute, and the computer detects stress levels and energy levels. Obviously, the energy level should be high in the morning and low in the evening. We take such measurements with members of the Russian

Olympic and Paralympic teams. The methodology is officially adopted by the Ministry of Sports of the Russia.

The next rhythm is monthly, or to be more precise, lunar. Every woman is well aware of this rhythm, although the influence of the moon on earthly affairs is still mysterious and controversial (except for the tides, obeying the laws of celestial mechanics). The rest – such as the influence of our natural satellite phases on the growth and maturation of fruits and vegetables, on volcanic eruptions, on wound healing – remains unproven. As far back as the century before last, people believed the moon influenced the onset of childbirth. Italian medics have noted the full moon is, indeed, responsible for more births. Doctors at a major hospital in India have been recording heart attacks for two years, depending on the phase of the moon. It turns out on a new moon, there are 20% more heart attacks than on a full moon. Another case where moon phases affect health issue is the degree of *E. coli* and *Enterococci* contamination of sea beaches, understandably changing with the tides. American microbiologists have found, the beaches in California have the highest concentration of *E. coli*-causing germs at low tide. Be careful swimming at low tide when the tide's clear water from the open ocean comes to the shore. Contrary to popular belief, the Earth's satellite has no effect on the aggressiveness of people. Extensive statistics of crimes do not reveal any connection between the phases of the moon and the frequency or severity of crimes. However, psychiatrists in Liverpool, England, claim that the moon affects schizophrenics. German doctors do not confirm the opinion that wounds heal better with the waning moon and therefore, it is necessary to prescribe scheduled operations for this period.

Surgeons studied the condition of 866 patients after various operations and found no connection between the healing rate or intensity of postoperative pain with the moon phases. The cycle of menstruation also has nothing to do with the lunar calendar. American anthropologists have spent three years monitoring the monthly cycle of Indian women living in the forests away from such biorhythm influencing civilization factors as hormonal contraceptives and electric lighting. No connection to the moon was found.

The phenomenon of sleepwalking has been known since ancient times. According to ancient beliefs, sleepwalkers are attracted to the full moon. It is what helps them maintain their balance when they walk on roofs and cornices without waking up. However, modern research shows that lunatics have no connection with the moon's phases. Medical references define sleepwalking as the ability to perform complex, coordinated and as if meaningful actions in a dream and completely forget after waking everything done. This phenomenon is not so rare. According to statistics, at different times in their lives, sleepwalkers comprise one percent of adults and as many as six percent of children.

Our little daughter often went out at night, but then it passed. A striking case is the incident that was described in the English newspapers. A resident of Portsmouth was woken up at half past four in the morning with a phone call. His fifteen-year-old son, who had suddenly woken up at the wheel of a family car in Southampton, was on the phone. His father called the police, and a quarter of an hour later, the police found a completely confused teenager near the car in his nightgown pajamas. In his dream, he went down to the car, started it and drove without waking up, almost 45 kilometers to Southampton.

In the beginning of twentieth century, in psychological magazines, data has been published that in a life of a person, it is possible to allocate three cycles: 23-day physical, 28-day emotional, and 33-day intellectual. These cycles were called biorhythms. Many scientific works on this issue were published and most of them proved the existence of these cycles.

For example, in 1967, psychologist F. Telcher from Innsbruck published his observations on the results of examinations by students of higher education. The scientist compared the grades with the date of birth of the students and determined that the students' progress changed with the 33-day period. He suggested that rhythms born in brain cells, memory, creativity and clarity of thought are better in the first 16 days of the cycle than in the second half. Therefore, the first half of each cycle is a positive phase, the days of transition from positive to negative phase are a critical period, critical is also the days when two or three cycles are in the minimum. The Bio-Well program calculates a graph of your Biorhythms for the current month depending on the birth date (Fig. 18). If you have carried out Bio-Well measurements during this time, the graph shows the energy or stress values measured during these days. This program allows you to monitor your health status, determine the influence of exercises, important life events and determine critical days in advance. You may follow up transformation of your energy of stress level per day, per week or per month. These data is automatically added to the graph. You can also view your Biorhythms for the next month and define critical days. We have accumulated a large amount of data that many people have unpleasant events on critical days: a traffic accident, trouble at work, bad health. Another interesting question is the influence of the date of birth on a person's fate. This is what the whole of astrology is based upon. In the Middle Ages, no decisions were made without consulting with an astrologer. But this did not always help. After losing battles, many astrologers lost not only income, but also their heads. Should modern man forget about astrology completely? Not really.

Professor Valentina Ivanovna Shaposhnikova from the St. Petersburg University of Physical Education and Sport for many years has been researching correlations between the performance of athletes and their birthdays. She found a new biological pattern: two-year biological rhythms in women, and three-year biological rhythms in men. The increase in athletic performance in women takes place every second year, and in men, in two years for the third. This allows scientists to create a methodology for predicting athletic performance with an accuracy of 70-85%.

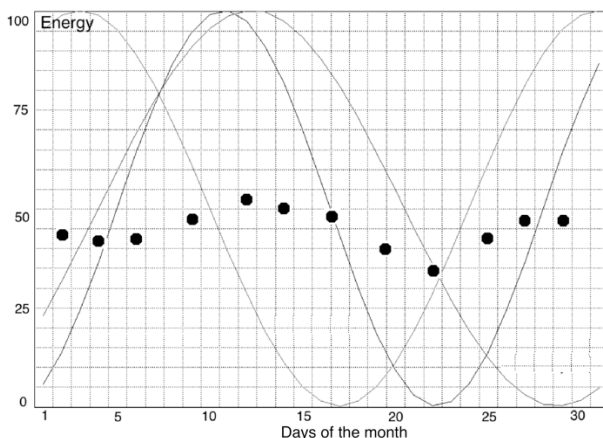


Fig.17. Graph of biorhythms from the Bio-Well program.

He found the peak of mortality falls several days before the birthday, as well as 3 months after the birthday. Interestingly, in the Ancient East, a child was counted as having life only after the first three months after birth (due to the high mortality rate of infants). The same pattern is followed by the distribution of infectious diseases. In 1924 surveyed children and young sportsmen, the peak of morbidity falls on the week before their birthday. Many other researchers, when analyzing different diseases, obtained the same data. Thus, a week before our birthday, we all need to be more careful. Interestingly, athletes experience personal records in sports mostly in the last quarter of the year before their birthday. Astrology has its reasoning, while modern science gives certain indications as to why the location of the planets may have an impact on our lives. When the position of planets changes on the scale of the solar system, the configuration of the gravitational field in space changes. This affects the distribution of energy in space, and primarily the activity of the Sun. And that's where we move from chronobiology to heliobiology.

Outstanding Russian scientist, Alexander Leonidovich Chizhevsky, in 1918 at the age of 21 years, defended his doctoral thesis under the title "Physical factors of the historical process," later published as a separate book in Russia and France. In this book he developed the idea that cycles of solar activity are manifested in the biosphere, affecting all life processes from yield to disease, human well-being and even political and economic crises, wars, uprisings, revolutions.

In his works, A.L. Chizhevsky first showed that life on Earth is closely connected with the Sun. Cosmic forces determine the life processes in the biosphere. Periodic phenomena on the Sun, repeated after 11 years, affect the intensity of reproduction and growth rates of organisms of our planet. The life development process on the Earth is the result of the action of earth and space factors: the world of space and the world of the Earth's biosphere are linked together. Life on Earth – all physical and chemical processes, the structure of the Earth's shell, the atmosphere – is a manifestation of the "structure and mechanics of the universe." The radiation flows coming to the Earth from the depths of the Cosmos are the true creators of the "Face of the Earth." "Penetrating into the Earth's environment," wrote A.L. Chizhevsky, "they make them tremble in unison with each of its atoms, at every step they cause the movement of matter and fill the air ocean, sea and land with natural life. When they meet life, they give it their energy, thus supporting and strengthening it in the fight against the forces of inanimate nature. Organic life is only possible where cosmic radiation is freely available, for to live is to let the flow of cosmic energy pass through. The main source that caused the emergence and evolution of organic life on Earth is the Sun's radiant energy." Moreover, "the most important events in human communities covering whole countries with participation of people's masses are also connected with solar activity, i.e. with transformation of radiant energy of the Sun into excess of nervous and psychic energy of human masses." Chizhevsky did not ignore the role of economic and political factors in social processes: "Now in our hands," he wrote, "there is a simple but effective scheme: the nature of the Sun and the Earth revolts – people are worried, the nature of the Sun and the Earth calmed down – and people calmed down.

Therefore, politicians or military leaders should not hope for the possibility of this or that event. They should know that the reality will be with that unassuming necessity, which is characterized by the phenomena in the physical world in complete independence from personal hopes or state plans." Chizhevsky's ideas were enthusiastically received in the world. In 1939 he was elected Honorary President at the First International Congress of Biology in New York. Naturally, he was not allowed to go to America. The Congress took the initiative and sent a special memorandum to the Nobel Committee with Chizhevsky's submission to the Nobel Prize.

But the applicant unexpectedly refused even to be nominated for this award. He understood very well it could threaten him under Stalin's regime. It was assessed, and he was awarded the highest in the country – the Stalin Prize. Yet even this did not save him from repression. His ideas were totally against Bolshevik ideology. In 1942, he was sentenced to eight years and exiled to the camps. After his release in January 1950, he was sent to a settlement in Karaganda (Kazakhstan), from where he could return to Moscow, but only in 1958. The teaching of Chizhevsky is one of the most significant scientific discoveries of the 20th century. His ideas served as a basis for a new science – heliobiology. This science studies the influence of cosmic processes on earthly life. Over the past century, huge scientific material has been collected. There is no doubt that we live under the influence of space. The global warming that we have been experiencing for several decades is yet another manifestation of the cyclical changes in temperature on Earth that have been regularly occurring for thousands of years. Paintings by Peter Bruegel, the great artist of the 16th century, depict Holland, in which the whole earth is covered with snow, lakes and rivers are covered with ice, people are skating. This is the so-called Little Ice Age in Europe, which lasted from the 14th to the 19th century, the coldest period in 2000 years. So, all the temperature fluctuations on Earth are a reflection of cosmic rhythms. An important discovery of Chizhevsky was the discovery of the 11-year cycle of sun activity. This cycle was discovered in many phenomena of flora and fauna. Locust raids occur regularly, repeating themselves about every 11 years. The 11-year cycle is seen in the breeding of cod, herring, brushes, bream and other commercial fish. Once in 11 years, their catch is particularly abundant. The same cyclicity is observed in grain yields, and even in wines. The 11-year cycle is also of great importance in our lives. Every 11 years, we completely renew all the cells in our bodies, and the nature of our lives sometimes changes completely.

Eleven years: the child becomes a teenager and a hormonal transformation begins, with all the ensuing consequences.

Twenty-two years: a young person begins to master adult life, makes a lot of mistakes, looking for his way in life full of hopes and expectations. At the same time, on a global scale, 28% of suicides are committed by young people aged 15-29 years. Moreover, girls are more suicidal than boys. Thus, among women 32% of suicides occur at the age of 15-29 years, while among men – only 26%. Then that ratio changes in the opposite direction.

Thirty-three years is the age of Jesus Christ. Age of formation, maximum activity and maximum energy.

Forty-Four years: a man has already achieved something in life, he is firmly on his feet, and everything is open ahead. Or, on the contrary, it is already clear that he is a complete loser.

Fifty-five years: is a critical age for many people, especially women. For most women, menopause is a new stage in life. Children have already grown up, they no longer need you, and we need to understand what the new meaning of life is. It is also a very critical age in terms of health – the body is moving to another level of energy supply.

Sixty-six years: according to the new WHO classification, this is the end of middle age and the transition to the elderly.

Seventy-seven years: is old age. At this age, you can be active and energetic, or you can be old and sick.

As you can see, every 10 to 11 years we go through a new phase of life. Not only do living conditions – career, finances, family, children – change but also does the whole environment, and most importantly, our inner world changes. Ideas we were fond of when we were 20 seem funny at 40 and trivial at 60. Every active person goes through ups and downs, through love and disappointment, through achievements and losses. We are affected by all the cataclysms of this world. Our inner world is shaped by many people and a huge flow of information.

We are open information systems and we are constantly changing, without noticing it ourselves. And every 10-11 years, this change happens by leaps and bounds. Something accumulates inside, is digested, processed, purified in the retort of our soul to break through at some point and appear as a new trait of character. And acquaintances will say: "She has changed so much; it is absolutely impossible to recognize her as if she were a new person." And this is really the New Man. Now let's present the situation. Young people get to know each other, and a spark slips between them. It's a flash of fire, a sudden passion impossible to resist. Everything around disappears and only the two of them remain.

The world no longer exists. There is only passion. Their stormy, absorbing sex happens on the floor, on the bed, on the piano, on the chandelier. And it doesn't go on for two days – it goes on week after week, month after month. Afterward, the bride appears in a white dress, the groom in a dark suit to the relief of parents and the joy of all friends. At some point, a baby is born to the joy of the whole family – especially grandmothers and aunts – life gets better and flows in its natural course. But 10 years pass, and discontent begins to grow on both sides. The stormy sex is over. That's good, if it happens on Sundays when kids go for a walk. Often, we have to go somewhere to freshen up a relationship, but even that doesn't help much. After a lot of arguments, cheating and conflicts, the couple breaks up, leaving the unhealed scars. It's a sad but typical story. And we understand why. In the beginning, when they met, they were like one being. They were resonating with each other, and their connection was a fusion of not only bodies but of souls. Ten years later, each have changed, and changed in different ways.

They became different people. As it turns out, they really had nothing in common except a shared apartment and a shared child. But it's no longer possible to live together. They are strangers. She doesn't like the way he smacks, how he laughs, or how he snores in his sleep. The only way out was to split up and go in different directions. Of course, there are other stories. Many couples have been living together for decades. Their relationship goes through different phases, which only strengthens their love, tenderness, and affection for each other.

Let's remember, we live within the waves of the universe, we are part of the cosmic rhythm. This rhythm dictates the course of our lives. In the next chapter we will discuss a small but crucial part of this infinite spiral: why do we sleep?

Why we sleep?

Methought I heard a voice cry "Sleep no more!
Macbeth does murder sleep," the innocent sleep,
Sleep that knits up the ravell'd sleeve of care,
The death of each day's life, sore labour's bath,
Balm of hurt minds, great nature's second course,
Chief nourisher in life's feast.

W. Shakespeare. Macbeth (2.2.32-37)

We spend one third of our lives lying still, without contact with the world. In youth sleep is very offensive with so many interesting things to do. Why then do we have to lie down and waste time? In the evening it's time to do homework, chat with friends, and maybe read a book, going to bed at midnight, and getting up early in the morning. It is very typical for young people to try to sleep less. Why do we have to sleep at all?

All living things sleep: animals, birds, fish. Some sleep longer, some shorter. Elephants and giraffes need only 4 hours of sleep; tigers and lions like to sleep for 15 hours every day. Bats are superior to all other mammals as they sleep for 19 hours and stay awake only for 5. One might think the reason for such variability in sleep requirements depends on the size of the animal, but it is not. None of the factors – neither hunter or prey status, nor day or night life – explains the difference in the sleeping requirements between different species of creatures.

Sleeping time is similar within one phylogenetic category, as its representatives have a similar genetic code. But there's no definite rule here either. Squirrels and moles belong to the same family: rodents, but they have completely different sleep requirements. Squirrels sleep for 15-16 hours while moles sleep on 4-hour cycles. At the same time, the simple guinea pig and large baboon, belonging to different genetic classes, sleep the same amount of time – 9.5 hours. So there are many more mysteries to the dream.

This mysterious question "why are we sleeping?" has always attracted people, especially the mystery of dreams. In all civilizations, at all times, people have tried to interpret dreams, and some, as we know from the Bible, have succeeded.

“And Joseph said unto Pharaoh, The dream of Pharaoh is one: God hath shewed Pharaoh what he is about to do.” *Genesis*, 41, 25

The scientific interpretation of dreams proposed by Sigmund Freud gave rise to a whole direction in psychology. But it's only now science has figured out why we sleep. Let's see what science says (Walker M. *Why We Sleep?* Growth Digest. 2019). In the previous chapter, we talked about circadian rhythms. One of the main hormones that regulates these rhythms is melatonin. It's called the sleep hormone.

As it gets dark, the melatonin content in the blood starts to rise. This substance enters the circulatory system from the epiphysis, or pineal gland, located deep in the brain. Melatonin acts as a powerful signaling agent that tells the brain and all organs of the body an unambiguous message: "It's dark, it's night, it's time for bed." Once this command is received, parts of the brain begin to generate sleep. During the night when sleeping, the melatonin concentration increases until about four in the morning, then begins to slowly decrease, and with the first rays of light its secretion stops.

Everyone knows about jet-lag, a sleep disturbance after flying to other time zones. I have to fly a lot – almost every month, and often to another part of the world. But I don't feel uncomfortable with jet-lag. A long time ago, I developed my own system. When I fly to another country, the first thing I do is change my watch to local time and tell my brain that we live by that time. I don't care what time it is in my hometown,

I live at the local time of my destination. The first night you have to get busy, go out and stay until 10 pm. Then go to bed in total darkness. It is very important. We have to sleep without any external light sources, then our brain will clearly understand that it is night.

Sometimes, we have to put a blindfold over our eyes. In the morning, when I wake up, the first thing I do is go out to catch the first rays of the sun. This way, my brain realizes that we have moved to another time zone, and quickly adjusts the next day. Anyway, I don't suffer from insomnia, neither in strange places, nor coming home.

You may have noticed it is harder to get used to the new time zone when you travel east than when you fly west. There are two reasons for this. First, traveling east requires you to fall asleep earlier than usual. Moving west makes you stay awake much longer, which is much easier in terms of consciousness and brain function. Secondly, the period of our internal circadian rhythm is slightly longer than the day, about 24 hours and 15 minutes. The small difference also slightly contributes to the artificial extension of the day and partially prevents its reduction. When you travel westwards towards your daytime hours lengthen, lasting longer than 24 hours making it easier to adapt. Traveling east, the day suddenly gets shorter, which goes against your inner rhythm, making it more difficult to adjust.

So, melatonin gives us an "it's bedtime" ringer. The need for sleep is regulated by another chemical that accumulates in the brain. It's called adenosine. Every minute we wake up, its concentration increases. The longer you stay awake, the more adenosine builds up in your brain. It's like a chemical timer that counts the amount of time you've been awake. The effects of increasing adenosine concentration in your brain are an increasing desire to sleep. This is the need for sleep – the second force that determines when you feel sleepy and when you should go to bed. When adenosine concentration reaches its peak, you are enveloped by an irresistible desire to sleep.

However, you can artificially muffle the adenosine signal to sleep by using substances that will make you feel more awake, such as caffeine. Coffee is the second best-selling commodity on the planet, after oil. Caffeine successfully fights adenosine for the privilege of penetrating adenosine receptors in the brain. Caffeine blocks and effectively suppresses these receptors, making you feel alive and awake. It's been circulating in the human body for a very long time, with a withdrawal time of 5-7 hours.

Caffeine is also found in other foods, such as tea, dark chocolate and a number of medicines. Also, be aware that the label 'decaf' does not mean that the product is actually caffeine-free. One cup of decaf contains 15-30% of the dose in a cup of a regular drink. However, there are people who do not mind sleeping. They can have a couple of espresso cups in the evening and sleep in peace. Apparently, they have very active caffeine-destroying enzymes, which allow the liver to get it out of the bloodstream quickly.

There are a number of other substances involved in the formation of sleep. But what happens in the dream itself? Recently, one of the most spectacular discoveries in the field of sleep research has been made. Professor Nedergaard of Rochester University has discovered that the brain has a sort of purification system called the glymphatic system. Its name is derived from the lymphatic system of the body, but it consists of cells called glial cells.

These cells are distributed throughout the brain, located next to the neurons that generate brain electrical impulses. Just as the lymphatic system removes contaminants from our bodies, the glymphatic system collects and removes dangerous metabolic impurities produced by the intense work of our brain's neurons, just as the garbage collection teams drive through the streets of a sleeping city.

Although the glymphatic system is active enough during the day, scientists have found that this neural sanitization treatment works with maximum activity during sleep. According to the rhythm of brain waves during deep sleep, there is a 10-20 times increase in the release of toxins from the brain. In this nightly enhanced cleansing, the glymphatic system performs its sanitization with cerebrospinal fluid washing the brain.

In addition, another astounding discovery has been made which explains why it is at night that the cerebrospinal flow cleans metabolic waste so effectively. During slow sleep, glial cells in the brain shrink by 60%, increasing the space around neurons and allowing cerebrospinal fluid to wash out metabolic waste from neuronal daytime activity more effectively. Imagine big city buildings shrinking at night, giving municipal services easy access to the garbage scattered in the streets, and then all corners and corners are washed with a powerful jet of special solution. Thanks to this deep cleansing, the refreshed brain is ready to work again every morning.

Another important function of sleep is to sift out and remove unnecessary neural connections and fix what we need. In other words, it is working with new information. During the day, we receive a huge amount of information. Meetings, conversations, the internet and books are all downloaded into our brain. With information coming in every second, most of it is information garbage. Modern civilization produces it in huge quantities and this stream threatens to overwhelm our consciousness. There is also useful information. We are constantly learning new things. And the separation of the useful and non-useful streams become sifted in our dreams.

At the beginning of the night, a slow deep phase of sleep dominates. At this time, unnecessary neural connections are filtered out and removed. During the fast sleep phase, the dream phase, information is transferred from short-term to long-term memory. Experiments have shown that sleep, when compared to the same waking time, increases a person's ability to save information by 20-40%.

In the 21st century, we see the beginning of the active use of MRI scanners, which allows us to look into the brain depths of subjects. It turns out that before going to sleep, people extract memories from the hippocampus, where the short-term storage of information takes place. By the next morning, the memories have shifted. After a night of full sleep, the participants in the experiment began to extract information from the neocortex. Located in the upper hemispheres of the brain, the neocortex is a site serving as the long-term repository of information, where it can be stored, perhaps, for all life.

If you have encountered very old people, you have noticed that they perfectly remember the smallest details of their distant past but often can't remember what happened yesterday. Their memory repository is working but there is no translation system from short-term to long-term memory.

Smart students know very well: the best way to learn new information is to read a textbook overnight, put it under a pillow, and sleep quietly. In the morning, most of the information will remain in your memory.

Naturally, different people have different absorptive abilities. Few lucky people remember quickly and for a long time: they can quote by heart poems and huge pieces of text. This quality is a professional feature of dramatic artists. Most people are not so lucky and have to persist with the same text for a long time until something sticks in memory. You have to accept this and repeat the same foreign words many times before they will be remembered. And before going to bed, do it most effectively.

In a dream, almost all parts of the brain are involved. There is processing of subconscious information, which often leads to the formation of important conclusions. "Morning is wiser" – this saying reflects a fact discovered by our distant ancestors. If you have an important decision to make, think it over in the evening and go to bed. In the morning, a clear solution to the problem will be formulated in your mind. Sometimes it happens in your dreams.

It is widely known that Dmitry Mendeleev had seen his periodic table of elements in a dream; Friedrich Kekule dreamt of two snakes biting each other's tail, and he came to the idea of a benzene ring. Paul McCartney had a dream about the melodies of "Yesterday" and "Let it Be." McCartney remembered: "When I woke up, there was a wonderful melody in my head. I immediately sat down by the piano standing to the right of the bed by the window and played a few chords, each of them organic flowing to the next. I thought: I had never written anything like that before. But now I did it, and it was real magic!"

The creative muse of dreams also gave birth to countless literary ideas. Remember Mary Shelley, who had a terrible dream on a summer night in 1816, when she was staying at one of Lord Byron's estates? This dream gave Shelley the image and plot for the gothic novel *"Frankenstein, or modern Prometheus"*, which became world famous. The French surrealist poet Saint-Paul-Roup hung a sign on his bedroom door every night while he went to bed: "Do not disturb, the poet at work." Thomas Edison always kept a notebook and a pen near the bed, and often, waking up at night, wrote down new ideas.

During the dreams, the emotional part of the brain is the most actively engaged.

There is a whole new discipline, the so-called "lucid-dreaming." Special training allows a person to consciously manage their dreams, to move to interesting regions of the world, and communicate with important people. This technique requires a lot of work, because controlled dreams can be done when the brain has already rested after a night's sleep. So, if you are not interested in watching serials, you can create your own mind movies while sleeping.

By the way, during a quick sleep with dreams in the brain, the concentration of noradrenaline, a stress-related chemical, sharply decreases. Rapid sleep is the only period in the day when the secretion of this substance in the human body stops. In other words, dreams are the best cure for stress. Sleeping pills which suppress rapid sleep with dreams contribute to the development of chronic stress. Besides stress, the lack of sleep affects all organs and systems of the body. Sleep deprivation is one of the most brutal torture used by dictatorial regimes. This torture leaves no trace, but it can be more terrible than pulling out your nails. After several days of such torture a person can die. But a simple under-screening also causes catastrophic consequences for the body.

←  →

In developed countries, car accidents account for more deaths than the consequences of epidemics. When sleeping for less than 5 hours a day, there are moments of so-called instant sleep, when the consciousness is turned off for a few moments, and the person does not even notice it. If this happens at a lecture or in front of the computer screen, the head is powerlessly lowered on the table. After a while the person regains consciousness. And now imagine that you are sitting behind the wheel of a car, and your consciousness is turned off for a few moments.

All your muscles are relaxed. The car turns deadly, rushing at a great speed in an unknown direction. This happens especially often on straight sections of the road, where the monotonous environment causes additional sleepiness. A two-year follow-up of 7,000 U.S. drivers showed that after less than 5 hours of sleep, the risk of a crash increased three times.

If you sleep less than 4 hours, you are 11.5 times more likely to be involved in an accident. The reduction in sleep time and the increase in the risk of death in crashes are not linear. It's exponential. Every hour taken from sleep dramatically increases the probability of accident. It is undeniably proved. Lack of sleep has a devastating effect on health. Japanese scientists have been monitoring the health of more than 4000 working men for 14 years. It turns out that those who slept for 6 hours or less had 4-5 times higher risk of heart attacks compared to those who slept for more than 6 hours.

Lack of sleep and work on the night shift contribute to the development of cancer. Currently, this connection is established with breast, prostate, endometrial, and colorectal cancer. Moreover, the mechanisms that cause this effect have been identified. Under pressure from accumulated evidence, Denmark has become the first country where women working in public positions on the night shift, such as nurses and stewardesses, are compensated for their breast cancer. Bad sleep affects gene expression, causing the destruction of telomeres, the main markers of aging. Such results were obtained by an international team of researchers involving several thousand adults aged 40 to 60 years. Not to mention the fact that daytime sleepiness affects performance, ability to concentrate and solve complex problems. But not only that. A team of researchers from the University of Chicago conducted an experiment with a group of male volunteers, limiting their sleep to five hours a day for a week. They found a significant drop in testosterone levels. The effect of the hormonal disorder was so strong that in terms of testosterone activity, it makes a man 10-15 years older. Low testosterone level is a clinically alarming and life-affecting factor. It is not only the activity in intimate life: men with low testosterone during the day get tired and they tire faster. Testosterone is essential for brain activity and ability to concentrate. It maintains bone density and plays a primary role in building muscle mass, and thus strength.

Men are not the only ones who risk their productivity because of sleep deprivation. Forty years of research looked into 100,000 women who worked regularly on night shifts. Because they did not sleep, those women showed a 33 percent increase in the number of abnormal menstrual cycles compared to women who slept normally. This inevitably has an impact on all sexual activity. I think it is not necessary to list all the convincing studies proving that sleep and health are directly related. In developed countries, there is a real pandemic of insomnia. And this is not a far-fetched process. As with coronavirus, it's a real problem for millions of people. The WHO refers to sleep deprivation and insomnia as a global epidemic problem. It is necessary to say a few words about the harm of sleeping pills. No old or new drugs cause natural sleep. They mainly target receptors that inhibit excitement in brain cells – and thus have a sedative effect. Comparing the activity of brain waves during natural deep sleep with the activity caused by sleeping pills, we see a significant difference. The electrical type of sleep that these drugs produce lacks the largest, deepest brain waves. Add to this a number of undesirable side effects – including the following day's breakage, forgetfulness, slow reaction during the day – which affect, in particular, driving.

After using sleeping pills for some time, the person must increase the dose or switch to more powerful drugs. Another unpleasant feature of sleeping pills is renewed insomnia. When a person stops taking these drugs, his sleep is in most cases worse. A certain type of addiction is caused when the brain changes its balance of receptors and the nature of its reaction to the drug, becoming less sensitive. This is a kind of resistance to an alien chemical in the brain, known as drug tolerance. Of course, when a patient refuses sleeping pills for one night and sleeps terribly, he goes back to taking the medicine for the next night. But this is not all trouble. Scientists from the University of California at San Diego conducted a strictly controlled study of more than 10,000 people taking sleeping pills.

So, it is necessary to sleep long and quietly, with beautiful dreams. Here are some tips on how to achieve this:

1. Go to sleep in total darkness. If you cannot remove the light sources, put on a blindfold.
2. Before going to sleep, disconnect yourself from everyday worries, from the thoughts of work and business, and do something for others. Read a good book, listen to music, watch a movie, but avoid strong emotions – do not play an exciting soccer match or boxing match.
3. Drink coffee only in the first part of the day, check how coffee and other products affect your sleep.
4. In the morning, try to go outside and look at the sky – it will help to organize your circadian rhythm properly.
5. If you stay awake for a long time, do not worry – lie still and think about something good. Sleep will come invisibly. The most harmful thing is to twist negative thoughts and emotions in your head.
6. It is great to do sports, but not late in the evening. Try to do it no later than 2-3 hours before sleep.
7. A siesta is very useful during the day. Most of the world lives with this habit. Napoleon and Churchill went to bed every day for an hour to take a nap in the afternoon. But do not lie down in the afternoon – a dream at sunset is not always useful.
8. Provide optimal conditions for sleeping in the bedroom. Leave your cell phone in another room as it is a powerful irritant for the nervous system. Be sure the room is not hot – about 19-21 degrees with the air humidity about 40-50%. Modern air conditioners and inexpensive devices will help you easily provide this.

In general, its best to sleep long and enjoy your dreams!

Part 2. INFORMATION FOR THE BODY

Non-aging brain

There are Mysteries that man can only try to understand, from century to century they are able to open only partially. Believe me, we are on the verge of such a mystery.

Bram Stoker. *Dracula* (1897)

The real discovery became the book *"The End of Alzheimer's"* by American neurophysiologist Dr. Dale Bradesen. Alzheimer's disease is one of the cognitive disorders that has attracted the most public attention. Indeed, everyone who has had to face this terrible disease has watched this disease gradually and inevitably destroy the personality and turn a person into an animal without consciousness and memory. Memory, the ability to think, and live a fully independent life is lost forever. A person plunges into a psychological abyss, stops recognizing relatives and friends, and does not perceive the world around him or herself. At the same time, the physical body continues to function, and in this state, a humanoid creature can live for many years. A terrible picture... This process is well shown in the movie *"Still Alice"*

Alzheimer's disease is incurable by modern methods. It threatens people at any age, and there are still no effective methods to prevent it. Ironically, it takes the lives of many of the best neurologists in the world. Many millions of attempts to create a drug for Alzheimer's fail. As written in the materials of the Association of Alzheimer's: "Since 2003, has not been approved any drug for Alzheimer's, and modern treatment cannot slow down and stop the deterioration of patients. The four currently available drugs 'can only mitigate symptoms such as memory loss and confusion,' and then only for a short time."

Over the past 20 years, scientists have been able to make significant progress in the fight against cardiovascular disease, oncology and AIDS, but Alzheimer's disease remains incurable, and there are no methods for preventing or slowing down its effects. It is all the more surprising that Dr. Bradesen offers a practical approach in the fight against this disease. In 1989, after defending his doctoral thesis on neurodegenerative diseases and following an internship in the laboratory of Nobel Laureate Stanley Prusener, Dr. Bradesen established his own laboratory at the University of California, Los Angeles. His task was to find the root causes and mechanisms of Alzheimer's development. For 10 years he studied the causes and mechanisms of development of Alzheimer's disease, and began to create his own method to prevent and even cure the terrible disease. In 2014, the first scientific studies were published. They recorded an improvement in cognitive ability in 9 out of 10 patients with Alzheimer's disease. The first patient to be cured with this approach has been following the prescribed guidelines for many years. At the age of 75 the patient is perfectly healthy, traveling the world, and working full time. And there are already many such patients. But how has this been achieved?

Dr. Bradesen concluded that Alzheimer's disease is not the result of brain dysfunction: as surprisingly as it sounds, it is not oncology, where the genetic mutation, inherited or acquired, provokes the cell and its offspring to share uncontrollably, capturing the organ. This is not rheumatoid arthritis or other autoimmune diseases, where the immune system deflects on its own cells and starts to attack them. The essence of most diseases is the failure of some mechanisms. The physiological system begins to work in a completely different way than nature intended. Everything is different here. Dr. Bradesen's main discovery was that Alzheimer's disease develops as a result of the brain's protective reaction to the threat that causes an amyloid response. Why did evolution reward us with this mechanism? Because in most cases it works smoothly – the brain reflects the attack and returns to normal functioning. Problems arise when the threat is chronic, multiple, and intense. In this case, the body's defense reaction also becomes chronic, causing damage to the body. Alzheimer's disease is a phenomenon that occurs when the brain tries to protect itself from three types of metabolic and/or toxic threats:

- Inflammation – as a result of infection, poor nutrition and other causes.
- Reduction and shortage of nutrients, hormones and other molecules that support the brain.
- Toxic substances such as metals or biotoxins – Poisons produced by microbes or mold.

Thus, in order to reverse the deterioration of cognitive functions, it is necessary to eliminate the factors that make our brain defend itself by causing an amyloid response, and when the threats disappear, remove the amyloids themselves. Once the amyloid triggers and amyloid accumulation have been removed, the brain will need to repair the synapses destroyed by the disease. Fortunately, there are relatively simple modern methods to identify, assess and eliminate each of the threats, optimizing brain function.

An organism is a complex system. Instead of looking at the brain in an isolated context, we must understand that all cells and organs are physiologically inseparable from each other. An organism is an orchestra that performs the complex symphony of life, conducted by the conductor – the brain. But every musician – every organ – has its party. As a result of the chain reaction, the breakage of one organ leads to the malfunctioning of another, which at first glance, is not connected with it at all. By maintaining and, if necessary, balancing the basic biochemistry of the organism, we prevent and eliminate dysfunction before the disease takes its place. Fighting the symptoms of an already frolicking disease is the most common treatment method. This is fundamentally different from trying to destroy the root of the problem at the cellular level. Dr. Bradesen analyzes in detail the various mechanisms that lead to brain dysfunction. And this is not only a description of molecular processes, understandable, perhaps, only to people with a high level of education, but also very specific conclusions and recommendations. Dr. Bradesen offers a system of not just treatment, but correction of one's whole lifestyle. Many parts of this system we find in other books, which is not very surprising.

But in this book, tips for a healthy lifestyle are part of a comprehensive plan to maintain the health of the brain and, therefore, the person in the aggregate of his physical, mental and spiritual capabilities. The basis of Dr. Bradesen's system is diagnostics.

He recommends dozens of tests to detect the presence of explicit and hidden threats in the body. It is clear that for the average person, the whole set of these tests is difficult to access. Additionally, it is not cheap. Yet the recommendations can be followed by anyone who cares about their health. And we are very impressed the basis of Dr. Bradesen's system is the use of various vitamins and supplements. It is no secret – if you talk to many classical doctors, when mentioning supplements, they will ignore it as all unproven and useless. At the same time, we know many doctors who widely use supplements in their practice. And the results of Dr. Bradesen are another proof of this. He also recommends a special anti-Alzheimer's diet, which consists of 15 main points.

1. The first part of this diet is related to ketosis, a process in which the liver breaks down fat by synthesizing chemicals called ketone bodies. This occurs when there is a shortage of carbohydrates, the body's main fuel. For the brain to work properly, light ketosis is necessary. To promote it, you need to combine a low-carbohydrate diet (minimize the proportion of simple carbohydrates – sugar, bread, white potatoes, white rice, carbonated beverages, alcohol, candy, cakes and industrial food), moderate exercise (walking or something more mobile, at least 6 hours a week) and fasting between dinner and breakfast for at least 12 hours. Another factor is the consumption of unsaturated fats – olive oil, avocado, and nuts. As a result, the metabolism switches from burning carbohydrates and insulin resistance, leading to the development of Alzheimer's disease, to burning fats and insulin sensitivity, helping to prevent this disease. Remember: metabolism and cognitive abilities are inextricably linked.

2. It is mainly a vegetable diet with an emphasis on starch-free vegetables. The diet should be raw vegetables, salads are obligatory. Try to combine different colors of vegetables – dark green, bright yellow, and orange.

3. Hunger is a highly effective way to start ketosis, restore sensitivity to insulin and thus improve brain function. The time for recovery is 12-14 hours between dinner and breakfast. Try to keep this interval, eat dinner early, or have breakfast later.

4. It is necessary to optimize the microbiome – the general population of your intestine. This means that most people will have to give up gluten, dairy and other products that can cause increased intestinal permeability and inflammation. Once the intestines are cured, you should optimize the microbiome with probiotics and prebiotics.

5. Products with a glycemic index below 35 should form the basis of the diet. The glycemic index table for the different products is available on the Internet.
6. Instead of drinking juices, eat fruits – they contain fiber. Tropical fruits, such as mangoes and papaya, have the highest glycemic index, so they are well enjoyed in exotic countries, but at home we should use the more familiar. The best ones are bright juicy berries, lemon, lime, tomatoes and avocados (all right, tomatoes and avocados are fruit).
7. Eat greenery that removes toxins from your body. These plants include coriander, cauliflower, broccoli, various varieties of cabbage, radish, Brussels sprouts, turnips, kohlrabi, pants, arugula, horseradish, wasabi, avocado, artichokes, beet, ginger, grapefruit, lemon, olive oil and seaweed.
8. Include good fats in your diet, such as those contained in avocados, nuts, seeds, and cold-pressed unrefined vegetable oils.
9. Eat whole foods instead of industrial ones. A simple rule: if the composition is given, it means it is an industrial product. If a packet of milk is standing on a shelf without a refrigerator, it is not milk, but a chemical liquid. There is a simple rule: the longer the life of the product, the shorter the life of the consumer.
10. Fish. Very useful product, especially wild. It is an excellent source of protein, omega-3 fatty acids and other compounds. But remember: large size fish with large mouths, such as shark, swordfish, tuna, are likely heavily contaminated with mercury. So sometimes eating sushi with tuna is okay, but it is better to replace tuna steak with white lake fish.
11. Meat is not a main dish, but a seasoning. Try not to eat it every day, especially red meat. Ideally, the consumption of meat should be reduced to 60 g per day. Naturally, it may be better than a homemade chicken or a homemade rabbit, but where can you find them in an ordinary store.
12. Be sure to include probiotics and prebiotics in your diet. During and after taking antibiotics, you should take them in the form of capsules. At the same time, they are contained in fermented products such as kimchi, sauerkraut, pickles and tea mushrooms. In America, a tea mushroom drink (kombucha) stands on the shelves of all grocery stores.
13. Do not give up digestive enzymes. They are available in the form of capsules, and recommended to be taken after an abundant, heavy meal.

14. Optimize nutrition and protect cognitive functions with nutritional supplements. Here is a sample list for the daily recommended intake:

- Vitamin B1 50 mg.
- Pantothenic acid 100-200 mg, especially if there are problems with concentration.
- With increased homocysteine levels, a combination of B6, B12 and folic acid.
- Vitamin C. Useful in any quantity.
- Vitamin D. Especially in the autumn-winter period, when there is a shortage of sun in our latitudes. Vitamin K is useful along with it.
- Resveratrol 100 mg.
- Citycolin 250 mg 2 times a day, to support the growth and functioning of synapses.
- Ubiquinol 100 mg, to maintain mitochondrial function.
- Omega-3 fatty acids.
- Green coffee berry extract 100 mg for 3 months, gradually reduce the dose during the month.

15. Do not damage the food by heat treatment. Steam cooking, special Zepter dishes, steamer, meat – best on the grill or bake in the oven. The last thing is to fry in a frying pan, and even more so, to order fried food in a restaurant or on street trays.

But the right food is only a part of the system. Dr. Bradesen pays a lot of attention to mental health, and in particular, the fight against stress and attention to sleep. If you look at it, his system is what many outstanding doctors of integrative medicine now offer. Do not rely on a magic pill. Do not expect that the doctors in any situation will solve your problems. You have created problems by your own way of life, and you have to solve it yourself.

There is a wonderful chapter in the book: "How to develop Alzheimer's Disease: A Manual." The author analyzes the negative aspects that most people have during the day. In the morning, a person wakes up broken because of bad sleep. He quickly gathers, drinks a cup of strong coffee to cheer up, and eats a piece of bun with butter and sweet jam. He hurries to work, going through the unpleasant moments in his head that await him there. At work, there is continuous stress, eternal fuss, and dissatisfaction of the bosses. At lunchtime, there are synthetic products from the nearest fast food café and the next few hours of stress. He drags himself home, eats his favorite pasta with meat, and falls on the sofa, turns on the TV, pointing his finger at the phone. The evening bustle does not allow him to go to bed before midnight. He tosses and turns for a long time in bed, mulling through his problems. In the morning, it starts all over again.

Do you recognize yourself in this picture? Then once again, read this book carefully and understand that your health is at the tips of your own fingers.



Would you know where you'd fall: practical recommendations

The best proof of your health and the excellent condition of your body is that for all your old age you have still managed not to spoil your healthy nature and not to die from all the drugs you are prescribed.

Jean Baptiste Moliere.

Imaginary patient.

Yes, life is really full of dangers. So, what to do... move to a village, a cottage, or even better, to a small house on the shore of a warm sea surrounded by orange trees? This is, of course, good. If you have the opportunity to live in an environmentally friendly place and communicate with the world on Skype, the flag in your hands. But not everyone has this opportunity and even the healthiest place on earth is filled with electromagnetic fields and other radiation. Therefore, we offer a number of simple, practical measures that will allow you to create for yourself quite an acceptable environment for life.

We need to understand the conditions in which you live. To do this, it's good to conduct a comprehensive analysis of the factors of the environment in which you live, especially if you choose a site for the construction of a new house. If you've lived a long time, but feel some discomfort, it is also very useful to do. Identifying some factors, such as improper ventilation or too dry air can significantly poison your life. There are some things you should know and pay attention to anyway.

The first is good air. If you are just building your house or repairing an apartment, you should specifically design a good ventilation system. Specialists can do it, depending on your budget. The simplest variant is to install an air conditioning system in the room with an active air filter and humidifier. It is also desirable to have an ionizer. Do not buy small desktop devices. They are not very effective.

After a month of cleaning the filter, you will see how much dust flies in the city apartment and what kind of particles you filter out with this compact device. Unfortunately, it is much harder to remove dust from bronchi than from the filter. Take care of the water. We will talk more about it, it is too important topic. Things are a source of dust, dirt and germs. Look around you. See how much synthetic material is around you – where your closet hangs, how often do you vacuum carpets and sofas? Try to have a minimum of things in your bedroom. Make sure you have a restful, healthy sleep as your condition and energy depend on it. Clean where they are cleaned. This applies to the bedroom, the house, and the nature.

Once, living in Australia, I went to the ocean shore at dawn. It was Monday, and the night before, people were walking on the beach all night long, enjoying the noise of the ocean and the nightly proximity. I was amazed: usually the clean beach was covered with torn packages, jars, and details of clothes. But then I saw a small car, which crawled on the sand, sucking up all the garbage and leaving behind a strip of clean beach. While I was stretching and swimming, it methodically drove around a large piece of the beach, and it was already difficult to assume what was happening here at night. It is SO important to never

Finally, there is an electromagnetic background. If there is a danger, you should protect yourself from it. The easiest way is to keep your cell phone near your head as little as possible – use headphones – do not carry the phone in your breast pocket or on your belt. Even when switched off, it emits an electromagnetic field, so you should always keep it away from vital organs. forget to clean your environment. It is best to keep it in your purse or on your buttocks (field would not go through them). For the premises, especially for the bedroom and nursery, you can use screening methods. For shielding the electromagnetic field, we use two types of materials: radio reflective – iron, steel, copper, brass, aluminum, and radio absorbent – films and fabrics with a metallized layer, as well as shungite coating. Radio absorbent materials are more convenient and reliable and provide protection in a wider range. In recent years, metallized fabrics based on synthetic fibers have appeared as radio shielding materials.

Shielding textile materials are light, flexible, and have a small thickness. They are used for making special radio protective clothing intended for people suffering from electromagnetic allergies – a disease increasingly registered in highly developed countries

Shungite is a specific carbon-containing rock, which received its name from Shunga, a place on the shore of Lake Onega in Russia, where shungite was first discovered. Shungite has bactericidal properties, so it is used in water filters. The low price of this stone and its good decorative properties led to its use as a finishing material. At the same time, it turns out that shungite is a good shield from electromagnetic waves.

Scientists came up with the idea of creating so-called "shungite rooms." The first such room was built at the St. Petersburg Military Medical Academy in 1996. It was used by many patients, who had shortened the period of treatment for various diseases, such as respiratory tract pathology, insomnia, depression. Nowadays, shungite rooms can be visited in health centers throughout Russia. For finishing, shungite rooms use shungite plates, brick or plaster. Naturally, the choice of protective material should be made by a specialist after examination.

Radiation is especially harmful for infants and small children. Their brains are just developing and weak effects can cause unpredictable effects. Isn't this one of the reasons for the growth of autism around the world? The World Health Organization recommends limiting the use of cell phones to children and schoolchildren. For adults, this question is not so clear. If cell phones had a devastating effect on all people, then over the past 30 years of their active use, we would have seen a sharp jump in a variety of diseases, which has not happened.

Numerous studies are split: some studies show cell phones have no effect at all, while others demonstrate effects on the physiology of all tested subjects. We have developed our own method to assess the impact of a cell phone on a person. The Bio-Well device gets the signal from two fingers. It takes a few seconds for the program to calculate the stress coefficient and energy level of an individual. This measurement can be repeated several times to ensure the reproducibility of the data. The person then takes the cell phone in his/her hand and calls someone. This way, we assess how much the parameters have changed and if the use of the cell phone affects stress and energy levels.

Experiments with more than 100 people show about half of the people increased their stress levels, while for the rest it did not change. This suggests that there are people who are more sensitive to electromagnetic radiation. This implies at least half of the population are not impacted by "electromagnetic allergies." Naturally, much depends on how close the emitting antenna is to your home or office. If this distance is less than 500 meters, such radiation can affect your health. The same applies also to the Bluetooth signal. Millions of people use this low-power signal for headphones and other applications, but there are people who instantly respond to Bluetooth. This is the case with one of my good acquaintances in France. Once he shows up within the range of a Bluetooth signal, he gets a headache that persists for some time, even when he leaves the proximity of the radiation.

Therefore, if you want to understand how sensitive your body is to the electromagnetic energy of your own phone, we recommend taking this Bio-Well test.



Sport and Brain

After only four karate lessons Fyodor easily broke the three-centimeter board with one blow of plaster bandage.

I decided to go in for sports, ran to the fridge, drank coffee with a bun on the run, now I am sitting – running my eyes on the monitor. I like sport!

Russian jokes

We have already discussed the need for movement and the importance of sports and physical education for actively working on our bodies. This topic is so important, we have to return to it again and again. A dear reader may exclaim: "Again, he is tired of it. I would love to do something, but there is no time. I think this is the main reason." Genetically, all people are divided into three categories. For some people, sports are like a drug: they feel euphoria after intensive training and suffer in its absence. Such people make professional athletes and World Champions. Another category is people who enjoy playing sports, but do it mainly out of a sense of duty three times a week. And finally, the third category includes people who enjoy lying on the sofa. Consider the category of people you belong to.

We won't talk about professional athletes as they don't need to be persuaded. Let's consider the second type – those requiring additional incentives to go in for sports. Again, I don't need to persuade beautiful ladies who keep track of their weight through sports and proper nutrition. For them, the following information will serve as a pleasant bonus. It's also interesting information that can be shared with friends. Recent studies in different countries show sports activities also have a beneficial effect on the brain. This is now what we are going to discuss.

There is a well-known saying: "Nerve cells do not regenerate." This is what has been believed for many decades. But then, it was shown to be untrue. We can grow new neural bonds at any age. The nutrient solution for them is due to two factors: the work of thought and of physical activity.

The more you load your brain with serious tasks, such as learning a foreign language, reading books in a foreign language, playing musical instruments (it's best to memorize a melody by heart), learning poetry, and any other activities that strain your gray matter, the more active your neurons are, and the less risky your meeting with Mr. Alzheimer. As they say, "it is better to spill a glass of wine than to forget where you put it." And in order not to spill it, you need to train your body.

The brain needs oxygen. A few minutes without this life-giving gas, and neurons start to choke. And the lack of oxygen is the reason for many troubles.

There is doctor in Moscow whose name is Alexander Shishonin. Every year in his Center thousands of people get rid of diabetes, hypertension, atherosclerosis, arrhythmia and other popular diseases of the 21st century. Moreover, he does all this without medication and only with exercises. Dr. Shishonin developed the idea that hypertension occurs as a result of oxygen deprivation of the brain. The brain starts to suffocate and commands the heart to raise blood pressure, and to increase the flow of platelets carrying life-giving oxygen. To avoid this, it is necessary to unblock the cervical arteries, which can be done through certain exercises. Dr. Shishonin describes the coherent system he developed in his books and on the Internet. His audience is more than 15 million people, and in the conditions of self-isolation, has increased even more. Rather than watching endless serials, it is better to listen to Dr. Shishonin's lectures.

The problem is that most people can't breathe. They breathe very superficially, and the body is inadequately supplied with oxygen. We do a very simple test. After measuring the human bio-field, people are asked to stand up and take 10 deep breaths with full exhalations. After doing so, we repeat the measurement. In all people, if they are not professional athletes, the bio-field increases and the stress level decreases. This measurement is very revealing and convinces many people to at least walk in the fresh air. Naturally, intense physical activity makes you breathe more often and deeper, and the body greedily absorbs oxygen. In this case, the capillary blood flow increases, and the oxygen flow reaches the farthest corners of your body.

How does physical exercises affect the brain in addition to increasing blood circulation? Initially, scientists thought that physical activity would activate the departments of the brain responsible for muscle reflexes. But as it turns out, the impact is much more extensive. Modern tomography, which allows us to look into the depths of the living brain, yielded unexpected results. Regular aerobic training increases the size of the hippocampus, the brain department responsible for memory. Therefore, people who lead an active life more easily learn and remember new information and can keep this ability for a longer time and in old age.

Studies show that the level of cognitive ability increases by 15% immediately after a month of training. However, the minimum training time required to improve brain function is 30 minutes, three times a week. Training should be done in aerobic mode – with active breathing and increased heart rate. In other words, it is necessary to move actively. If you walk, you should walk fast. Or even better, walk using Finnish walking sticks. This method is becoming more and more popular. You can purchase very good sticks cheaply. Naturally, swimming, dancing, tennis, volleyball – especially beach – is a combination of pleasant and useful activities (besides, it's always nice to look at cute young athletes).

Stretching exercises do not affect the hippocampus. They have a different benefit. They promote the growth of new neural connections by means of neurotransmitters that provide impulse transfers between neurons. The function of neurotransmitters in this case is performed by the hormones dopamine – "pleasure hormone" and serotonin, the "happiness hormone." During physical activity, the synthesis of these hormones increases several times. So get slimmer and enjoy not only the result, but also the process. Dopamine also helps you to concentrate, to switch your attention more easily, and to motivate you. Serotonin is responsible for controlling emotions. Plus another hormone – norepinephrine – allows you to make decisions faster.

By the way, most antidepressants act in the same way, by artificially increasing the level of these neurotransmitters. But there is an addiction to antidepressants. Sports activities having no restrictions lead to the same results naturally.

There are a number of other molecular mechanisms that facilitate activation of neural connections after physical activity. We will not go into such details, especially since research continues on both mice and humans. Regarding mice, you can see the positive effect of sports on life expectancy and such experiments are quite indicative. Regarding people, it is too early to speak about unequivocal conclusions in this field. Sports physiologists enthusiastically predict several extra years of life with regular exercise. Let's hope this is true. While engaged in boring exercises, we will also be pleased with the bonus of a longer life.

A natural question arises: if all this is true, then all professional athletes must be very smart, but why have we not heard anything about it? There are a few points to consider. First, many high-class athletes study at universities and develop their professional careers simultaneously with sports. I know many doctors of science, professors, who in their youth became masters of sports, won competitions and continued active sports activities. I myself used to be professionally engaged in mountaineering and rock-climbing, successfully performed at the Championships of the Soviet Union, and conquered more than a hundred peaks, none of which prevented me from becoming a Doctor of Science and a Professor.

Among world champions, you can find many outstanding examples. Remember Arnold Schwarzenegger, a multiple world bodybuilding champion, a movie actor, a successful businessman, founder of several companies making over a billion, and the governor of California – the most expensive state of America? Our country, too, has many outstanding examples. I have always admired the example of Valentin Ivanovich Dikul.

He was born in Hungary in 1948. Born premature, weighing about a kilogram, he was not expected to survive (as such children usually died during that time). His father served in special forces and died at the age of 30 in a shootout with bandits. His mother died two years later at the age of 27, when the child was four years old. Until the age of seven, Dikul was brought up by his grandparents and then lived in orphanages. In 1957, he became fascinated by the circus, practiced gymnastics, wrestling, lifting weights, equilibrating, acrobatics, juggling, inventing tricks and tricks. By 1962, he was performing air gymnastics at the Palace of Sports.

Then Dikul experienced a disastrous fall due to a broken steel bar. He received more than ten fractures, including a compression fracture of the spine in the lumbar spine as well as brain injuries. For a week, he was in the intensive care unit of the City Clinical Hospital, and was moved to the hospital room of the neurosurgical department. Dikul was practically totally paralyzed and his doctors told him this would be for life. Twice, he tried to commit suicide.

Then, in the same hospital, Dikul began exercising to develop the muscles of his back, chest and arms, and the muscle corset in general. In addition, he began to study literature on anatomy, physiology, biomechanics, and gymnastics. He developed a special mechanical block simulator, which he had installed above his bed. After 8 months, he was discharged from the hospital in a wheelchair! Later, he got a job as the head of a circus group for children in the local Palace of Culture. In the evenings, he performed exercises and trainings that allowed him to start walking in five years. Since 1970, he's performed in the circus as a power juggler (juggling cannonballs, throwing weights, holding a platform with a car on his shoulders, etc.).

In 1978, the USSR Ministry of Health allowed a clinical trial of the rehabilitation methodology of Valentin Ivanovich Dikul and obtained outstanding results. In 1988, Dikul was appointed Director of the All-Union Center for Rehabilitation of Patients with Spinal Trauma and Consequences of Child Cerebral Palsy. In 1990-2010, several other rehabilitation centers named after V.I. Dikul were opened in Moscow. Since the late 1990s, these centers have been engaged, not only in the rehabilitation of patients with spinal cord injuries, but also in the treatment of other diseases of the musculoskeletal system (herniated spinal discs, scoliosis, kyphosis, osteochondrosis). In 1999, V.I. Dikul was awarded the title of "People's Artist of Russia."

This is an amazing testimonial of a man, who was given one blow after another, but managed to overcome adversity to achieve outstanding success in completely different fields of activity.

There are many more examples. Irina Rodnina is a figure skater, three time Olympic champion, ten time world champion, Russian public figure and statesman, and also, the Deputy of the State Duma. As the Deputy of the State Duma of five convocations, Alexander Karelin is a three-time Olympic champion in Greco-Roman wrestling, nine-time world champion, twelve-time European champion, and listed in the Guinness Book of Records as an athlete who has not lost a single fight for thirteen years. The list of such proud examples is very long.

Naturally, not all athletes become professors and public figures. Each of us have different natural characteristics and challenges. Yet persistence in achieving goals along with the ability to work hard plays a huge role in achieving success. Well, as we have seen, when you train, your brain evolves. So do not forget to go to the gym or pool, or simply go for a walk with sticks.



Our body is what we eat

All you need is love. But a little chocolate now and then doesn't hurt.

Charles M. Schulz (1922-2000)
an American cartoonist

I haven't eaten at a McDonald's since I became President.

William J. Clinton

Go to a good bookstore and look at a shelf of books about health. You will see at least a dozen well published books describing various diets: Japanese, Mediterranean, herbal, chocolate, star and celebrity diets. All of them promise effective weight loss and quick results. It is quite possible. If you eat black bread and water, only vegetable juice for a week, or vodka and milk, you can really lose a couple of extra pounds. But then, having missed the usual cutlets and sweets, you will quickly return to old habits. Also, over-fulfilling the plan will be a pleasure. We do not mind diets. Anything that is not harmful, can be useful. But focusing on choosing the most effective diet is not as good as adopting the right attitude about your body and what you send to it.

Here is a car analogy. Every motorist knows that filling the tank with low-quality gas might mean you will not reach your destination. In any case, the engine will be spoiled. For some reason, when we load low-quality products into our bodies, we believe we can get away with it with little consequence. It turns out we can't get away with it. Everything you've placed in your body will remain in your body for a long time. That's just how it works.

The most striking example in the modern world is the United States of America. Nowhere else in the world are there so many people with "excess" weight, exceeding 100 kg – 220 pounds. An ordinary airplane seat does not have long enough belts to accommodate the body of such a person, so attendants must bring a special extension belt. It is not just the weight that is problematic: it is a complete deformation of the figure. The overweight body becomes pear-shaped, pelvic bones are distributed to the sides, and the abdomen hangs in many folds (Fig.19).



Fig.19. Europe and USA.

Naturally, these people are prone to many diseases, because the internal organs cannot cope with the maintenance of this biomass. What is even more terrible is the large number of children being obese since childhood. This is an epigenetic transformation. Ironically, this situation is a consequence of the effectiveness of American business methods. At the beginning of the twentieth century, the U.S. citizens created the world's most efficient system of business and production organization. They were the first to produce cars available to the average person and began to apply automation in factories (remember the film *"New Times"* by Charlie Chaplin from 1936). Production reached high productivity and efficiency. They applied the same principle to food production and consumption methods.

The Americans got used to working hard and could not afford to spend two hours for lunch, like the French. Everything had to be fast, fast, fast – in the car, on the move, without breaking away from work. You pass by a McDonald's, say your order, and in 10 meters, you are already given a packed paper bag with a hamburger, a glass of watery coffee or "diet" Coca-Cola. (By the way, we all understand that neither natural Coke nor Cola has ever been in these drinks – they are solid chemicals and sugar).

This "fodder" is prepared at the enterprise in the conveyor mode, intended for long-term storage with taste qualities unchanged. Moreover, the flavor must be so attractive that one wants to consume more and more. This is achieved through a whole range of chemicals. Food companies have scientific laboratories that develop sets of ingredients to make food eternal and attractive.

There is a separate line dedicated to food for children. A person may deny himself an extra portion, but it is very difficult to deny a favorite child. The fast food industry has succeeded so well, it has spread the disease of fast food all over the world.

The first McDonald's in Moscow was opened on January 31, 1990. At dawn on January 31, 1990 over 5 thousand people gathered in front of the restaurant, waiting for the opening. On the first day of its work, this McDonald's restaurant on Pushkinskaya Square, served over 30 thousand visitors, setting a world record for the first working day in McDonald's history. In 1990, the cost of a hamburger was 1.5 roubles, and the Big Mac, 3.75 roubles when an average salary for a Soviet person was 150 roubles. In other words, it was a lot of money. For comparison: a monthly bus pass cost 3 rubles. I remember my first feeling from Big Mac, which at that time seemed very tasty. Today there are 311 McDonald's restaurants in Russia, serving more than 950 thousand visitors daily, producing more than 100 million kilograms of products per year.

Now we understand how this effect is achieved – with chemical ingredients. All fast food companies claim that they use special products and the highest quality control. But all their products are prepared in a process chain. Birds sit in cells, cows in stalls, they are fed special chemical feeds, antibiotics (so that they don't get sick), hormones (so that they grow quickly) and they gain weight on the way to death. When the product is ready, it is sent to the factory, where they make something out of it. Does what is inside the hamburger look like meat? It is already processed, filled with chemicals. It's the same principle used in cat's nutrition with dry food. Taste supplements are selected by highly qualified scientists, and the cat, who is used to this food, no longer wants the usual fish – the taste is not the same.

Americans have been accustomed to such food for so long, they have created a fast food habit. Many people do not cook at home at all. At best, in the morning they eat flakes from a box with eternal shelf life with milk. After 50 years of this lifestyle, we see the result: the U.S. is the leading country in the world according to sad statistics of obese people.

The U.S. today has 99 million such people. Specialists no longer talk about obesity, but about the obesity epidemic. In an article published in the leading medical journal "*Lancet*," they predict that, at the current rate of increase in the number of obese people, in 20 years, by 2030, their number in the U.S. will increase by another 65 million people. At the same time, the United States will have 7.8 million more people with diabetes and 6.8 million more heart attacks and strokes caused, as the authors elegantly put it, by being clinically overweight.

Against the backdrop of these daunting numbers (recall the U.S. population today is about 300 million people), the same article predicts there will be half a million excess cancer cases. This medical problem has its own economic side, and it is no less frightening. The cost of treating and providing for this army of obese people and its consequences should increase by 13-16% by 2030, resulting in an estimated 2.6% of the U.S. national budget. Who forms this army? For the United States, the ethnicity of obesity is as follows: 25% of all men are obese regardless of color, 46% of black women, 33% of Hispanic women and 30% of white women.

As soon as China switched to the American food system and widely deployed a network of fast food, its population suffered the same problem. In 2010, the proportion of overweight children was 20%, and this percentage is increasing. However, the Chinese immediately took up the problem by organizing a movement against being overweight. No doubt, they will cope with their organization much better than the Americans.

It should be noted, however, that the U.S. has also developed a movement for a healthy lifestyle. In the mornings, in any U.S. park, you can see a lot of joggers, people doing gymnastics, and the gyms are not empty until late at night. There is an interesting polarization of the population. Some Americans still eat hamburgers with sweet drinks, but others buy only organic food and run in the morning. It will be interesting to look at the statistics of their survival in 10 years.

To assess how much you personally are threatened by this problem, you need to calculate your BMI (Body Mass Index). It is a common indicator for people aged 18-65 years who do not participate in special sports. Check to see if your weight is the same as your BMI:

- Below 20 kg - skinny;
- Between 20 kg and 25 kg, your weight is considered normal;
- 25 kg to 30 kg - overweight;
- Above 30 kg is already obesity.

Here is a table that will help you determine your BMI.

Table. Body Mass Index

Weight												
	kg	40	45	50	55	60	65	70	75	80	85	90
	lb	88	100	110	120	130	143	155	165	175	187	200

Height												
feet	cm											
4.6	140	20	23	26	28	31	33	36	38	41	43	46
4.8	145	19	21	24	26	29	31	33	36	38	40	43
4.9	150	18	20	22	24	27	29	31	33	36	38	40
5.1	155	17	19	21	23	25	27	29	31	33	35	37
5.3	160	16	18	20	21	23	25	27	29	31	33	35
5.4	165	15	17	18	20	22	24	26	28	29	31	33
5.6	170	14	16	17	19	21	22	24	26	28	29	31
5.7	175	13	15	16	18	20	21	23	24	26	28	29
5.9	180	12	14	15	17	19	20	22	23	25	26	28
6.1	185	11	13	15	16	18	19	20	22	23	25	26
6.4	195	10	12	13	14	16	17	18	20	21	22	24
6.6	200	9	11	13	14	15	16	18	19	20	21	23

How does this relate to health?

BMI < 20

If you are underweight (especially in middle age), there is a risk of developing cardiac disorders, depression and other emotional problems, as well as anemia.

BMI 20-25

A good indicator for most people. Optimal body weight.

BMI 25 - 27

Be careful, watch your weight. With this BMI, some people may have health problems.

BMI > 27

Risk of developing diseases such as diabetes, hypertension, depression.

How should one eat properly? What to eat and when? Which of the authors should I believe? And especially, how to lose weight without giving up? All these questions can now be answered. A lot of books have been published that examine these problems in detail. We can't say that we have read everything published in recent years (I do not think it is possible), but we can formulate our opinion based on both scientific data and our own experience.

Food is a pleasure. Not only do we eat when hungry, but also to get pleasure from the food and the process. Teach yourself to set the table beautifully, even if you are not waiting for guests today. Eat slowly, with pleasure, chewing food many times. The more chewing movements we do, the better the nutrients are absorbed. Rapidly swallowed food irritates the stomach. Because it does not have time to fully process in the gastrointestinal tract, it causes rotting and gas formation in the intestines and overloads the body.

List of products to be avoided:

- Canned food of all kinds, especially industrial production.

- Products containing preservatives. The longer the life of the product, the shorter the life of the consumer.

- Products containing various chemical additives: emulsifiers, stabilizers, colorants (various E). All the manufacturers' claims that they are absolutely harmless are lies: these substances accumulate in the liver, and over time, cause unpredictable reactions, up to oncology. One of the proofs is that every year in our country, the use of certain additives is prohibited. Particularly dangerous are phosphates (E-450), which are used in the manufacture of bakery products, flakes, cheeses, powdered products and carbonated beverages, as well as E510, E513 and E527, which have a harmful effect on the liver and gastrointestinal tract.

But, in principle, the whole set from E400 to E600 is considered unsafe. Carefully study the composition of products on the packages and labels. Manufacturers specifically place this information, which is mandatory for publication, in small beeches. When visiting the store, be sure to arm yourself with glasses or a magnifying glass.

- **Old products, products with overdue release date.**

- **Products in which mold started to develop.** (except for special types of cheeses). Mold releases poisonous substances that can have a devastating effect on health.

- **Industrially processed food.** The more stages of processing a product has gone through before it reached your table, the less useful and nutritious it is and the higher the risk of eating something nasty. It's better to cook normal rice yourself for 20 minutes than to use a quick cooking concentrate. To easily accustom yourself to the right attitude, imagine that someone chewed these products, and then dried them.

- **Mushrooms of unknown to you species and origin.**

- **Products whose taste, color or smell you don't like.** We always tell our patients: "It's better to throw away a good product that you didn't like than to eat an old or spoiled one."

- **Heavily roasted food, especially in public catering places.** When the fats decompose at high temperatures, they form chemical compounds called benzopyrene and peroxides. Both are the strongest carcinogens and have the property to accumulate in the liver. So when you buy donuts fried in oil, imagine how the poison contained in them will slowly penetrate into your liver and lurk, waiting for a favorable moment to stick out its tentacles. By the way, the benzopyrenes are also formed by smoking, so don't be fond of smoked fish.

- **"Bad" fats.** The worst fats on the planet are artificial fats, which man chemically changed by adding hydrogen. On labels these fats are called hydrogenated fats. These are the so-called trans fats. The food industry uses them in margarines, cookies, chips. Not much better than the so-called saturated fats, which are contained in red meat, yolks, butter and whole milk. These are all sources of "bad cholesterol." They make the arteries stiff and participate in the formation of vascular plaques, which block the blood flow through the capillaries. This can lead first to trouble, and then to tragic consequences. Infarcts (tissue death) and strokes are a direct consequence of "bad fats".

- Cook the food properly.

Not only the taste, but also the benefit (or harm) to the body depend on how well food is prepared. The most harmful is roasted food, especially when a lot of oil is used. This is a direct path to stomach troubles and, God forbid, to fatal diseases. Of course, there are people who eat fried snails and live to a deep old age. Such citizens do not need all our conversations and recommendations. We therefore focus on people with subtle organization of soul and stomach.

Vegetables and fruits are better consumed raw. Naturally, you can stew them, boil them, you can also fry bananas, but for most vegetables, salads are preferable. This does not apply to vegetables that must be cooked before serving, such as potatoes, beet, beans (although, in principle, they can be eaten raw, but not everyone likes it).

Meat and fish are better cooked in metal dishes with thick bottom and sealed lid. In saucepans like "Zepter," you don't even need to add any oil. There is enough juice released from the product to process them. Many different devices are available for proper cooking, in which heat comes from all sides. The most common device of this type is the oven, where the food is perfectly cooked in foil.

Use spices. Oriental cuisine is unthinkable without spices, the hotter the climate, the more spicy the food. In India or Mexico, few Europeans can withstand the usual local cuisine. This is an ancient way to fight against harmful bacteria and stimulate your appetite, because you don't want to eat in heat. Many spices contain substances that have antibacterial and antioxidant effects. In addition to pepper, they include garlic, ginger, clove, oregano, onion, mustard, turmeric (curry) and others. The following list of cooking methods are given in descending order of quality:

1. Fresh vegetables and fruits.
2. Sealed saucepans with thick bottom.
3. Grill (air grill, oven, barbecue, barbecue, but not microwave!).
4. Steam cooking.
5. Oven.
6. Salting.
7. Frost.
8. Boiled food.
9. Stewed vegetables.

Sugar is the scourge of our civilization.

Refined white sugar is a relatively recent product of our civilization. It began to be produced at the end of the eighteenth century and became widely consumed only in the twentieth century. Sugar is prepared from natural products – cane or beet – but in the process of chemical processing, all useful minerals and vitamins are removed. Only "white death" remains. What is its harm? Ask this question on the internet, and you will get thousands of links with more or less detailed explanations. Without going into the intricacies of biochemistry, we will only reveal some of the consequences of excessive sugar consumption.

First of all, sugar reduces sensitivity to insulin. This causes high levels of insulin, which eventually leads to diabetes. It is directly related to the development of cancer of the breasts, ovaries, prostate, pancreas, lungs, stomach, and serves as food for cancer cells. Before the development of oncology, sugar's a direct or indirect cause of a whole bouquet of chronic diseases – from hypertension to stomach ulcers.

Destruction of teeth. All kinds of sugar lead to the destruction of teeth because it allows bacteria to develop. The more often and longer you snack on products with any kind of sugar – natural or added – the more likely it is that you will develop tooth decay, especially if you do not practice proper oral hygiene.

If you want to get fat, the ideal way to eat a lot of potatoes, white bread, and of course sugar. While enjoying cakes, sweets and sweet drinks, sugar is an easy way to gain weight.

One of the reasons for the obesity epidemic in the United States is the enormous consumption of sugar. Americans are taught to drink sweet carbonated beverages from childhood, all products have a much higher sugar content than in Europe. Being in the U.S., I do not eat any sweets, because they have almost no taste – it is solid sugar. The whole population works for the sugar industry, which, in turn, spends a lot of money on advertising its products. Particularly influential are American movies, where heroes often drink the national American poison – Coke.

In the last decades, the harm from the refined sugars has become so serious that the World Health Organization (WHO) became concerned about it. According to WHO experts, a person should consume no more than ten percent of all calories in the day from sugar. Meanwhile, in practice, the average American exceeds the daily norm by 3-4 times. CNN notes that when WHO experts talk about the limits of sugar consumption, they do mean sugar, which we add to tea, coffee, cottage cheese, sausages, and many

other products. Thus, a half-liter bottle of cola or other soda covers the entire daily sugar limit. So if you want to stay healthy, drink tea without sugar, give up cake on your birthday and regularly measure your blood sugar level.

Food compatibility.

In 1902 the great physiologist I.P. Pavlov published the work "Activity of digestive glands." He established that for each product, the body produces its own enzymes and juices ("bread juices", "meat juices", etc.). This work gave rise to scientific investigations in formulating the basic rules of combining food products on a physiological and biochemical basis. An incorrect combination of food leads to a situation where the enzymes produced by the digestive system are unable to function effectively. This, in turn, leads to an insufficient splitting of food, part of which remains in the digestive canal, resulting in the cultivation of harmful bacteria, viruses and even causing cancer cell formation. The incomplete cleavage and digestion of food leads to many problems with the digestive system ranging from the formation of gases and abdominal pains to nutritional deficiencies. In special cases, unpleasant diseases can also develop, like chronic fatigue syndrome, irritable colon syndrome and even obesity to some extent. The specifics of the biochemical processes responsible for correct and complete digestion of food are quite simple. For example, when eating both fruits and proteins at the same sitting, the digestive system produces both acidic and alkaline enzymes. As a result, they neutralize each other, slowing down the process of food breakdown. Then unprocessed food accumulates in the stomach, which leads to unpleasant feelings of heaviness in the stomach.

Dr. Volkov, in his outstanding book *"Logic of Health,"* divides all foods into three groups: the first group represents vegetables and cereals; the second group includes fruits and nuts; and the third group, animal protein. Combining products from these groups is not recommended!

Products with high protein content – red meat, pork, mutton – should not be combined with dairy products, starches or complex carbohydrates, because their splitting requires the work of different enzymes and different cycles within the digestive system. That is, you shouldn't eat meat and bread, the way we love so much. It is best to accompany the meat with herbs or vegetables with minimal starch content, like carrots, onions, leeks. Fruit cannot be combined with any other food. While the digestive system takes a very short time to completely break down fruit, other foods take much longer to digest. Fruits with a high content of acids (grapefruit, pineapple, strawberry) cannot be combined with fruits with a high content of sugar – bananas, raisins, dates. Melon or watermelon should not be eaten with other

products, it is better to eat them about half an hour after a meal. Cereals – beans, peas, soybeans, lentils – as a vegetable protein, combine well with starchy vegetables and herbs. As starch, legumes are compatible with fats, such as sour cream and vegetable oil. Check how you can individually carry them. Many people have a bloated stomach and gas formation after beans, which is not very comfortable for others.

Milk is not a drink, but a separate food. Milk, on contact with the stomach, should be rolled up under the influence of acidic juices. And if there is another food in the stomach, milk does not allow it to be digested. As a result, the food rots. Remaining untreated, the digestion process becomes somewhat delayed. In addition, milk, by definition, is infant food. In most adults, the enzymes responsible for the processing of milk disappear. In some people, like the Japanese, this enzyme is practically absent. Historically, they never drank milk. There is not enough space for cows to breed. Check your individual reaction to milk. A number of people suffer from intolerance to gluten, a protein contained in cereal plants such as wheat, rye, barley and oats. More often this intolerance manifests as an allergic reaction, but in some cases can develop into celiac disease. The disease does not always begin in childhood. Its symptoms are very diverse, depending on age and other factors. As a rule, in children under two years of age, celiac disease manifests through diarrhea, bloating of the stomach, exhaustion, retardation in growth and development.

To diagnose celiac disease, a doctor prescribes a special blood test and a biopsy of intestinal mucosa. No drugs are needed to treat celiac disease. For complete recovery, a gluten-free diet is enough, which, however, will have to be observed throughout life. In many countries, gluten-free products are produced and marked "gluten-free" or the symbol of a "crossed spike." If, after eating pasta (bread, cakes, etc.), you have a stomachache and flatulence, go to a gastroenterologist. In any case, products like cake and pasta have a high content of refined carbohydrates – another cause of obesity and poor digestion.

Eat when you want.

In theory, it is better to eat several times a day in small portions. For diabetics, this is especially crucial. But if you are practically healthy, the question is quite controversial. Well, how can you eat five times a day? If you manage to swallow a cup of tea in the morning, there is no time for lunch at work, and then, in the evening at home, you have chores and cannot get to the table until eight pm.

So eat when you want – it is OK for your body. Do you think animals in nature eat on time? All we send to the stomach is food. You can have a tight meal once a day, while in the evening, and during the day limit yourself to nuts and some fruit. Legends that after 7 pm it is better not to eat, are only a means to limit the amount of food consumed per day. It's probably a fiction created by cooks in sanatoriums wanting to go home before evening.

If you have the opportunity, have light snacks during the day, reserving the main pleasure of eating for the evening. You can find hundreds of examples of daily meals for different stomachs and wallets. The main thing is not to eat on the go, but take your time and chew carefully.

Allow your body to digest.

As we said, we need food in order to decompose it into components to extract energy, all useful substances, and throw away waste. With proper nutrition and digestion, these wastes should not have a very unpleasant smell. A rotten smell is a consequence of poor digestion, dysbacteriosis or the presence of parasites. The processing of food is complex and requires a lot of energy. It is better to give the body the opportunity to do this in a relaxed environment. Taking a siesta is an ancient wisdom based on thousands years of experience.

Thinking activity after an abundant meal slows down because the body pays attention to the more important process of digesting. Do not eat tightly before important meetings. And, of course, physical activity after a busy meal is strongly contraindicated. No athlete will eat before a competition. They eat at least 1-2 hours before. If you are drawn to lie down in front of the TV in the afternoon to take a little nap, do not resist. The body knows better what it needs.

Pick a meal for yourself.

Each of us have an individual organism. Recently, a story was reported about a citizen who ate a car on a dispute, sawing it into tiny pieces. Naturally, he had an iron stomach. Compare him to someone born with a delicate and sensitive stomach. Many ladies are constipated and some can't tolerate gluten or milk. The concept of having food allergies was previously believed to be an extremely rare disease, which is detected from childhood. It turns out most people are intolerant of certain products – they just do not know about it.

Symptoms caused by sensitivity to certain products include: headache, stomach pain, migraines, joint and muscle pain, hay fever and irritability. Food allergies can occur like thunder in the middle of a clear sky – after a person has eaten everything throughout his life and without any restrictions or consequences. Fortunately, the onset of such sudden allergies are very

rare. Much more often, people suffer from intolerance or over-sensitivity to certain foods, but this factor is much harder to recognize as the cause of these allergies.

Watch the reactions of your body, listen to yourself. Feel how your body reacts to different foods. Develop a character of food, after which you feel cheerful, energetic, and on schedule go to the toilet. We assure you – if you are a person with a sensitive gastrointestinal tract, and you manage to develop your individual style of nutrition – life will be much more pleasant and healthy.

Fresh and healthy food.

A few simple tips:

- Choose fruits and vegetables by smell. Synthetics do not smell.
- Fats are necessary for the body, especially the brain. Every day, there should be butter or fat on your table. Butter does not make you fat. You get fat from cakes and sweets. Now there is a whole direction called "keto diet," whose adherents claim it to be the best cure for many problems. If you are interested, the information is easy to find on the Internet or on bookshelves.
- Meat and fish, the protein needed to build muscles, is especially important for children and young people. With age, the consumption of meat decreases. You should use only fresh or frozen products. Of course, when frozen, the products lose their quality and taste (but add to their weight). However, they are guaranteed against dangerous microflora (although at meat plants we have to fight against frost-resistant microorganisms as well). By manipulating herbs and spices, it is possible to prepare a delicious dish, even from frozen cod. But old meat is a poison.
- Do not leave food for a few days. Ideally, food should be cooked and immediately consumed, as in good restaurants. At home, it is harder to do – at least do not eat the same soup all week long.
- Fish and seafood are the source of many indispensable substances for humans, especially useful fats and Omega-3. Try to decorate your table with them at least several times a week.
- Old, stale, overdue products should be ruthlessly thrown away.

The flavour of wine and the poison of alcohol

Wine is bottled poetry.

Robert Louis Stevenson (1850-1894)

Instead of fairy tales about the grace of heaven.

Order us wine. All these dreams about guries, roses, fountains – all this is nonsense.

It is better to drink than to guess about the afterlife!

Omar Khayyam (1048 – 1131)

Drink wine – well, this custom is very good,

If you save both posture and honor.

"Shi-ching" (XI-VI centuries BC).

Treasure of Chinese literature.

The battle with drinking extends to its prohibition by law! Russia was not the first to try to prohibit drinking – the only one who has more or less succeeded was the Prophet Mohammed. True believers do not drink wine. In some Islamic countries, the attempt to import alcohol is considered a crime equivalent to importing drugs. In many countries, drinking is a huge social problem, which can only be solved via social measures, and not making it prohibitive. It is necessary to create conditions so that people at work cannot drink, because the alcoholism is a disease that must be treated. Prohibition law or high prices give rise to home distillation and mafia. That's the example of the United States and Gorbachev's reforms... God save us from repeating it again. Is alcohol a friend or an enemy? Balsam or poison? To drink or not to drink – that's the question. Let's talk a little more on this topic, which excites many people.

Moderate alcohol consumption is beneficial for the body. Wine increases the level of "good" cholesterol, which protects blood vessels, improves blood flow and alleviates the negative effects of stress. Red wine has a number of other advantages: it contains resveratrol, has a strong anti-inflammatory effect, protects the heart and helps in cancer prevention. Resveratrol is contained in the skin of grapes, red wine, chocolate, peanuts and mulberries. Red wine contains more resveratrol than white wine, because of the

preparation of grape skins. Reds contain 50-100 mkg of resveratrol, but white wine is made only from grape juice, which does not contain resveratrol.

France occupies one of the first places in the world in terms of the life expectancy of its indigenous population. Many doctors account for this by pointing out the French are people who drink. Basically, they drink wine, and have been doing so for many centuries. Once, wine was drunk due to lack of good water; now it's become a national tradition. The French do not think about dinner without a glass of good wine. Alcohol is the best tranquilizer: it allows one to relax, relieve tension after a hard day, unwind and come to a good mood.

Alcohol is a substance that is not a mediator. Nevertheless alcohol has a very powerful effect on the nerve cells. This is due to its unusual properties. Most molecules are well soluble both in water and in fat. Alcohol dissolves very well in water and in fats, leaving almost no obstacles for it in our body. There are no obstacles for the C_2H_5OH molecule in our body, so it penetrates everywhere, including the brain. It integrates into neural membranes and changes the functioning of many receptors and ion channels. It is also able to directly affect some receptors, such as gamma-amino acid receptors (i.e. our main inhibitory mediator). That is why people who get drunk often lose control over their speech, actions, accuracy of movement, while their assessment of the situation decreases. A huge number of crimes are committed precisely in alcoholic fugues, while the probability of an accident increases hundreds of times, (even if you drank the night before).

I perfectly remember my youthful impressions when I was actively engaged in rock-climbing. Once, at the training camp in Crimea, in the evening we allowed ourselves a glass or two of good red wine. The next morning I could not climb a rock wall, which previously had not caused me difficulties.

There is no doubt that alcohol influences the brain and, consequently, vision, memory, and ability to adequately judge a situation. The higher the dose, the more destructive the consequences. But this is not the worst that happens. Like any drug, alcohol is addictive, and our sneaky body needs to repeat this process to get back into a euphoric state. Before long, drinking becomes a habit. When, without alcohol the evening loses half of its charm, it's only one step to alcoholism.

Alcoholism is a disease that not only destroys the physical body, but the human soul as well. Millions of people have ruined their lives, died – literally and figuratively – in the coils of the "green snake." Not only do men succumb: women are also subject to this disease. So remember this when you open another bottle at a party.

Some may exclaim: "But how is it that the French drink, the Spaniards drink, and they can do nothing with their lives? How are we worse?"

The question is in physiology. We have a special enzyme in our body – dehydrogenase (ADH), which deals with the splitting of alcohol. It turns ethanol into acetaldehyde, which is a strong poison. Then, the next enzyme with an unspoken name (ALDH) comes into action. The ALDH enzyme turns acetaldehyde into a safe acetic acid. This is a multistage biochemistry at work.

The effect of intoxication is achieved by exposure to ethanol, which triggers the activity of special acids. These inhibitory neurotransmitters slow down nerve impulses. It is due to their work that the relaxation effect is achieved. The level of the hormone dopamine, the hormone of pleasure, also increases. Part of the acetaldehyde obtained under the influence of ADH in interaction with dopamine produces a substance similar to morphine. In this way, the effect of euphoria is achieved.

Therefore, the nature of exposure to the same dose of alcohol depends on the combination of ADH and ALDH enzymes. For some people, the enzymes work quickly, in others, slowly. Therefore, one person gets drunk and falls asleep quickly while another person has the same dose "as an elephant pellet." It is very bad when ADH works fast and ALDH slows down. This is literal poisoning with a strong poison. For such people, headaches in the morning and hangover syndrome are a common evil to be removed with a new dose of alcohol. Part of the Russian and Scandinavian population has exactly this combination of enzymes. At best, they suffer from a strong dependence, and at worst, a lethal outcome due to poisoning. In the case of the Japanese, northern natives, and Native Americans, these enzymes practically do not exist.

Therefore, the Japanese savor sake from tiny bowls. American colonists slyly used "fire water" to solve many problems with the natives. They say that this is how Manhattan Island was bought. In men, much of the alcohol is broken down by ADH in the stomach. In women, this enzyme is concentrated in the liver, which is why part of the alcohol avoids filtration. This explains why women "get to the condition" before men with the same amount of alcohol. Hence the stereotype of ladies getting intoxicated faster.

At parties and clubs, people often wonder about their abilities: "I think I've never had so much to drink before, but here I did and was not drunk." In the body of a person experiencing strong emotions, their metabolism is much faster, their hormonal activity increases, and their sleeping nerve centers are activated. First of all, adrenaline is released, which makes all body systems work faster and more productive. When their heartbeat speeds up, their sympathetic nervous system is activated, and breathing also speeds up. Along with the general rise, the work of ADH improves. This helps for a rapid assimilation and splitting of alcohol. On the other hand, a person who feels anger, rage, joy, or other strong emotions, quickly gets drunk. This effect may be short but there's time enough to grab a gun or a knife.

The process of the assimilation of alcohol is influenced by many factors that depend on the characteristics of each person. For example, one's intoxication rate is affected by many factors – the size and condition of their stomach and liver, kidney productivity, the degree of satiety, the amount of alcohol already consumed, amount of food, body size, etc. So any recommendations, such as 2-3 glasses of red wine a day or two glasses of vodka at lunch, is a profanation. Some people will not even notice this amount and can continue to work on a scientific article. For others, the amount already has a strong effect on their health.

We do not persuade anyone to drink, but if you do, then choose good wines, with healthy snacks in good company. If the wine is of high quality and the quantity is moderate, as a rule, there is no hangover in the morning. All unpleasant symptoms arise either from excess or from impurities and additives (the same stabilizers we have already talked about are added to cheap alcoholic drinks). For as they say: "Wine is from God, and drunkenness is from the devil."

Breaking the rules is always useful!

All that is set out above are the rules. They must be followed, they must be remembered, so we give them below in a frame that you can copy and hang on your fridge. And if you stick to them, you can periodically afford to completely back down from them. For example, get drunk at the wedding of your best friend (or girlfriend), eat a fat steak in a restaurant, or canned food on the hike. Recently we have been to Prague, and in the evenings in this beautiful city we visited local restaurants, where we enjoyed drinking barrel beer with a huge pork knee and a pork ribs. You can afford it for three days, but if you continue this way, you may inevitably get the gout many rich people suffered in the Middle Ages, who had the opportunity to eat meat every day. They also got the whole bouquet of diseases. They did not live long in the Middle Ages.

By the way, after a hearty meal, we highly recommend taking pills to improve digestion and enzymes. This will make it easier for the body to cope with the food intervention.

So, once again, the basic rules:

Food is a pleasure.

Remember the list of products to be avoided.

Cook your food properly.

Sugar is the scourge of our civilization.

Think about the compatibility of food.

Eat whenever you want.

Give your body the ability to digest.

Find the food for yourself.

Buy Fresh and proper food.

Wine has benefits and dangers.

Breaking the rules is always useful!

The magic power of water

Water, thou hast no taste, no color, no odor; canst not be defined, art relished while ever mysterious. Not necessary to life, but rather life itself, thou fillest us with a gratification that exceeds the delight of the senses.

Antoine de Saint-Exupery

Wind, Sand, and Stars, 1939

Water is life! But do we drink water correctly? It's not an idle question for a creature consisting of 3/4 of H₂O. A human being needs from 2.5 to 5 liters of water per day to maintain its vital activity. On average, we get 1-2 liters of water with drinking, 1-2 liters with food, and 0.3 liters is formed inside the body during the oxidation of fat. Statistics reveal each of us consume about 200 liters of water per day – almost ten times more! This includes washing, showering, laundry, washing dishes, floors, flushing toilets, and simply running tap water aimlessly. A glass of clean water in the morning after sleep will help you significantly improve the gastrointestinal tract and many other body systems. Optimal time for taking water in the daytime: one glass half an hour before meals (breakfast, lunch and dinner) and one glass two and a half hours after meals.

This is the minimum amount of water necessary for the body. After an extensive meal and before going to bed, it is recommended to drink another glass of water. There is a point of view that "regular and properly calculated use of water will help prevent the development of those diseases that are terrible to modern society." In our opinion, this is an exaggeration, however there is some truth in it. What water should we drink? How do we choose the right type of water? Here are some recommendations.

In countries like Switzerland and Sweden, you may drink water from the tap, and this is the best water. But in most countries, to keep water safe, it is necessary to add chlorine to water. Chlorine is poison. In small quantities, your system can process it, but if you drink such water continually –

day-by-day, month-by-month – inevitably, it will influence your body. So before drinking tap water, let it settle for an hour, mostly before boiling. But it's preferable to use filters. What are the methods for water treatment used presently in our world today? Certain popular books describe various affordable methods of water processing, such as freezing, infusing water with silicon, silver etc. All these methods provide certain beneficial effects, as long as you have the time and enthusiasm to implement them. Unfortunately, a working individual usually has no time to look around, let alone pour water from one pot to another. So we are discussing practical methods which may be used in everyday life.

Settling

Water settling, performed for at least 3 hours, lowers the concentration of free chlorine. This is important in water preparation for watering home plants or filling a fish tank. All aquarists know that fish respond well to the tap water that has been settled for at least 24 hours. But settling has virtually no effect on the amount of iron ions, heavy metal salts, and other substances in water.

Distillation

Distilled water is not fit for regular consumption since it does not contain the micro-elements essential for the human organism. Moreover, it washes the mineral salts out of the system. That is why frequent consumption of distilled water disturbs our immune system, heart rate, digestion, etc... The main idea employed by many water producers is to add proper amounts of artificial salts to distilled water, thus creating “sterile and healthy potable water.” Unfortunately, this idea is not working well. The “artificial water” produced lacks some component that makes natural water good for our health. Which component is that? It's probably the structure of water, the subject of numerous scientific research projects and discussions. In some places, like Dubai, where there are no natural sources of potable water, ocean water desalination is the only way to get water for consumption. A bad decision is better than no decision.

Filtration

Selecting a good filter is no easy task. In order to understand what type of filter to purchase (and there are many different types of filters—charcoal, membrane, bactericidal, integrated etc...), one must first evaluate the composition and special properties of the water in question.

The filter needs to be selected according to the characteristics of the water in question. This is a job for a professional. A home filter is basically a mini water-processing factory. Simple filters usually remove only mechanical impurities and extra chlorine. Complex installations are designed to produce water that meets the 150 criteria defined by the World Health Organization.

Naturally, water-processing filters quickly become clogged. This lowers the degree of purification. Soon the filter starts releasing the accumulated impurities and thriving microflora back into the water. We cannot predict the time when the reverse contamination of water may start. Therefore, only regularly replacing the filter element can guarantee high-quality purification.

New devices have been created in the last few years – not just as a guaranteed way of water purification – but as a means for making the water beneficial for our health. The innovative working principle of such devices is structuring. General water treatment principles can be embodied in your own apartment or country cottage. (To retain our integrity, we will not mention any trademarks. This book will not turn into an advertising brochure, which is why the principles are described in a fairly general manner.)

The first stage of purification – the first barrier in the way of the water flowing into an apartment – is a mechanical filter. Large impurities, like sand, litter and dirt, are invariably removed at water purifying stations. After traveling through many kilometers of rusty pipes, water gathers various impurities yet again. Naturally, it depends on numerous conditions, but a sound idea is to check your tap water by filling a one-liter glass bottle with it and letting it settle for 2-3 days. The sediment will show the extent of the pollution in your tap water. By the way, as a rule, mechanical filters are easily cleaned by running water flow through them and do not require extra maintenance. The next stage is using a multi-step absorbing filter. Several steps are recommended, at least 2 or 3. The first step consists of various fibrous filters manufactured from state-of-the-art materials. The next step is the charcoal filter, an indispensable part of all cleaning systems. This further stage consists of the micro-porous filter and other filters recommended by the manufacturers.

Schungite, silicon and silver filters perform very well at these stages. (Schungite is a black, lustrous, non-crystalline mineraloid consisting of more than 98 weight percent of carbon. It was first described from a deposit near Shunga village, in Karelia, Russia, from where it gets its name. Schungite has been reported to contain fullerenes.) The important thing is to remember that all these special-purpose filters, (as well as water activation systems), must be installed after the initial purification stages that eliminate dirt, chlorine and harmful impurities. Revitalizing dirty tap water does not eliminate the principal factors that have pathological effects on our health. The following guidelines should be observed when selecting and installing a filter:

- Make sure the filter capacity is sufficiently high. Each filter has a certain processing capacity, which is usually specified by the filter manufacturer. These recommended values must be strictly observed.
- The lower the speed of water passing through the filter, the better the quality of cleaning. It is best to choose purifying systems where the water slowly passes the filters and then enters a special accumulative reservoir from which it is later taken for drinking. It's good to keep schungite, silicon or quartz in this reservoir.
- Filters should be regularly cleaned. Filter cartridges should be replaced at regular intervals, especially in the frost-free season. The scourge of any filter is the growth of microflora, which actively pollutes the water and turns a healthy device into a potential health hazard.
- Check the effectiveness of your home water purification system by having your samples analyzed in a laboratory. This will verify the validity of your filter choice.

In our home, we are using three-stage filtration with commercially available filters, then we structure potable water with CrystalBlue device (<http://www.crystalblueent.com>); we pour this water into silver or clay jars with shungite, amber and silicon. We start every morning with glass of this water, and try to have 3-4 more glasses during the day.

Another topic – special natural waters.

There are several small villages where the inhabitants boast excellent health and longevity. Mountain villages are not the only villages that have become a symbol of an optimum living environment.

There's also a village near the coast of Japan, as well as a town near the Pacific coast of the USA, not very far from San Diego. What all these places have in common are their inhabitants' style of living, which is based on the laws of healthy living as we understand them today. These particular village citizens are physically active, eat healthy food, do not overeat, consume little sugar or alcohol, and in some places, eat a lot of fish. They do not suffer from obesity and remain vigorous into old age. This way of living is popular in many places. The majority of inhabitants from these particular villages live for more than 100 years. As a rule, these people live in the same way as their neighbors. So what makes those villages different from the neighboring ones? Serious scientific research did not reveal any significant factors. They live in the same way and they eat the same food. The only difference is in the water they drink.

In all those special places, people have been drinking water from local sources for their entire lives. Since their villages are small, there is no need to subject the water to treatment with chlorine and other chemical substances. The local source of water completely satisfies their needs. They drink their own water, and they drink a lot of it – up to several liters per day. The products of the modern chemical industry, like soft drinks, are not very popular there.

In the last decades in science, we came to a new understanding of water (Voeikov V., Korotkov K. *The Emerging Science of Water*. Amazon.com Publishing. 2018). Water was proven to have memory – it communicates with the environment and changes its properties under different influences. The notion of “structured water” was introduced in modern science and practice. Structured water is water which changes its molecular organization under the influence of some external power and keeps this organization for a relatively long time. Homeopathy solutions are proven to be structured waters. This allows homeopaths to breathe more freely and spread their arms wide. Also, numerous inventors turn up to propose – through the internet – different types of structured water with unusual properties and devices for its production.

Of course, before using some device, you should look for evidence that it is really efficient. This can be done only with laboratory testing. The easiest experiment is to compare the condition of the human energy field before and after drinking a glass of structured water. The results are often very revealing.

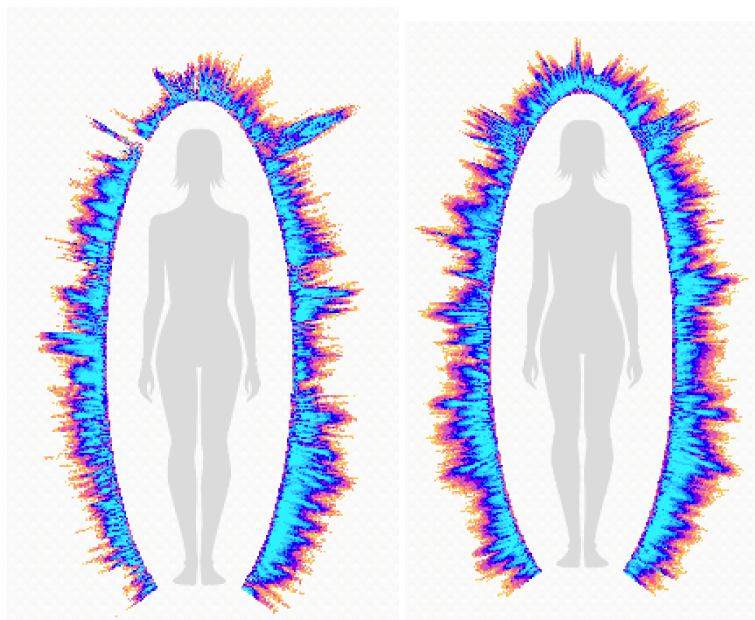
At the 2014 Congress, "Science, Information, Spirit" in St. Petersburg, the French researcher, Guy Londechamp, presented results of his 5 years of research – to influence people to drink a glass of water prepared in his device. The device is a geometric construction – a copper tube 16 mm in diameter, having left turn portions in a rising part while descending part was divided into 2 symmetrical divisions (with torsion bar synchronized steps aimed in opposite directions) which connect in the resulting matrix. After testing more than 100 people, Londechamp found that for 80% of participants, the energy of their field increased and for many, their chakras became balanced. The latter is an indicator of their psycho-emotional balance. (Please note: energy growth may be observed only in people who have relatively low energy in the initial state. When all is well, there is little to improve). Fig.20 presents an example.

Naturally, the question arises: how long does this effect persist? The measurements show improvements after a single glass of water last from half an hour to an hour. This does not mean it is necessary to drink water each hour on the day. It makes sense to drink a few liters during the day – though this depends on many other factors like age, weight, climate, exercise and so on. A group of specialists from the St. Petersburg Research Institute of Physical Culture and Sport (including medics and psychologists) conducted a serious investigation concerning the long-term effect of consuming structured water. The study centered on athletes living and training at the St Petersburg school of the Olympic Reserve. These schools were organized during the Soviet era; the young guys are studying and practicing on a full academic scholarship. Many of them later become Olympic and world Champions. The advantages of using such cohorts for studies are: they are all about the same age, healthy and undergo regular medical examination, live and train in the same conditions, and eat the same food. Therefore, it is easy to organize randomized groups in which all participants have roughly in the same physiological state.

Forty boys and girls participated in the study. Using complex techniques, their physiological parameters were measured in their initial state. Then, they were subjected to physical loading: 10 minutes of active work on the bike while doctors measured recovery parameters after exercise. The whole group was randomly divided into experimental and control groups. In the experimental group, participants drank only the structured water from a special filter for a month, while the control group only drank regular bottled water. The subjects knew about the purpose of the experiment but were not informed of the type of water they would drink.

By the way, one of the advantages of working with athletes is that in the training process, they drink a lot of water. A month later, the measurement process with loading was repeated. The results were clear: there was a statistically significant difference in physiological parameters of control and experimental groups. The authors of the study came to the conclusion that athletes drinking structured water experienced growth in aerobic capacity, physical performance, energy potential, along with their bodies' adaptive reserves and their stress level dropped down (Gavrilova E.A., Glushkov S.I., Korotkov K.G., et.al. The Impact of Drinking Water Quality on The Athletes' Condition During Exercise. *J Alt Compl Med* 18, 5: 345-347, 2012). The result was convincing and clearly demonstrated that if you constantly drink good water, the body could much more easily cope with the strain of everyday life. Later, similar results were obtained with the normal population (Korotkov K.G., Churganov O.A., Gavrilova E.A., et.al. Influence of drinking structured water to human psychophysiology. *Journal of Applied Biotechnology & Bioengineering*. 2019. 6,4, 171-177). Good water, in particular, is one of the prerequisites for longevity. Naturally, this fully applies to animals and plants. Before a cat, two bowls of water were placed—one with tap water and the other with specially treated water. The response was clear: the cat chose the structured water. Structured water also influences the grows of plants, as demonstrated in numerous experiments.

To be healthier and stronger, drink good water!



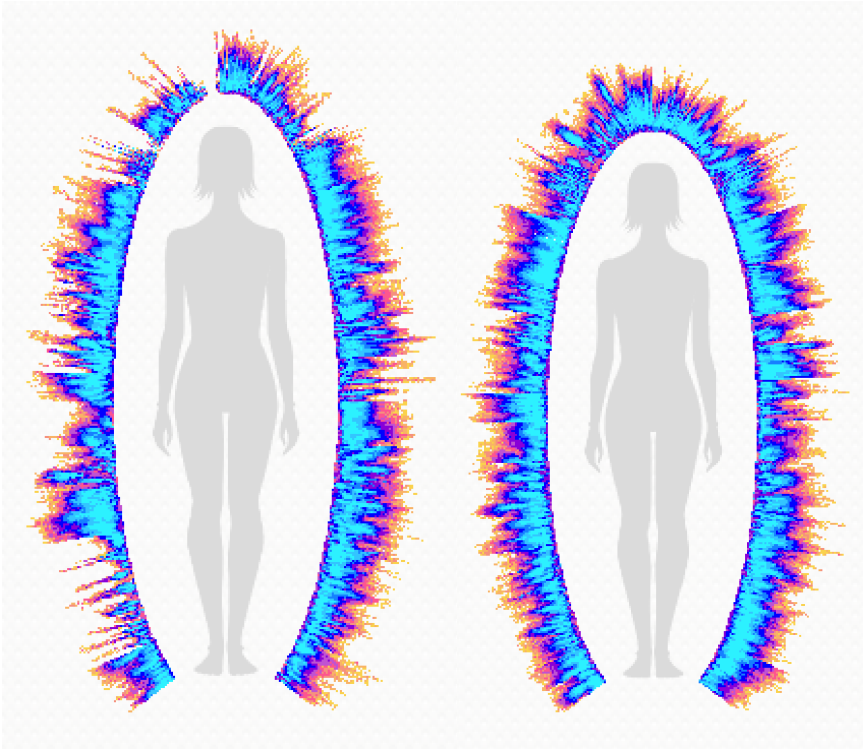


Fig.20. Energy Fields before and after drinking structured water

Water as a Detector of Emotions

*I don't want to be at the mercy of my emotions.
I want to use them, to enjoy them,
and to dominate them.*

Oscar Wilde (1854-1900)
The Picture of Dorian Gray

The EPI/GDV-bio-electrography method allows registering the stimulated glow of water that depends on its structural state. This fact has been meticulously studied and proven. Numerous studies show the structural state of water changes under the influence of various factors. A human's directed attention is among them. In the middle of 1990s, together with the famous Russian healer Alan Chumak, we conducted the first experiments of this kind. By concentrating his attention, Chumak changed the state of water (detected from the changes of the signal's glow). The Bible tells us that Jesus turned water into wine. Was it Cabernet or Merlot? That seems unlikely. Water remains water – but it could obtain special properties. What is wine's the most valued property? Why has wine always been so appealing to mankind?

The main property of wine is to make people merry. After having a drink, people forget about their everyday troubles, the world seems exciting and significant, and everyone becomes happier and jolly. People want to sing and dance. Wine is a very special laughing liquid. Therefore, Jesus did not turn water into something else – he bestowed very special properties into it. After drinking that water people became merry and happy. They sang and wanted to sing praises to Jesus. Speaking in present-day terms, Jesus structured the water by directional increase of its biological activity. Numerous experiments – regarding water being mentally influenced – show that, on the whole, this is a distinct possibility. Sitting only two meters from the experimental installation, Alan Chumak concentrated upon a column of liquid. He became so absorbed in this process that he did not notice anything around him. At that moment in time, no sounds could disrupt his mind's focus.

Special measurements indicate the moment an individual enters a specific state of altered consciousness. The conditions and study of this subject constitute a separate branch of research.

Achieving altered states of consciousness is common for a shaman, a healer, a surgeon (performing an operation), and even in the case of a distinguished actor performing on stage. In a trance-like condition, a person can and often does influence the processes around him. In the majority of such experiments, statistically significant changes of the parameters of the water glow were detected. These results were not observed each and every time – they depended greatly on Chumak's ability to consistently achieve an altered state of consciousness. This process may not always be governed by our will alone. We conducted similar experiments with operators from different countries. Among them were Alan Chumak and Aleskey Nikitin from Russia; Christos Drossinakis and Victor Filippe from Germany; and Krishna Madappa from the USA. In all experiments, the operator was first informed about the conditions of the trial. Then they attempted the experiment at close range. Only after that, would they work in the double-blind mode from a long distance. Interestingly, after the first experiments where the operator mastered the specifics of the task, the influence could be performed, from then on, at virtually any distance.

Another series of experiments studied a group's collective influence upon water. The experiments were conducted during seminars in groups of 20-30 students that had a positive attitude towards the professor and the subject of discussion. After explaining the purpose of the experiments, and registering the initial images of the water glow, individuals were asked to use their inner concentration to send feelings of love and goodness to the water. In many cases, the experiments succeeded in changing the parameters of the water's glow. We conducted a large number of similar experiments. In the majority of cases, we received positive results. These convincing results show that the parameters of the water glow undergo statistically valid changes, whether under the influence of the directed attention of a single human or a coordinated group of individuals. The distance between the operator and the device is insignificant, be it two meters or two thousand kilometers.

In that case, the experiment is conducted in the following way: several sealed bottles containing the same water are placed on a table in a laboratory. Colored felt-tipped pens mark the bottles. The operator attempts to influence only one bottle of his/her choice, at a random time within 2-3 hours.

The operator writes down his/her choice, places the note into an envelope and seals it. When the specified period is over, the glow signal is measured for all bottles. All measurements are repeated five times. Each time statistical indices are calculated in order to evaluate the difference in glow of the different samples (see example at figure 34). Clearly, in the absence of a significant influence, all samples must yield statistically identical results. Different results may indicate that there was an influence. After completing the measurements and preparing the results, the final result is prepared as a protocol and is signed by all participants of the experiment, whereupon the operator's envelope is opened and the results are compared. Thus, the experiment becomes a double-blind study: none of the participants know what the operator is going to do.

Sessions between Germany and St. Petersburg (Russia); Moscow and St. Petersburg; and Japan and St. Petersburg were performed. The efficiency of the influence at a relatively close range (from an adjoining room) for five of the above-mentioned operators was 80%. In three experiments of the long-range action study, 10 test trials were performed with the overall efficiency of

70% (7 successful tests out of 10; in 3 cases, the signal from all bottles was the same); in 5 cases, the color chosen by the operator matched the color of the bottle where changes were detected; in another test, changes were detected in two bottles, and yet, in another case, the intentions of the operator differed from the actual results.

From 2007 to 2010, a series of experiments with remote intention influence were conducted together with Lynne McTaggart. Lynne organized large groups of people through the Internet (<http://theintentionexperiment.com>). People could see the photo of the experimental setup and began their meditation at a specific, pre-arranged agreed upon times. People were not given any special instructions as to any method of meditation. Data was recorded continuously, in automatic mode, about one hour before the intended time and one hour after. The control experimental setup was arranged in an adjusted room. Recorded responses of both water installation and EPI sensors were statistically significant ($p < 0.05$). In all cases of collective directed intention, big groups of people from all over the world recorded statistically significant responses of water and sensors.

Lynne describes it in her book "The Intention Experiment: Using Your Thoughts to Change Your Life and the World".

What are the main conclusions from these experiments? Have you ever noticed that a dinner cooked at home by a loving spouse is more delicious than the most exquisite food from an expensive restaurant? And don't forget your mother's trademark dish that she makes just for you.

Could it be that sincere and kind emotions a person feels during the cooking process influence the structure of water and change it—as happened in our experiments? By the same token, food prepared with ill feelings may equally produce extremely negative results.

In India, the Hindu culinary tradition pays special attention to this particular issue. Ayurvedic texts state that prior to lighting the cooking fire, one must pray to reach a positive frame of mind and only then, proceed with the cooking. If you cannot discard the negative emotions and hard feelings, it is better to skip cooking this time. We should always remember: all our emotions and feelings influence the water around us, all the time.

Vitamins, minerals, and supplements

The only way to keep your health is to eat what you don't want, drink what you don't like, and do what you'd rather not.

Mark Twain

Of the 92 chemical elements found in nature, 81 are found in the human body, which means that you and I are a real chemical laboratory. Moreover, the composition of these elements is very close to the composition of sea water. Aphrodite is not the only one coming out of the foam of the water... it seems we all are. Minerals are part of complex organic substances present in the food we consume. If our body does not receive enough of these substances, the functions of the organs are impaired and something starts to creak or twitch. As we age, the loss of trace elements grows. It is why fractures in the elderly are so frequent and so dangerous. As studies have shown, 80% of the population have an imbalance of these or those elements.

Useful minerals are divided into macro- and micro-elements. Macro-elements are: oxygen, carbon, hydrogen, calcium, potassium, phosphorus, sulfur, magnesium, sodium, chlorine and iron. The concentration of these elements may exceed 0.001% in the body. Another group of minerals — trace elements — are manganese, copper, zinc, boron, molybdenum, cobalt, etc. Their share in the body ranges from 0.000001% to 0.001%. This minute amount does not mean that you can do without them. Conversely, there is a group of minerals that have a bad habit of accumulating in the body and will gradually poison it, weaken the immune system, violate the water-salt and energy metabolism, and provoke diseases. Most often, it is aluminum (dishes), bismuth, cadmium, nickel, lead (exhaust fumes), mercury, titanium and tin (canned food and colorants). Here are some of the brightest examples.

For thousands of years, many people in the world have suffered from endemic goiters. And only at the end of the nineteenth century, this disease was discovered to be caused by an iodine deficiency. Simple supplementation with iodine in food allowed us to completely solve this problem.

During times of high mental stress, it is necessary to consume phosphorus intensively. Those who sit a lot at the computer and strain their eyes need a lot of selenium. Under increased stress, phosphorus, iodine and sulfur are vital – dancers need silicon and vanadium. To strengthen the bones, people need calcium, silicon and phosphorus.

There are many such examples. The ancient civilizations of China, India, Mesopotamia knew about the use of minerals and metals for medicinal purposes. Minerals are more important factors in human food than vitamins. The body can produce most of the vitamins itself, but cannot produce the necessary minerals to remove toxins, because toxic trace elements are not subjected to the body's self-cleaning processes.

Here is a list of essential micro-elements, which are both necessary for life, and extremely harmful for it. The concentration of some must be maintained in the body, and the other must be eliminated.

Basic positive micro-elements		Basic negative micro-elements	
Zinc	Necessary for the development of immunity; for the normal operation of the pancreas; for growth; sex hormones; normal functioning of the prostate.	Cadmy	Causes kidney disease, which is complicated by renal failure.

Marganets	Necessary for the normal functioning of the nervous system; to protect the skin; to fight allergies, diabetes mellitus and bone diseases.	Arsenic	Causes chronic anaemia and allergoses.000
Magnesium	Required for normal heart function (promotes dilation of heart vessels and reduces blood clotting), kidneys, biliary tract function, nervous system. Deficiency leads to immuno-deficiency.	Lead	Causes asteno-neurotic syndrome, anemia, arterial hypertension, gastrointestinal diseases, malignant formations.
Chromium	Protect against diabetes by strengthening the body's ability to regulate blood sugar levels; building chromium reserves helps overcome stress and break down excess fat.	Strontium	Causes Level disease, strontium rickets – bone fragility.
Selenium	Manages a reduction in the risk of cancer of the skin, lungs, stomach and Female genitalia; changing selenium leads to feelings of anxiety and fatigue.	Thallium	Causes Hair loss.

Silver	Improving the body's antibacterial protection and immunity	Antimony	Causes Immunodeficiency.
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How can you tell what your body contains? It is extremely simple. All you have to do is cut a strand of hair and send it to a special laboratory for spectral analysis. This test can also be done with blood. However, blood reflects the current composition at the time the sample's taken, which will depend on last night's dinner and the time spent in traffic jams. Hair reveals a stable picture from the last month or two. We recommend all our patients carry out this type of analysis on a regular basis.

Here is an example. In the early 2000s, I had health problems. Visits to doctors, hospitals and surgeries began. No one could determine the cause of my illness. I had to cancel my trips. The efficiency of my work fell and there was no escape. At one point, a clever doctor advised me to do a micronutrient test (at the time, this test was not yet known). The test revealed strong mercury poisoning: the concentration of mercury in my body was almost a hundred times higher than normal.

The reason was easy to remember. In Soviet times, a whole puddle of mercury was accidentally discovered under the floor in the laboratory where I worked as a student. Who knew how long it had been there ... maybe back in the Tsarist times? The lab was shut down for a week, cleaned, and the staff were tested. But nobody considered the students. The problem affected me almost 30 years later. Who knows if there may have been other previous diseases associated with it? Almost a year was spent on my treatment with leeches – hirudotherapy – to cleanse my body.

Where can I get micro-elements? Vanadium is found in products of animal origin; calcium in potatoes, dairy products, meat, beans; iodine in beans, seaweed; silicon in sea cabbage, cereals, algae, pancreas and animal kidneys; sulfur in cottage cheese, cartilage, bones; selenium in seafood, beans, mushrooms.

Yet, as our life experience shows, it is extremely difficult to extract sufficient amounts of desired elements from food. To do this, they must be absorbed in kilograms. Also, the products must be grown in the right soil. It is not at all clear what elements may be found in fish. In the meat of large marine fish, zinc and mercury are almost everywhere. Eating fish in large quantities is not recommended.

Basic supplements for daily intake

MAGNESIUM

Many people experience discomfort from cramps and muscle twitching. This problem is solved when taking magnesium, which also plays an important role in cellular metabolism. Magnesium is involved in more than 300 biochemical reactions in the body and is very important for health. It helps to reduce anxiety, balance the pleasure centers of the brain, generate energy and regulate the concentration of calcium and potassium. Magnesium deficiency can lead to irritability and nervousness. Magnesium supplements help strengthen muscles and improve moods. In combination with vitamin B6, magnesium reduces hyperactivity in children. Typically, the recommended dose for adults is 400-1000 mg per day, divided into 3 doses. It is best to take magnesium with calcium, as these macro elements work synergistically. Magnesium is usually half the calcium intake.

SELENIUM

Selenium is a mineral found in small amounts in products, water and soil. Selenium has antioxidant properties – it helps the body to resist free radical attacks. This mineral regulates thyroid function, enhances the immune system and helps prevent heart disease. Typically, the recommended dose for adults is 80-200 mkg.

ZINC

Zinc is present in many products, such as red meat, poultry, beans, nuts and whole grains. Zinc activates more than one hundred enzymes in the body, and the daily intake of this trace element is very important because the body does not store a stock of zinc. Zinc is involved in various processes: cell division, prostate health, immune function, wound healing. Zinc deficiency is associated with mental lethargy. Zinc is useful for children with hyperactivity and impulsivity. In addition, zinc is involved in the production of testosterone and dopamine, and it also helps the beauty of the skin. Usually, the recommended dose for adults is 25-80 mg per day (but not more than 100 mg!). Zinc supplementation is best with food or juice, as the preparation can cause nausea on an empty stomach.

GROUP B VITAMINS

Group B vitamins play an important role in the smooth functioning of the nervous system and help the brain to synthesize the neuro-mediators affecting appearance and mood. This makes them particularly effective in controlling stress. Under constant stress, the reserves of these vitamins are depleted in the body first. And when they are scarce, people's ability to cope with stress and anxiety is compromised.

VITAMIN D

Vitamin D, also known as "the light vitamin," is very important for brain health, mood, memory and skin conditions. Although calciferol is classified as a vitamin, it is actually a steroid hormone. Vitamin D deficiency is associated with depression, bipolar disorder and memory problems. The American Academy of Pediatrics has recently increased its recommended rate for children to 400 ME per day. Some researchers believe that the daily dose of 400 ME is well below the physiological needs of most people and suggest a rate of 2000 ME to prevent cancer, heart disease and osteoporosis.

OMEGA 3

Omega 3 (Fish oil) has a positive impact on overall health. It reduces triglyceride levels and has anti-inflammatory, anti-arrhythmic and healing effects, and stabilizes nerve cells. It also normalizes blood flow and helps to fight blood clots. In addition, omega-3 reduces high cholesterol and triglycerides in the blood, reduces the risk of sudden death from a heart attack and reduces blood pressure. In addition, fish oil helps with joint pain in arthritis and is good for the skin. It prevents inflammation, reduces depression and improves heart function, making your skin look fresh.

The abundance of bio supplements in a good shop is striking. Their production has become a powerful industry. How can you make sense of them? Naturally, only a doctor can make the right choice based on life indications and tests. It is optimal if the doctor can recommend a particular company with which he already has experience. Keep in mind, however, that unlike strong medications, you will not feel the effect of taking supplements right away. They act gradually, influencing delicate regulatory mechanisms, and they work throughout life.

American endocrinologist Michael Borkin developed a method for individual selection of biodegradable supplements using the Bio-Well device. First, the signal is removed from two fingers of different hands and the program determines the baseline level of stress and energy. This measurement can be repeated several times to ensure that the human condition is stable. The person then takes a blister or a box of bio additives and presses them against the chest, and the readings are taken from the free finger. Then the hands change, and the readings are taken off the finger of the other hand. The program then recalculates the stress and energy levels. This is repeated with various supplements – up to 10 drugs in one dose. The data is compared using the Bio-Well program and clearly shows which drugs are good for a person – which ones reduce stress levels and increase energy. It also identifies those which are contraindicated – increasing stress levels and decreasing energy. It is important to know you do not have to swallow the medication or even take it out of the packaging. Your body, on a subconscious level, will determine how suitable this substance is for you. It will signal the autonomic nervous system to slightly alter the sympathetic-psychotic balance.

The entire study takes 10-15 minutes, and numerous experiments in both the US and elsewhere have shown the effectiveness of this approach. Figures 21-22 show examples of the resulting graphs.

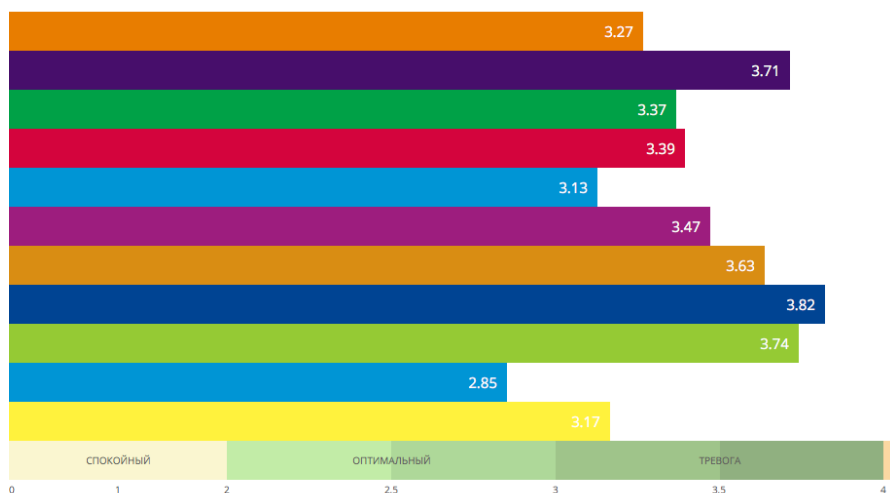


Fig.21. Example of supplements test. 1- initial state, 2- theroedin, 3- magnesium, 4- potassium, 5- vitamin B complex, 6- detox cream, 7- tryptophan, 8- hormonal cream, 9- DHEA, 10- Gaba, 11- melatonin.

As we can see from this test, preparations 2, 7, 8 are contraindicated for this person, 3, 4, 6 are neutral – they can be taken, 5 showed very good results, while 10 and 11 reduced stress levels but also reduced energy levels. This is quite understandable, because these are Gaba and melatonin, drugs designed to influence the level of anxiety.

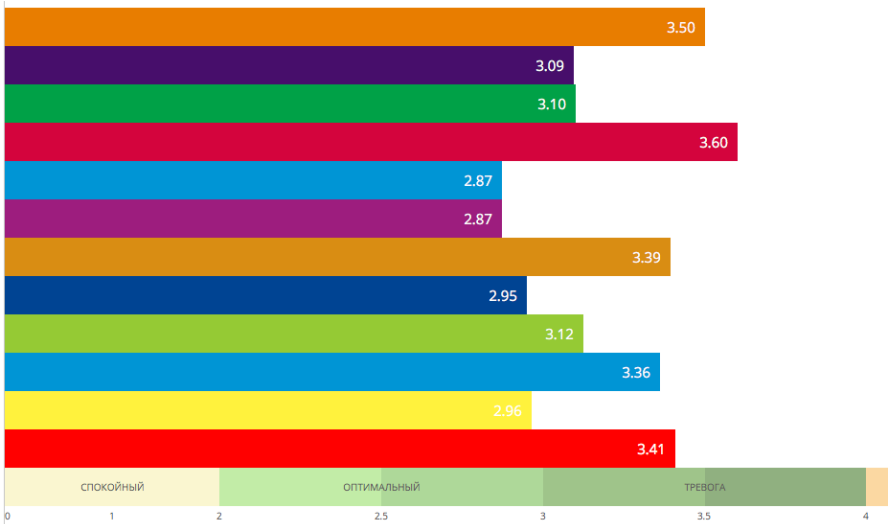


Fig.22. Example of supplements test. 1- initial condition, 2- calcium, 3- magnesium, 4- potassium, 5- vitamin B complex, 6- detox cream, 7- hormonal cream, 8- vitamin C, 9- DHEA, 10- gaba, 11- melatonin.

Part 3. INFORMATION FOR THE SOUL

Religion in the modern world

You cannot create anything yourself,
You can only wait until you hear the steps of the
Almighty,
And then, jump and grab onto the edge of his clothes —
That's the point...

Otto von Bismarck (1815-1898)

German aristocrat and statesman; the first
Chancellor of Germany.

In the middle of the seventeenth century, the great French mathematician and philosopher, Rene Descartes proclaimed the principle philosophy of rationalism to be a universal method of cognition. Descartes recognized the existence of the world's two kinds of entities: lengthy (*res extensa*) and thinking (*res cogitans*). He resolved the problem of their interaction by introducing a common source (God), who, being a Creator, forms both substances by the same laws. These views formed the basis of the Cartesian guiding principle of modern science, which proclaimed the separation of science and religion. Science investigates the phenomena of nature, religion – the human soul. This division freed the hands of scientists and allowed them to get rid of the Church's stifling guardianship, weakening the pressure from the Church many fold. Since then, both world systems developed in their own way. Science discovers the laws of the nature and applies them into technological advances, whereas religion for thousands of years proposes the existence of One God. Science develops rapidly; religion more slowly accepts new ideas. Does this mean that modern man does not need religion or faith in God anymore?

In the 20th century, the principle of secularism was proclaimed in the socialist camp and thus, the Church was physically and spiritually destroyed. Priests were shot and exiled. Church buildings were converted into swimming pools and warehouses. People were taught to believe that God does not exist.

When the Soviet system collapsed, almost immediately, the church began to rise from the ashes. Across the country, temples were restored, new ones were built, and the people reached out for spirituality. Sunday church services in Russia are overcrowded with people.

According to Professor Julia Sinelina (Journal *"Expert"* № 1 2013), more than half (59%) of the residents of our Earth consider themselves to be religious; 23% identify as non-religious, and only 13% are avowed atheists.

Christianity, as of hundred years ago, was the world's leader in its number of followers. That made up about a third of the world's population. In second place is Islam, with one and a half billion adherents (22.4% of the population), and the third place belongs to Hinduism (14%). The major changes, which have occurred in the world over a last century, are as follows:

1. The rapid growth of the number of Muslims, who, from fourth place in 1910, moved to the second in 2010. There is a steady increase in the proportion of Muslims among all believers.
2. Sub-Saharan Africa, which in the early twentieth century was a territory of ethnic religions. By the beginning of the twenty-first century it's practically divided between Christianity (South) and Islam (North).
3. The sharp decrease in the number of followers of traditional Chinese religion moved it from second place to fifth. This is associated with the introduction of Marxist ideology and state atheism in China.
4. There's rapid growth of the number of Taoists, Muslims and Baha'is in the twenty-first century. It should, however, be noted that the growth in the number of Christians are not far behind from the Muslims—1.35 and 1.8 respectively.
5. In Christianity, the most significant change over the past century is the formation of a group of independent churches, which today have the second largest number of followers among all Christian denominations. This movement was started in the 1970s in the United States, first with the formation of separate churches for "coloreds," where the congregation sang and danced during the service (spiritual music was born here), but later embraced a variety of segments of the population.

The independent church in the United States—an organization headed by a group of parishioners—has its own buildings, sometimes of impressive dimensions, where there is a large hall for prayers and sermons, halls for meditation, music classes, gyms, and game rooms for children. People go there as a family where they are happy to have fun, where they always have help and support in difficult times. This movement is based on the Protestant tradition, but this includes evangelical, charismatic and Pentecostal, as well as various Orthodox and Catholic organizations, separated away from the main churches.

6. In many countries, religion plays a significant role in the process of self-identification of the people rationalism in opposition to their neighbors. This is one of the reasons for the growth of religiosity in the Orthodox countries, such as Serbia, Macedonia, Georgia, Romania and Moldova, and in many Muslim countries.

7. In the past decades, the number of religious people with higher education has increased. So, the old adage that religion is more for the ignorant masses, no longer applies. It is obvious that for educated people, it is their informed choice.

Of course, in today's world, there are different processes. For example, the most non-religious country in the world is Australia (37% non-religious). The number of believers is much less in Canada, Japan and Vietnam. But overall, we can't tell about a global fall of interest in religion. As Professor Sinelina concludes,

“Religious impulse – the search for meaning of life that goes beyond the limited space of the empirical world – was the primordial trait for mankind. Eternal existential questions, and their decisions were always beyond rational definition. For religious answers always will have a place in the human experience.”

The latest formation of the radical Islamic movements is the best example how spiritual ideas attract thousands of people from all over the world and transform them into ruthless killers, led by religious ideas.

But let's have a look at how modern science explores the process of religious perception.

Infinity of Consciousness

A thought is a flower of a plant,
Then what is its fruit?
Its effect on our condition...
This is the fruit!

B. von Arnim (1785 – 1859)

For over 40 years I have been researching the processes of consciousness. Everything started with acquaintance with outstanding Russian healers – they are still called psychics. Then there were many years of experiments with telepathy, "blind" or direct vision, mental influence on sensors. Obviously, all these directions are far from the boundaries of official science, so I have always been a favorite subject for the Russian Pseudoscience Commission.

They always attacked me, sometimes using the press and television, not to mention the internet. But this did not prevent me from becoming a doctor of technical sciences, a professor, a member of several dissertation councils in the Universities of St. Petersburg. Because one of the main criteria for assessing a scientist's efficiency is the number of publications in refereed scientific journals. I have more than 300 of them. When one of the evildoers says: "It's all fantasies, nowhere proved, and not confirmed by anyone." I reply: "Have you looked at the list of publications at www.iumab.club. There is a list of several hundred publications in different areas, made in different countries. Several thousand people in the world work with our technologies, and none of them reported that they do not get results. On the contrary, in different countries scientists, doctors, researchers get their own data and confirm our conclusions." I presented many results and ideas in the book *"The Energy of Consciousness"* translated to different languages and other books. But we work all the time, so I will try to give some new data.

Some conceptual reasoning... When we talk about consciousness, a simple question arises: how does my consciousness differ from that of my cat? After all, no one will deny that dogs, cats, birds and many other animals have a sufficiently developed consciousness – they are not robots programmed to perform certain actions. Each animal has its own character, its own attitude to the world, to its owner and other household members.

Many dogs, not without reason, believe they are smarter than their owners, and must perform all their dog whims. It is now proven that even plants react in a complex way to the world around them. They have memory; they see, hear and communicate with each other (Daniel Chamovitz. *What a Plant Knows*. 2019). So where is the line between man and the rest of the biological world? I suggested using the concept of levels of consciousness. Its idea is the following (fig 21).

First Level – is the level of organisms that react to the environmental conditions and change their behavior depending on these conditions. Naturally, these include all plants, microorganisms – bacteria, viruses, yeast, fungi – and biological cells. That is, each individual cell of your body has its own consciousness, memory, and complex behavior, depending on the conditions of the environment. The cell consists of a large number of elements, each having complex behaviors. This consideration can be done at ever lower levels. Now there are theories suggesting one can talk about consciousness at the level of quantum particles. I do not want to go so deep. Instead, we'll limit ourselves to the biological world. The evidence for the existence of cellular memory is the transplantation of large organs – heart, liver, kidneys. The scientific literature discusses cases when after their operation, people acquire new habits peculiar to the donor. I cite one of my favorite examples below. A young girl suffering from childhood heart disease, loved poetry, flowers, sentimental stories and delicate music. The moment came when she had a donor heart transplant. Having recovered, she bought a motorcycle, leather clothes, began to listen to rock and drive around. Her parents were shocked. It turns out that she had a heart transplant of a young rocker who died in a motorcycle accident.

The Next Level of Consciousness is the level of animals. Animals can anticipate future events based on their experience and plan their behavior accordingly. This level of Consciousness is fundamentally different from the previous one. The virus develops in the host's body without suspecting that it can kill him and die with him.

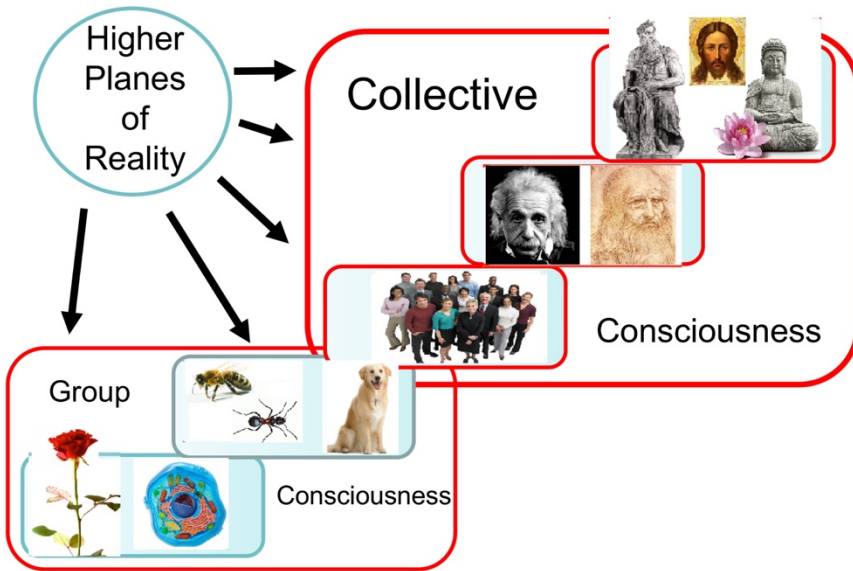


Fig 20. Levels of Consciousness.

It can only mutate when conditions change. While ants and bees are preparing their homes for winter, stocked with food and closing the entrances. Many dogs feel when their owner comes home and waits at the front door, even when he is just approaching the house. This has been proven in careful experiments of the British biologist Rupert Sheldrake (Sheldrake R: *Dogs That Know When Their Owners Are Coming Home*. London. 2011.). This behavior is inherent even to snakes, even though they have mainly spinal brains. Such a story has been told.

Once in the St. Petersburg zoo there was a fire in the department of reptiles, and the administration of the zoo appealed to the residents to take away the animals that are safe for humans. One young man took home a small python. It was growing up and after a while preferred to spend time under a lamp on the sofa rather than in a terrarium. It was a great joy for all his acquaintances, especially girls, when they suddenly sat on it. In general, the python is a very friendly creature, in India they are kept in houses, because they guard the house from poisonous snakes and rats. In addition, they are warm to the touch.

That python liked to sleep in the master's bed at his feet under the blanket. But it did not like when the owner went to work in the morning. And one day, when the alarm clock rang, the python wrapped around his master's leg and did not let him get out of bed. Imagine how difficult and impressive this behavior is. The snake must link the alarm with the unpleasant moment of the master's departure. It has to consider what to do in such a situation and plan the appropriate response. This is complex, conscious behavior.

The Next Level of Consciousness is human for only we can teach children and each other new skills and pass knowledge on to the next generations, both orally and in writing – at the highest levels of civilization. Such opportunities are not available to any animal. Of course, one can object. Many animals also communicate with each other and teach something to their cubs. For example, dolphins or whales have a very complicated system of communication. But no dolphin has invented new skills. They are taught different tricks based on instinctive behavior and incentive system, but they do not invent tricks. In general, all talk about the intellect of dolphins is an exaggeration. They are very smart animals with a lot of excellent qualities, but a trained dolphin can't teach a cub his tricks — their tutors must do it again with every new animal. Dolphins living in an optimal (for them) three-dimensional world, where they have unlimited space, a lot of food, and very few predators, have little incentive for development.

The Next Level of Consciousness represents the level of people who generate new ideas, not based on the level of development of the society in which they live. They include prominent artists, musicians, writers, scientists. We know the names of many of them over the past centuries. These include Rembrandt and Renoir, Bach and Mozart, Newton and Einstein. We call them geniuses and every century produces some. It is not always possible for a society to understand its geniuses and accept their ideas. Most of Leonardo da Vinci's inventions remained in models and drawings.

Contemporaries laughed at the paintings of Gauguin and the Impressionists. Bach's music was forgotten for several centuries. But it is intuitively clear how a brilliant master differs from a good painter or writer. Geniuses give birth to ideas. They do not doubt their rightness and often die without being recognized. We can remember a lot of such stories.

The Next Level of Consciousness is the level of prophets and Spiritual Teachers: people who perceive new spiritual ideas, bring them to society, and change the consciousness of millions. In our history, we identify them as: Moses, Zarathustra, Buddha, Confucius, Lao Tzu, Jesus, Mohammed... Naturally, this is not a complete list. Huge libraries are dedicated to these people. Every aspect of their lives and activities have been analyzed as they've influenced entire civilizations in different places around the world for thousands of years. The defining moment of their activity is when they attained new spiritual ideas, preached their ideas to the people, and gradually mastered the hearts of the populace. They arrived in the moment when the society needed a new spiritual level. This is the difference between the Spiritual Teachers of Mankind and hermits meditating in the Himalayan caves, or monks praying in monasteries. So far, we have discussed individual levels of Consciousness. But it is necessary to point out another level of consciousness: **Group and Collective Consciousness**.

Group Consciousness is inherent to animals living in groups. First of all are ants, termites and bees. Many books and scientific works have been written about the complex behavior of insects as well as, wolves living in large packs, flocks of birds and shoals of fish. In all such communities, each individual obeys the hierarchy of the whole group, copies the behavior of the majority and is not inclined to show their own individual will or consciousness. The lone wolf lives his own life, but when times are hungry, he nails himself to the pack to become a part of it. A person can be characterized as having a developed individual consciousness, as well as a group consciousness, the army, sects, mafia structure are examples of group consciousness. Each participant is subject to a strict hierarchy and behaves according to strict rules. Any deviations are severely punished.

Collective Consciousness is inherent to human society as well. This is the spiritual result of the joint activities of the masses of people, each contributing to this process.

The difference between collective consciousness and group consciousness is that each member of society is an independent individual having his own point of view, his own character, his own manner of behavior, but at the same time, thinking and acting in accordance with the collective rules of the whole society. Each member of society contributes to the collective consciousness and, according to the laws of nature. The more diverse the society is, the more actively it develops.

To form a collective consciousness, one needs many people living in one place. Therefore, it is possible only in cities. A small tribe may have a developed group consciousness, but almost no collective consciousness. The bigger the city, the megapolis, the more active is its development. And every member of society, ruler, worker, last vagabond is important for development. The task of a person is to live, because with the very fact of our life we contribute to the collective consciousness.

Hitler tried to cleanse his country from "harmful elements" – prostitutes, beggars, homosexuals. He simply destroyed them. But a few years after the end of the war, all these elements reappeared as they were an integral part of society. For all our individual differences, we cannot live without communication, without sharing information, and discussing current events. A human being cannot survive without society. He goes wild or crazy. That is why it is so unpleasant to be in quarantine and self-isolation, and more so if locked in single prison cells or lost on an uninhabited island. New ideas are always born from communication. All new scientific and technological discoveries are based on all previous experience of civilization, and on the communication of scientists or inventors with their colleagues, both personally and through special publications. Therefore, it is possible to talk about the existence of **Collective Informational Field**, as a kind of environment in which existing ideas circulate and new ones mature. It is no coincidence that the same insights come simultaneously to people at different ends of the globe, the same discoveries are registered in different countries. Professor Popov in Russia, Jesuit Laden de Morua in Brazil, came to the idea of radio communication, but only Marconi in the United States managed to bring this idea to practical realization. Many such examples are numerous. A typical situation in science involves copyright disputes, not to mention patent lawsuits.

If ideas are carried in the air, then thoughts fly in space. And we influence each other from a distance. I have already written about telepathy and healing in previous books. I will now turn to my favorite subject of mental impact on sensors. In the science of consciousness, there is one global issue that has divided the entire scientific community.

Is consciousness a product of the brain, like gastric juice is a product of the stomach, or is it something existing outside the body? Is the brain a complex system that processes both internal signals of the body and external signals from the Information Field?

As of yet, there is no answer to this line of inquiry. As of yet, it is only a hypothesis and one can either stick to one or the other. But for a scientist, it means trying to prove a particular point of view. The first tool used is via experimentation. One of the consequences of the complex role of the brain is the possibility of consciousness activity occurring outside of our body. And in our experiments, we try to prove it through using instruments. We measure people before and after healing sessions and demonstrate their positive effects; we measure people in the process of transmitting telepathic information. But there can always be objections, like this is merely the subject's emotional reaction – like the well-known placebo effect. Therefore, at some point, I switched to using sensors. Many physical effects were tested: liquid crystals, thin films, laser radiation, and in the end I came to two systems: water and gas discharge.

Water is the basis of life, with many properties that distinguish it from all other substances. Water has memory and it reacts to changes in the surrounding space. In 2017, together with the leading scientist in the field of water physics, Professor Vladimir Voeikov of the Moscow University, we published the book *"The Emerging Science of Water,"* which has already been translated into several languages. With the Bio-Well device, we used a special water electrode to record subtle changes in the structure of water. Another method is to use a special sensor developed after many years of research and tested in many situations. This sensor is called "Sputnik" because it resembles the first Soviet satellite, launched in 1957. Sputnik also connects to the Bio-Well device, and is another way to use the Bio-Well device with different applications. The principle of the Sputnik is based on the propagation of short pulses of standing electromagnetic waves in space. This is the same process that occurs at sea when tsunami waves are propagated – they move on the sea almost without fading and show themselves only when they meet the shore. It is the same in this case. Upon reaching an obstacle, the electromagnetic wave is partially reflected and partially absorbed, depending on the properties of the substance – and above all, its conductivity. An obstacle may be both the wall of the room and the human body. Depending on this, the recorded signal changes.



Fig. 21. Bio-Well device with Sputnik sensor.

We installed the Sputnik together with the Bio-Well and computer in the room where the meditation was conducted, recorded the background signal for some time before and during the meditation. In many cases, the Sputnik signal changed during the meditation (see Figure 25). As can be seen from the graph, during the meditation the Sputnik signal decreased. This change is statistically significant. We have conducted such experiments repeatedly with different groups in different countries, and in most cases could register an effect. Naturally, in all cases, we could control the temperature and humidity in the room, which did not change significantly.

Even more interesting is the impact on the Sputnik at a distance, often from another city or another country. Such an impact can be made only by very experienced operators. Over the past 10 years, we have repeatedly conducted such experiments and the results are reflected in various publications. The figure 26 shows an example of such an impact from Germany to Russia by a group of an outstanding healer Victor Philippi. As can be seen from the graph in Fig. 26, during the remote influence, the Sputnik signal increased dramatically.

In addition to recording emotions, the Sputnik is used to assess the energy of space, which allows us to obtain very interesting data. I gave a lot of data in the book *"The Energy of Space"* and those who are interested in scientific data can refer to the site www.sputnik.bio-well.com. Today, there are several thousand Bio-Well devices in the world and many people use it in conjunction with the Sputnik. Let's hope that this process will develop despite all the perturbations in the world.

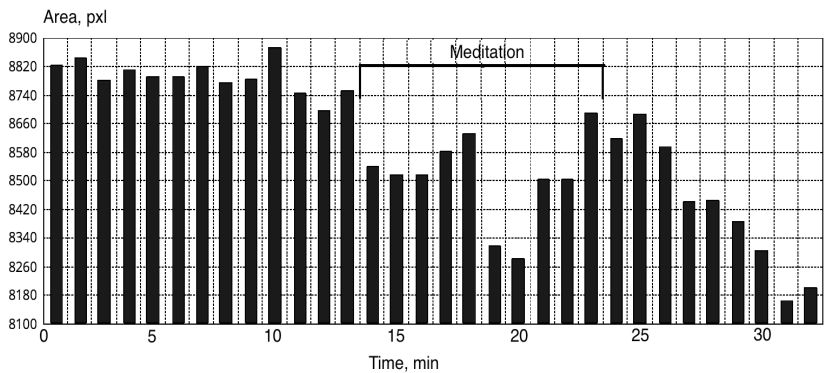


Fig. 22. Example of registration of collective meditation process with Sputnik sensor at the seminar in Greece. Each column – signal averaging for 1 minute.

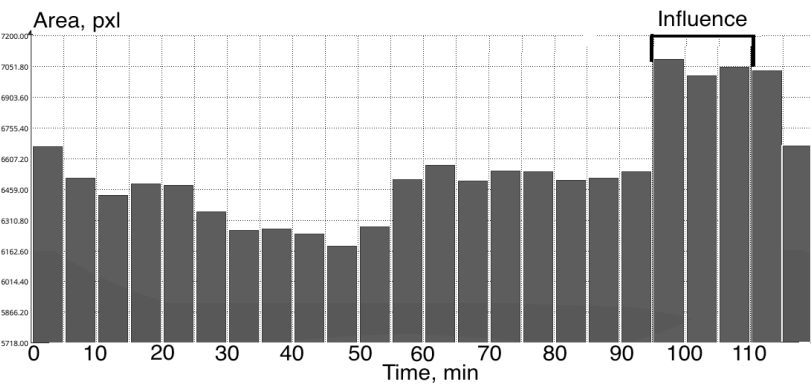


Fig. 23. Example of the impact on the Sputnik sensor from Germany to Russia by Victor Filippi group. Each bar — signal averaging for 5 minutes.

I can't help but present the latest interesting results obtained by our colleagues. Very interesting experiments on human mental communication at the University of San Paolo were conducted by Brazilian researcher Erico Azevedo. (We have already noted that Brazil has a very special attitude towards the border issues of human consciousness, and Brazilian universities approve studies that in other countries could not even be mentioned at the academic level).

In 2017, Erico defended his PhD in Psychology by studying the process of interaction between a psychologist and a patient during a dream discussion. Measuring instruments were connected to each of the participants (Fig. 27). He found during the discussion of the patient's dream, the readings of the devices of the patient and the psychologist, and above all, the device Bio-Well, strongly correlated. This suggests that the psychologist's and the patient's field frequencies are in strong resonance, (i.e., they are mentally related to each other). We also found a similar phenomenon in lovers when we studied telepathic contacts.

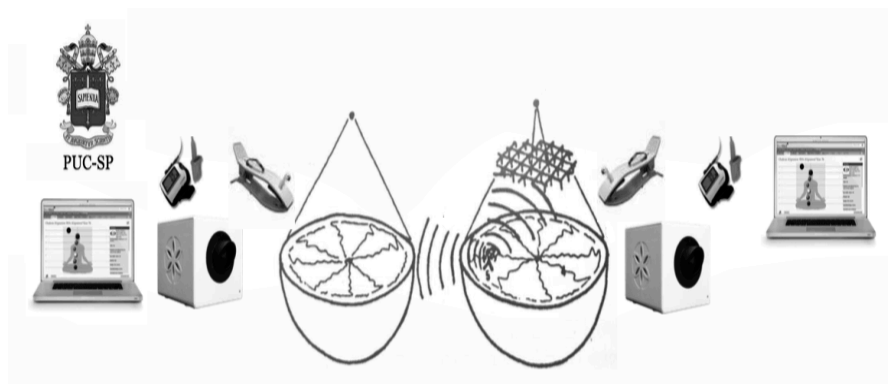


Fig. 24. Scheme of the 2017 experiment on contact between patient and psychologist.

Erico was interested in this effect and wondered: what happens if people are at a distance from each other? He went to Europe and discussed his ideas with many scientists, particularly with the outstanding psychologist Antonio Meneghetti and biologist Rupert Sheldrake. He also spoke in St. Petersburg at our Congress "Science, Information, Spirit." Back in Brazil, Erico organized his next series of experiments.

They built a special room completely isolated from electromagnetic waves, the so-called "Faraday cage," with one participant of the experiment in this room. Naturally, neither phone nor radio communications could work in this room. Another person was in the laboratory at a distance of several hundred meters. There was no contact between them. Again, different instruments were connected to each of them (Fig. 28).

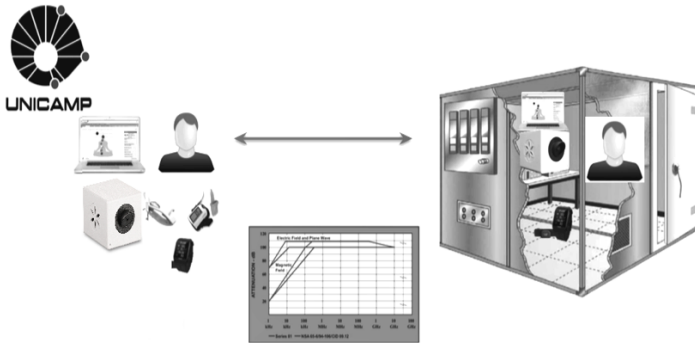


Fig. 25. Scheme of the experiment on contactless influence.

After recording his last dream, participant 1 went to the isolated room. At any point of time, participant 2, in the laboratory, read this dream. As a control in some sessions, he (or she) read technical text. The choice between reading a dream or a technical text was random, so that participants did not know what would be read. This experiment involved 50 pairs of people, twice for each pair, the duration of each experiment was 1 hour, including the recording of the signal in the background. Forty percent of the participants were women, and sixty percent were men, aged 18 to 65 years. The paired participants did not know each other and had never met before. As you can see, the experiment was carefully prepared and a huge amount of material was collected. The process of data collection and processing took several years. There was unequivocal statistical evidence that at the moment of reading a dream by participant 2, participant 1, in an isolated room, reacted and his psychophysiological parameters changed. This reaction did not occur when a technical text was read. At the end of March 2020, the University of San Paolo hosted an online thesis defense and I was invited as one of the experts. The discussion lasted 4 hours and the decision of all professors was positive.

These experiments, as well as much of what we have already discussed in this book, indicate the need to revise the scientific paradigm and to take a new look at the subject of Consciousness. There was no contact between people, no direct energy transfer, yet information was transferred. After numerous experiments on quantum teleportation, it no longer causes such fierce rejection in scientific circles.

But one thing is physical experiments and another is human. As Erico Azevedo writes: "A more complex model is needed which will be based on hierarchical principles of nervous system organization, on the principles of interaction with the energy system of the body, which begins at the quantum level and extends to the level of frequencies and vibrations that produce emotions, intuition, dreams and much more. This means that a person's energy state can be reflected in his dreams, which can affect the activity of the autonomous nervous system in distress."

In other words, it is already proved in physics that various objects of the quantum world – photons, electrons and even atoms – can transmit information to each other outside of time and distance, synchronously changing their state. This is called the "quantum entanglement" effect. Quantum computers and quantum encryption are now being developed based on this effect. This does not violate the law of Einstein, who postulated that matter and energy cannot move at a speed higher than the speed of light. In this case, we are talking about the transfer of information that is instantly distributed over any distance. Many theories of consciousness are based on the idea that it works on quantum principles, that is, the work of consciousness is based on quantum processes, as well as the work of the whole body. I have already shown in my work that the body functions on several levels (figure 29). The basic level is quantum, and the body has an active exchange of electrons and photons, electronic processes in the nervous system, quantum processes in mitochondria, but these are only some examples. At the field level, the frequencies of different organs and systems influence each other, and we interact with each other through biological fields.

These two levels are also responsible for human interactions with each other and with physical sensors. A person somehow forms a single quantum system with another person or a sensor, and changes in his/her psychophysiological state are reflected in the state of another person or sensor. In this case, information is transferred, and this process is instant, independent of distance.

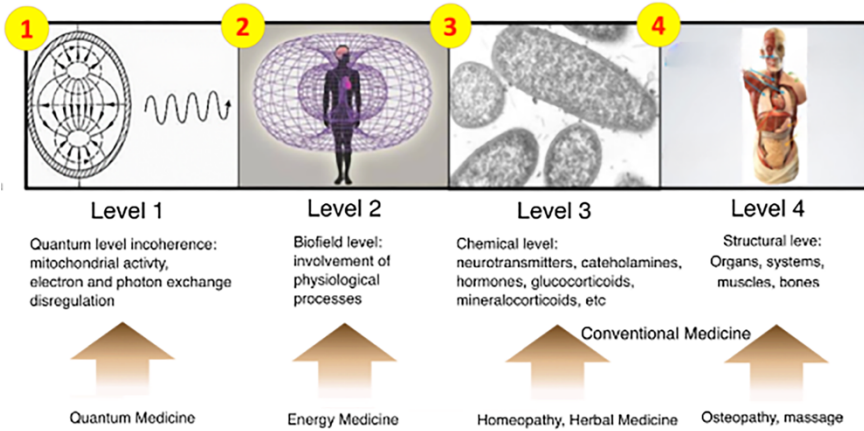


Figure 26. The levels of the organism functioning.

Many of you have encountered this phenomenon in your life. You may think or dream about a person and suddenly, he calls you out of the blue. Try to do it consciously: imagine a particular person and ask them to call you in your head. See if you get results. I use this technique all the time. From all this, we draw one conclusion: how little we still know about the world around us and, above all, about ourselves. Finally, in the 21st century, science began to seriously deal with the issues of consciousness. We are still a long way from the answers.

We can only collect information, make hypotheses, conduct experiments and openly look at the world. It is impossible to predict where this process will lead. As it happens with mankind, any discoveries will be first of all tested for war and population control. Such works have been carried out for decades in closed laboratories. We are ready to release the gin from the bottle, and the big question is how much he will want to obey our orders. Maybe it is not a bottle, but a Pandora's Box? Who knows?

Science, Information, Spirit

If a human being is only a mortal being, then death is the end of something insignificant. If a man is a spiritual being, and the soul only temporarily lives in the body, then death is only a transition.

Leo Tolstoy (1828 – 1910)

Every summer since 1997, we have been holding an international scientific congress "Science, Information, Spirit" in St. Petersburg, Russia. The idea of this event is to bring together people who are engaged and interested in the development of new scientific directions, discoveries and research in non-traditional fields. Everything is related to health and methods of its maintenance and research, including GDV devices; the study of consciousness and its impact on human health and the world around us; water and many issues related to it, from modern quantum theories to practical devices. In short, there is a very wide range of issues that attract the attention of both professionals and many inquisitive people. Every year people from dozens of countries come to St. Petersburg as it is a convenient place to meet and communicate. Consider this time of the year in St. Petersburg, is the time of White Nights – when at midnight you can walk around the night city and it appears even more beautiful in the soft rays of the night sun. In 2020, the Congress was held online, as well as most events. There were 18 presentations by researchers from Brazil, Britain, Honduras, India, Mexico, Spain, Russia and the United States. Over 1000 people followed the presentations online, and most of the reports are available on the Congress website. www.sis-congress.com. There is no need to review all the presentations here – you can view them yourself. I would like to focus on two presentations directly related to this chapter that have made a great impression. One is the speech of the Russian researcher Andrey Shining, who shared the history of his life. As a young man he was drafted into the army. A few months later his whole regiment was sent to eliminate the consequences of the Chernobyl disaster.

Army units and volunteers alike took part in this process. Only now do we understand that – thanks to the heroic efforts of thousands of Soviet people – it was possible to prevent the reactor explosion, which would have led to serious radioactive contamination over vast territories. This was achieved at the cost of the lives and health of thousands of liquidators. Andrey was one of them. A few years after his demobilization, he developed leukemia. Modern medicine could not help him. Doctors gave Andrey's life several months. But he decided to fight and completely changed his life. He began to seriously meditate, walk barefoot on the ground, on snow and hot coals, swim in ice-holes in winter. In short, he turned to nature and to his inner world. Six months later, he was perfectly healthy and a couple of years later, together with his wife, organized a publishing house. For over 20 years, he's published books on health, the study of consciousness and working with your inner world. This is an example of a man who, by the strength of his spirit, managed to overcome a deadly disease and start a new stage in his life.

Such effects can be achieved through the collective efforts of many people. In the early 2000s, English journalist Lynne McTaggart appealed to many leading scientists from around the world with the question: "What does modern science think about the connection between the consciousness of man and the world around?" The result was the book *"The Field: The Quest for the Secret Force of the Universe"*, which made Lynn famous (although not to the same extent as Joan Rowling, author of *"Harry Potter"*). Lynn McTaggart's book is the result of numerous interviews with leading scientists from around the world. The theories presented prove the human mind can overcome time and distance, anticipate the future and change the events of the past, heal diseases and influence the subconscious of another person by influencing his choices. All these possibilities are invariably connected with the energy field. You cannot see it, but you can cognize and feel its influence. This is how Lynn herself writes about the process of working on this book. "We are poised on the brink of a revolution – a revolution as daring and profound as Einstein's discovery of relativity. At the very frontier of science, new ideas are emerging that challenge everything we believe about how our world works and how we define ourselves. Discoveries are being made that prove what religion has always espoused – that human beings are far more extraordinary than an assemblage of flesh and bones. At its most fundamental, this new science answers questions that have perplexed scientists for hundreds of years. At its most profound, this is a science of the miraculous. For a number of decades respected scientists in a variety of disciplines all over the world have been carrying out well-

designed experiments whose results fly in the face of current biology and physics. Together, these studies offer us copious information about the central organizing force governing our bodies and the rest of the cosmos. What they have discovered is nothing less than astonishing. At our most elemental, we are not a chemical reaction, but an energetic charge. Human beings and all living things are a coalescence of energy in a field of energy connected to every other thing in the world. This pulsating energy field is the central engine of our being and our consciousness, the alpha and the omega of our existence.

Most fundamentally, they had provided evidence that all of us connect with each other and the world at the very undercoat of our being. Through scientific experiment they'd demonstrated that there may be such a thing as a life force flowing through the universe – what has variously been called collective consciousness or, as theologians have termed it, the Holy Spirit. They provided a plausible explanation of all those areas that over the centuries mankind has had faith in but no solid evidence of or adequate accounting for, from the effectiveness of alternative medicine and even prayer to life after death. They offered us, in a sense, a science of religion. Unlike the world view of Newton or Darwin, theirs was a vision that was life-enhancing. These were ideas that could empower us, with their implications of order and control. We were not simply accidents of nature. There was purpose and unity to our world and our place within it, and we had an important say in it. What we did and thought mattered – indeed, was critical in creating our world. Human beings were no longer separate from each other. It was no longer us and them. We were no longer at the periphery of our universe – on the outside looking in. We could take our rightful place, back in the center of our world. *The Field* is the story of this revolution in the making. Like many revolutions, it began with small pockets of rebellion, which gathered individual strength and momentum – a breakthrough in one area, a discovery somewhere else – rather than one large, unified movement of reform. Although aware of each other's work, these are men and women in the laboratory, who often dislike venturing beyond experimentation to examine

the full implications of their findings or don't always have the time necessary to place them in context with other scientific evidence coming to light. Each scientist has been on a voyage of discovery, and each has discovered a bucket of earth, but no one has been bold enough to declare it a continent.”

After her book, Lynn was invited to speak at conferences around the world. She is an excellent speaker, can hold the attention for a thousand hours, and after her speeches, people leave winged. We met her at one of these conferences and began discussing the possibility of joint experiments. Lynn came up with a wonderful idea. On her website, visited by thousands of people, she offered everyone an opportunity to take part in experiments on the collective mental impact on physical devices. Her site published a photo of the experimental device, a description of the laboratory, along with the date and time, when all from different parts of the globe would simultaneously send a mental impulse of good and love to this device. Many people who participated in these experiments had been long time meditators so the protocol was clear to them. A large series of experiments were conducted in various laboratories, including ours, with thousands of participants. In most cases, the devices objectively recorded the fact of exposure (i.e. a thought sent from a long distance affected the physical sensors). If thoughts can affect physical processes, then it is not surprising that thoughts can equally affect the human condition. Lynn described this whole process and its results in her next book "The Intention Experiment: Using Your Thoughts to Change Your Life and the World". In the past few years, Lynn has been organizing even more amazing experiments. At some point during her speech, she asks all her listeners to stand up and unite in groups of eight people. These eight should stand in a circle, hold hands, and send each other a love impulse. This process lasts for 10-15 minutes. Someone is looking at their neighbors, someone is meditating with their eyes closed. If one of the group members has problems, he or she can ask everyone to help.

Over the course of several years, several dozens of such sessions have been held, in which hundreds of micro-groups participated. In many cases, people reported surprising results: clinical depression was disappearing, chronic pain

was affected, and many people started to perceive their lives in a new way: (Lynne McTaggart. *The Power of Eight: Harnessing the Miraculous Energies of a Small Group to Heal Others, Your Life, and the World*. 2017). At our Congress, Lynn showed documentary footage of people openly crying about their results. This is another proof of an important fact: when we just think about our friends, family and relatives, we really affect their health and condition. People need someone to think about them, to feel the love of their loved ones. That's why it is so important to visit old people, sick people, to call your dear people, to gather in groups. Young people just can't live without their friends and their "party." As it turns out, this is not just a pleasant communication, or simply an exchange of ideas and opinions, but an important part of forming and maintaining the energy structure of our biological field. This factor is important at any age. People who are loved live longer. Naturally, you do not have to hide your love, you have to express it in words. And your words can heal, but they can also cripple. As Russian poet Vadim Shaefner wrote:

Many words are on earth.
There are daytime words — in them, the spring sky is blue.
There are night words about which in the afternoon
We remember with a smile and a sweet shame.
There are words — like wounds, words — like a sword.
With a word you can kill, with a word you can save,
With a word, you can betray, destroy and heal.

And now we can confirm the poet's words with modern scientific experiments. As the line between physicists and lyricists becomes blurred, together we can help people to make their lives more harmonious, rich, full of inner meaning. We can help, but only you can make your life happy with your thoughts, your positive attitude towards yourself and everyone around you. Remember, your thoughts and feelings are a part of the material space around us. So let's all together make it better!

Physics of a Subtle World

The recognition of the invisible world must penetrate into earthly consciousness. Cosmic creativity extracts its creations from the invisible spheres. When the source of creativity is stressed, the impulse of consciousness asserts the foundation of form. It is necessary to consciously treat the source of all conceptions. Only the recognition of the invisible world will give knowledge of the phenomena of the Cosmos. Only the acceptance of the Fire of Space in all directions will give an understanding of the Primordial Source. Only the invisible world contains all intense energies. All cosmic tensions lie in the treasury of space.

Elena Rerich (1879-1955)

The Living Ethics Teaching — Infinity, Part 2.

Who is the third who walks always beside you?
 When I count, there are only you and I together
 But when I look ahead up the white road
 There is always another one walking beside you
 Gliding wrapt in a brown mantle, hooded
 I do not know whether a man or a woman
 —But who is that on the other side of you?

T.S. Elliot (1888 – 1965) *The Waste Land.*

Until recently, it seemed to scientists that modern science understands the principles of organization of the world around us. We penetrated into the depths of the atom and the electron, learned to use their energy and quantum properties. We explored nature at the molecular level and synthesized more and more new chemicals that affect the human body. The manipulation of genes is actively developing and the first genetic monsters are already walking on the planet. Spacecraft are penetrating deep into the universe. It seems probable people will reach Mars in this century, as cosmological theories describe everything that was and will be. Our civilization stands firmly on its feet, understands what and how it is arranged, and looks forward joyfully...

But this is an illusion.

Civilization is fragile and vulnerable: a virus or bacterium invisible to the eye destroys tens of thousands of people all over the world, blocks the development of the economy, culture, causes the bankruptcy of thousands of businesses, millions of people are unemployed and without a livelihood. And science is powerless with its hands, unable to understand where it came from and what to do. It turns out science does not understand how the world works.

All of our science is the models we construct to describe the individual features of reality. Each scientist, even the most prominent Nobel Prize winner, digs his own little hole, and has neither the opportunity nor the time to look at the broad picture of the universe.

The picture of the world, created by great scientists and thinkers of the 17th century, was mechanistic and deterministic. The universe was a mechanism working according to certain laws, a mechanism that was completely predictable. The question was only in knowledge of all conditions. The 19th century brought the concept of probability and the first doubts about the stability of the world. Only in the middle of the 20th century did science come to the idea of an evolving space.

According to the generally accepted theory, the universe emerged from nothing in one point and began to expand in all directions, gradually cooling down. In the beginning there were no atoms, no stars, no galaxies, no elements, let alone biological life. Upon the expansion of the Universe, all these elements appeared for the first time, and were subsequently reproduced in countless repetitions. Scientists began to understand that everything around us is not permanent moving pictures, but a dynamically changing process. As philosopher Sir Carl Popper said: "Through modern physics, materialism has outlived itself. Matter is no longer a fundamental principle in science, but is expressed through fields and energies. And we do not fully understand what it is."

It was found out that 96% of matter and energy in the cosmos are "black matter" and "black energy," which absolutely do not fit into any modern theories. If the universe is evolving, if we see the evolution of life on earth, how can we be sure that the laws of nature known to us are constant, not subject to evolution. And instead of presenting the universe as a building made of bricks of matter, we can present it as a hierarchy of levels nested and flowing into each other. At each level, everything seems whole – the sun, the earth, the atmosphere, the tree, the human being, the atom, but each of the elements is composed of elements of the next level. An atom is a material substance consisting of subatomic atomic elements, which in turn consist of elements of the next level.

Cells are elements of tissues, tissues are elements of organs and systems, which in turn make up the organism, which is a part of society within the ecosystem of our Earth – Gaia – a single organism. This organism is part of the solar system, part of the galaxy, and it is only one of many infinite levels. Each level consists of many elements, and in turn is an element of another level. At each level, the whole is more than the sum of its parts. An organic molecule, consisting of carbon and oxygen atoms, has an infinite number of properties depending on the structural organization. Carbon can be diamond, coal, or wood. At each level of the hierarchy, we see the appearance of new properties, new qualities that do not seem to flow from the properties of the previous level.

This reasoning is fully related to consciousness. The organic world has acquired the properties of consciousness, the ability to actively respond to changes in the world around us, and at each level of evolution. This ability has become increasingly complex. Man has acquired abilities that are in many ways superior to all previous levels of evolution. Man has acquired individual and collective consciousness. Thanks to him, we live and develop in this world, and we try to explain this world. Well, what is consciousness? How does it fit into the picture of the world around it? For now, we can only build models and regard this problem from different angles.

Therefore, it is logical to assume that our world is an imbedded structure in another world of the next level. It is usually called the Subtle World. As we do not see viruses, molecules and atoms and can only detect them with special tools, we do not see the Subtle World either and can only judge it through its barely tangible manifestations.

This world is called the world of spirits, and in all centuries, all societies had people who communicated with these spirits. Shamans lived in all ancient societies, and in some places, they continue to live. On the Cathedral square of Mexico City, there is a special place where shamans stand every day. One or another person approaches them, and they hold a ceremony of liberation from evil spirits. Such shamans – brujo – can be found in all cities of Mexico.

Carlos Castaneda beautifully described this tradition in his novels. These traditions necessarily include ceremonies with the use of natural psychedelics. In particular, the ayahuasca ceremony has become very popular in many countries. It is a drink, traditionally made by shamans of Indian tribes of the Amazon basin and used by locals to communicate with spirits (maniacari). The drink is made of many herbs, each shaman has its own recipe, but the basis is *Liana banisteriopsis caapi*. A few days before the ceremony, participants must follow a special diet. An important fact is that the diet must be light and tasteless. The Shaman's apprentice's diet prohibits fruit, sugar, meat, fish and only allows eating raw meat as well as poultry meat. The shaman's diet includes periods when the shaman is allowed only to drink water. As for sexual abstinence, it is considered even more important than food restrictions.

With regard to the number of days on a diet, they believe the more successful a ritual is, the longer the subject fasted. For example, a student of a Napo Runa shaman may stay on a diet for a couple of years (including strict sexual abstinence), taking ayahuasca every day and being in a very remote place to limit the influence of the physical world.

The acute psychological effect of ayahuasca lasts about 4 hours and includes intensive perceptual, cognitive, emotional, and affective changes. Although many participants experience nausea, vomiting and diarrhea, in general, the accumulated evidence suggests that the substance is safe for health. Ayahuasca does not lead to addiction, or psychopathological, personal or cognitive disorders. The effects are moderate: hallucinations, injections, and complete relaxation. For some, it leads to a complete rethinking of their lives, and gets rid of phobias and fears. Other people feel either unpleasant feelings or none.

In Brazil, religious movements emerged on the basis of ayahuasca, the most famous is known as Santo Daime. Churches of the Santo Daime religion exist in the whole world. In 2008, the Government of Brazil conducted a special study, and is now in the process of recognizing using ayahuasca in traditional shaman ceremonies as a national treasure of Brazil. The governor of Acri Binhue state told about ayahuasca ceremonies: "This is our moral foundation, our source of knowledge. I myself, in times of doubt, when I saw no hope for the future, found knowledge and enlightenment through it. The inclusion of this culture, wisdom and enlightenment as part of philosophy is important to our people and we are grateful for it."

Ayahuasca ceremonies are popular in many European countries and in the United States, but there is no guarantee that they are held with the right infusion. I have several times participated in ayahuasca ceremonies in Peru, Ecuador and Europe. The most interesting was the impression of the ceremony in Peru. It was held at night in the jungle, with a real Amazonian shaman, on a large glade, to the unhurried roar of drums. When I drank the potion, after a while I threw up, but I was prepared for trouble.

Then the surrounding reality began to transform. The forest revived, moved, and all around were many snakes. Their presence as they crawled around was not at all frightening – I perceived them as a part of my surrounding reality. Then I felt like a jaguar, with fur and a long tail. If an enemy appeared, I could throw myself on it with a fierce tooth lock. But nobody appeared.

Several times during the ceremony, we performed bio-energy measurements. As expected, in the middle of the night, most of the participants went into an altered state of consciousness. We had some experience in studying these states and previously published several works on this subject.

(Bundzen P., Zagrantsev V., Korotkov K., Leisner P., Unestahl L.-E. Comprehensive Bioelectrographic Analysis of Mechanisms of the Altered State of Consciousness. *Human Physiology*, 2000, 26, 5, 558-566.

Bundzen P., Korotkov K., Unestahl L.-E. Altered States of Consciousness: Review of Experimental Data. *J of Alternative and Complementary Medicine*, 2002, 8, 2, 153-167.

Korotkov K., Bundzen P., Bronnikov V., Lognikova L. Bioelectrographic Correlates of the Direct Vision Phenomenon. *J of Altern and Complementary Medicine*. 2005, 11,5, 885–893.)

My subsequent ayahuasca ceremonies were not so interesting, I didn't experience any special impressions. Perhaps there was a different composition of the drink, or a different setting.

In Europe, the church has always been fighting against heretics. Everyone who tried to communicate with spirits had good chance of being burned on fire. Only in the 19th century, did the situation change when spiritualism broke out like a fire. One of its founders was Allan Kardeck (1804 – 1869), the real name Hippolyte Leon Denise Rivai – teacher, philosopher, researcher of mental phenomena.

In May 1855, he met the medium Madame de Playnemaïson. In the presence of other guests during the session, she came into contact with a spirit called Zephyr, who gave Kardeck a mission to be a representative of the world of the dead. For him, it was a revelation. It was the first time he had witnessed the phenomenon of rotating, jumping and running tables. But he gradually got away from it.

In 1857, Allan Kardeck published the first book on spiritualism, which later gained a reputation as a "spiritual bible" – *"The Book of Spirits."* Written according to the author's assertion, in co-authorship with spirits, it included spirit answers to 1018 questions concerning the nature of the spirit, the relationship between the world of the spirit and the material world, death, transformation, etc., as well as commentary by Kardeck himself.

Subsequently, Kardeck published four more books, which became classics of spiritualism. Unlike many other authors who had touched upon occult themes before and after him, Kardeck approached spiritualism from the standpoint of a cold resonator and expressed his views in extremely concise language, not trusting in any "esoteric component." Kardeck received particular popularity in Brazil where his name is used to call streets, cultural centers, libraries, elementary schools and even children (for example, soccer player Allan Kardeck, striker of the Brazilian club "Sao Paulo"). Kardeck's followers are called spirits and they are quite numerous in the world.

For many years, Professor Gary Schwartz of the University of Arizona has been researching the phenomenon of spiritism. The essence of his idea is to use instrumental methods to capture the presence of spirits communicating with the medium. He has equipped his laboratory with various instruments that analyze the state of the environment. For example, a very sensitive video camera, cooled with liquid nitrogen, allows registering very weak light in an absolutely dark room. Professor Schwartz has made contact with the most famous mediums in the U.S., which, for a reasonable fee, evoke to citizens the spirits of their deceased relatives.

Naturally, all communication takes place through a medium with the spirit using the lips of the medium to speak. It is difficult to say who actually talks there, but people like it, and mediums are not in trouble.

Mediums are coming to Arizona to visit Professor Schwartz, drink tea with him, and sit in a chair in his laboratory room, which plunges into total darkness. The medium calls for some spirit known to them, and after a while may say that she/he feels his presence. They begin to talk about life, love, politics, and if the spirit is interested, it stays in the lab long enough. All this time, the hardware is running and a glow appears on the computer screen just as the medium is talking to the spirit.

Professor Schwartz has created a lot of experiments of this kind and has described them in his books. His reports at conferences on consciousness are always perceived with great interest. Fortunately, he is a wonderful storyteller.

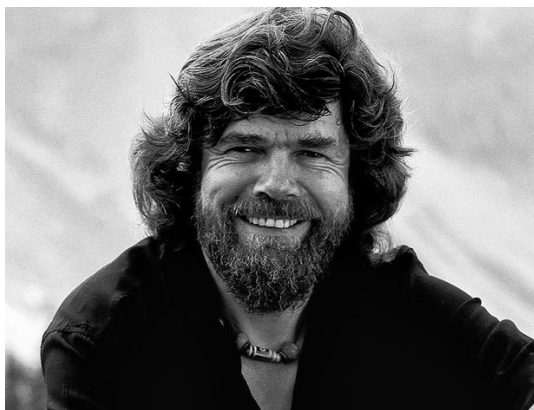
I have met Gary Schwartz many times, and I deeply respect him as a scientist and a human being. He has deep erudition and an amazing sense of humor. But it is impossible to assess the significance of his experiments at the moment.

Many people tell stories about communication with their deceased loved ones or relatives and the feeling of their presence. Naturally, most often it happens in a dream. The relatives who have gone come back in a dream, give advice, which is often very useful. Such phenomena are not uncommon in extreme conditions. John Geiger, Vice-President of the Royal Canadian Geographical Society, has collected many such testimonies in his book "The Third Man Factor". He describes the polar explorers walking alone through the icy desert; mountaineers forced to survive in the harshest conditions of hurricanes, lack of oxygen, death of their comrades; sailors, alone crossing the oceans. Many of these people, having survived in the harshest conditions, report that at some point a person appeared next to them, who supported their ability to overcome incredible difficulties, helped them survive, and when they realized that the rescue was close, this spirit disappeared. He cites hundreds of such cases. Let's present the testimony of only one person.

Italian Reinhold Messner (born 1944), the greatest climber in history, climbed all 14 eight-thousand mountains of the world. He was the first (together with Peter Habeler) in 1978 to climb the highest peak in the world – Dzhomolungma (Everest) 8848 meters – without oxygen and without the installation of intermediate camps. It was considered impossible. Above 8000 meters is the death zone. Before Messner mountaineers always climbed there with oxygen tanks. After his ascent, climbing without oxygen on the eight-thousand meters became a common phenomenon for high-class climbers.

And it all began in childhood. Together with his father, he made his first climb to the highest peak of the Heisler Alps at age five. After that, he fell in love with the mountains and by the age of 20 he had passed through all the most difficult routes in the Alps. In the Himalayas at the age of 26, in 1970 along with his brother Gunter, he became a part of the expedition to one of the most difficult eight-thousand-meter peaks: Nanga Parbat (8125 m).

According to the statistics of accidents, this is one of the three most dangerous places for climbing peaks above 8000 meters.



Reinhold Messner in the 80s

The leaders of the expedition decided from the assault camp Messner would climb to the summit alone. He went out at 2 a.m. intending to move as fast as possible. After a while, he noticed his brother Gunther catching up to him. After making sure that the weather forecast was good, he made an impulsive decision to join his brother. They moved together and by the middle of the day, stood on top. Both were extremely exhausted. In addition, Gunter developed signs of mountain sickness. He convinced his brother to start the descent – not on a technically difficult path of climbing, but on a simpler slope. Messner understood the most important thing is to go as low as possible and agreed with his brother. It was a fatal decision. The night caught them on a steep ice slope, they were waiting for dawn, pressing against each other on a narrow rocky shelf. With the first rays of the sun they continued descending, Messner went forward, looking for the road, and weakened Gunther slowly descended to his brother. Further Mister described in his book *"The Naked Mountain."*

"Suddenly, another climber appeared next to me. He came down with me, to keep at the right at some distance. I could not determine who he was, but I was clearly aware of his presence. And one thing helped me to keep calm of mind and concentration."

The next night came. The brothers waited for the darkest part of the night and moved on in the morning. For two days they had no food or water. Finally, the most dangerous part of the slope ended, a steep long slope opened in front of them, leading to the valley. Messner quickly went down, reached the first stream, drank cold delicious water for a long time and stopped waiting for his brother. But the brother never showed up. Despite his fatigue, Messner went back up and spent all night looking for his brother. But everything was unsuccessful. The next day he realized that his own condition was becoming critical, and headed down to the valley. Finally, he met the woodcutters, and those on the stretchers took him to civilization. In the hospital, several of his frozen toes were cut off. And as he wrote, during the whole descent, an invisible spirit was next to him.

This tragic situation did not stop Messner. He continued climbing. On most of the most difficult routes on the highest mountains in the world, Messner passed alone. In summer 1980, he made a single oxygen-free climb to Dzhomolungma during the monsoon season, when no mountaineering expeditions go to the Himalayas. Once again, he reported the presence of a spirit next to him who supported his determination to reach the top.

Of course, we can say that these are hallucinations caused by severe extreme conditions – deviations in the brain, suppression of activity of the left hemisphere, which controls consciousness. But then why do these visions help people survive? These are not nightmares that torture mentally ill people! They are helpers, lending support in a difficult situation. They give people the impression they are not alone or abandoned by everyone, that someone is nearby to help and protect them. In this case, such visions arise in mentally healthy people who no one can question their mental health.

The stories of people who have been in a state of clinical death can also be attributed to such phenomena. Many of them report later leaving their body and seeing themselves looking at the operating room from the outside, observing what the doctors did, and then relaying what they witnessed. Their impressions are confirmed as accurate. Other people find themselves in a beautiful glowing world met by angels, or deceased people they have known, but are sent back to the world of the living. More and more such stories are being told, and it is difficult to imagine that different people, in different countries, can come up with the same experience. After such experiences, people start to live in a new way: they become kinder, they start to appreciate the little things of life and treat their environment differently. Is it a brain malfunction again? Hallucinations caused by the latest outbreaks of fading neurons? Or is it really an experience of contact with the Subtle World?

We have no answers to these questions. I think they can't exist. You either believe that spirits do exist or you believe that they do not. But if you accept for yourself the possibility of the existence of the Subtle World, the existence of invisible entities that follow us and help us, then you get powerful life support. You can call them angels, essences, spirits – nothing changes but the name. I believe that each of us has our own guardian angels, who care about us and help us lead our lives. I had a lot of difficult and dangerous situations in my life (for 25 years of professional mountaineering, what has not happened!), but in the end everything ended safely. I am not talking about casual meetings that determined much in life, about people who came, helped and disappeared. But angels must also be treated with respect. There is a wonderful anecdote on this topic.

One young man liked to ride his Ferrari, paying no attention to any signs. His friends told him: "What are you doing? It's dangerous to race like that."

But he answered: "I do not care; my angel guards me."

One day he rushes along the highway: 140 km per hour, 160, 180, 200, and suddenly someone touches his shoulder. "Who is he? I am alone in the car!"

"I am your angel."

"Oh, and what do you want?"

"Stop it, please, I will get off."

I know for sure – if you have some strong desire and it is reasonable, you should clearly articulate your desire, make the right moves in life, and in the end everything will come true. You just have to trust your angels. But you also have to behave within reasonable limits. Naturally, your desires should correspond to your life. If you wish to become King of England, it will never happen. But if a girl wishes to become the wife of the Eastern Prince, it might happen – but in the twenty-first century, she may happen to become a wife in a large harem.

And one more thing to consider. We are not lonely moles, each living in our own hole. We are the cells of a single body of Humankind. People can't live alone: they either become wild or go crazy. We live in a society and must obey the laws of that society. What happens to the whole society, to the whole country, to the world is much stronger than our individual destinies. The Jews who fell into the fascist meat grinder were good and evil, young and old, successful and losers, but they all suffered the same fate. Because the flow of social history was much more powerful than their individual brooks.

We only have to hope for a favorable development and to support ourselves with a view of the history of civilization. There have been ups and downs, epochs of great empires, blossoms of arts and science, and times of devastating wars, epidemics and mass famine. Whole nations emerged, created their own states, then disappeared from the pages of history. And this is only for the 10,000 years known to us. We can only guess what happened before.

The future is unpredictable. We have to live in the moment, rejoice in the morning rays of the sun and keep our body and spirit in shape. And everything else will be decided for you by your angels.

The Energy of Love

When Love speaks, the voice of all the gods
Makes heaven drowsy with the harmony.

W. Shakespeare *Love's Labour's Lost*. IV, 3.

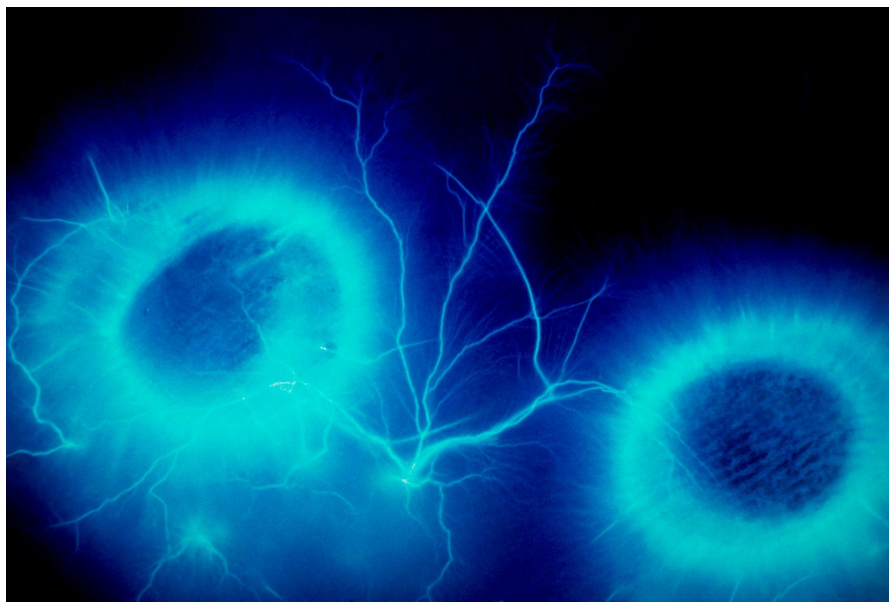
Ninety-nine point nine percent of world literature is devoted to the theme of love. Whether a business or adventure novel, a household story, biography – without a description of the love experiences of the hero, the reader will quickly abandon this book. Love is the creative power of the universe, the driving impulse of life. Love is what lifts us above the plane of being, inspires our life, makes it full and harmonious. Love is multifaceted and cannot be reduced only to hormones and physiology. As the sage said:

"The attraction of bodies generates passion, the attraction of minds generates respect, the attraction of souls generates affection, and the connection of all three attractions generates love."

For many centuries scientists have been trying to understand what love is. Their attempts are like impressions of blind men touching an elephant. One says it looks like a snake, the other like a nightstand, the third like a mountain. But even with this approach, attempts like this will always continue. We have also contributed to this process. An important part of love is the relationship of energy fields. We feel each other from a distance. Love often occurs as a spark from the exchange of views, from the touch of hands. And one of the ways to evaluate love, by the method of GDV, is by touching fingers.

Two people put their fingers on the electrode of the device. A short impulse is given and a stream of electrons and photons is pulled out of the fingers. According to the laws of physics, charges of the same name are repelled. Between the pictures of glowing fingers, there is a thin strip – as if each person is fencing in his or her own field. Physics works.

However, when two people in love place their fingers on the electrode, amazing things happen: thin strings of discharge begin to intertwine, then merge with each other to form a single common picture. Look at the picture on the color tab. It is as if a bridge connects the two glow lines of male and female. The men's field stretches out a thin thread and penetrates into the heart of the women's field. This is the quintessence of love.

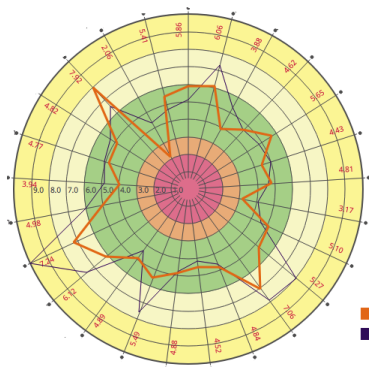


We have conducted many experiments of this kind. Someone even suggested the idea of putting such devices in the wedding registry offices so that people could test their mutual attraction. But this idea was quickly rejected for pragmatic reasons (the civil registry office is a record of civil status, and not necessarily related to love).

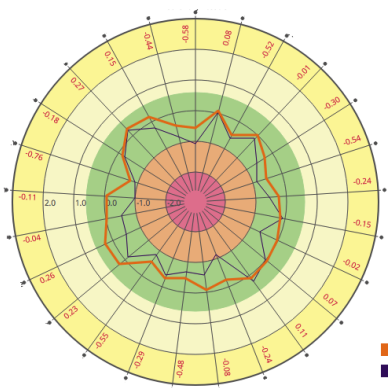
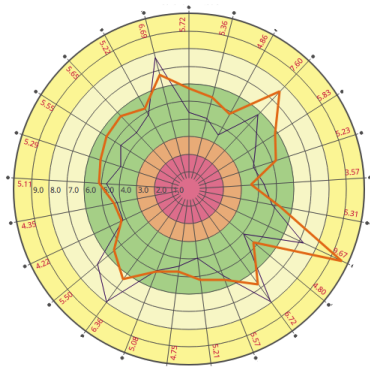
When we started using the Bio-Well device, we discovered another interesting phenomenon. The Bio-Well program draws a diagram of energy distribution by body systems and organs (figure 33). This is an individual profile that differs for each person and informs an experienced specialist which organs and systems require special attention. When we compare the charts of people in love, they surprisingly coincide with each other. The same comparison can also apply to people who have lived together for many years and young couples in a state of passionate love.

Often, men and women are measured – not only on different days, but in different years – and still their diagrams coincide with each other. From our point of view, this means there is a resonance of frequencies. People form a single, virtual field of love. This feeling helps them to live, to overcome all the hardships of their current lives, to enjoy the world around them, and to please each other.

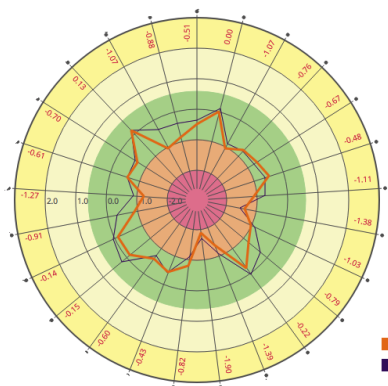
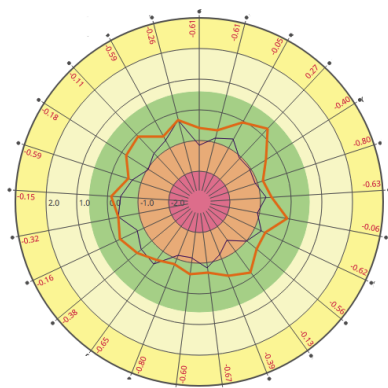
So, let's love! Let's look at the world with our eyes wide open and the world will present you with all new amazing gifts. Live with love and live happily.



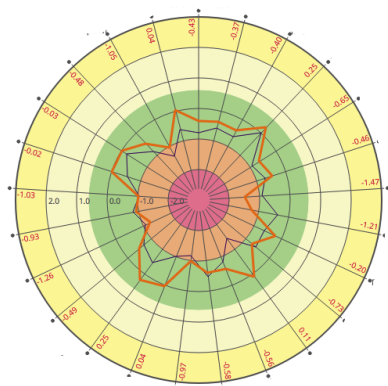
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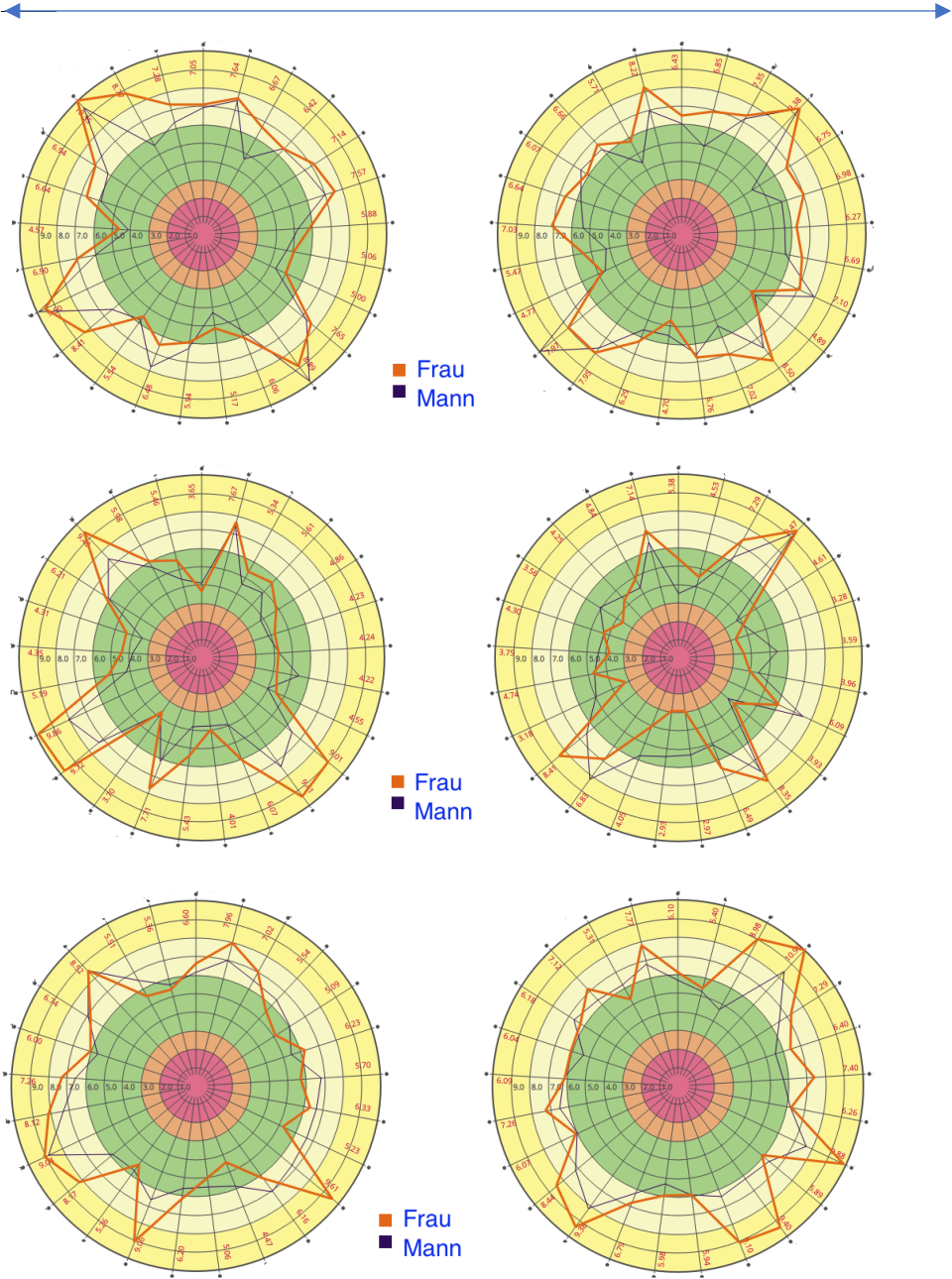


Fig.30. Energy diagrams of people in love.

Conclusion

I know – time is stretched,
It depends on that,
What kind of content
You fill it with...

S.Y. Marshak,
Russian poet (1887-1964)

In this book, I intended to provide a brief overview of my own ideas about what is good and what is bad in our attitudes towards health and life. These are not specific recommendations, what pills to take and what to eat for breakfast but a general ideas. The topic is endless, and each author offers his or her own vision to the extent of the own experience and writing abilities. A lot of useful information can be found on the internet, although you have to be cautious. It is necessary to check who writes and how much you can trust such a specialist. Bloggers in general are the most sophisticated. Of course, there are very decent and respected people among them, but most are lively guys, who catch information from the air and drag gullible potholes into their networks. But this is a separate topic for serious condemnation.

Everything you have read on these pages (if, of course, you had enough patience and enthusiasm to do this) is the result of the practical experience of many world health centers that I manage to visit and communicate with. And, of course, it is based on the vast experience of my wife, Dr. Irina Dmitrieva, who has been leading many patients for many years now, constantly speaking at many professional conferences and studying everything new that appears in modern medicine.

And it is very important for all of us to have examples of people who were able to overcome the most difficult problems in life and get on their feet despite these difficulties. We constantly work with athletes of Russian Paralympic teams and each of them able to overcome his pain, his problems and reach the top of the world sport is a hero. This is a constant example of courage. But I would like to give one more example of a man I have known for many years, who has always inspired me.

Gary Young was born and grew up in a small town in the United States in the state of Idaho with a population of less than 1000 people. Since childhood, he dreamed of going to the maze of the Canadian Forest and founding a horse farm there. At the age of 18 he moved to Canada towards his dream and was hired as a lumberjack. He liked living in the forests, in nature. He started the small farm of his dreams, got married and gradually saved up enough money for business expansion. But after 6 years, disaster struck: a huge chopped down pine suddenly fell and raked it under himself.

At the hospital, they found his skull punctured in several places; his spine was broken in three places with damage to 11 discs and 16 vertebrae; all his ribs were broken on the right side and a few on the left; and his shoulder blades were broken. He could only move his left hand. The doctors predicted he would be paralyzed for the rest of his life. Gary held on, only on morphine and antidepressants. He had no insurance, and his savings were quickly melting. His wife could not withstand the stress and left him. Life was like a black tunnel. Twice he tried to commit suicide, but in his position he could not easily manage it.

For the third time he decided to die of hunger and stopped eating, drinking only water and lemon juice. After 253 days of starvation, the unexpected happened. He felt movement in his right toe! Gradually, other functions began to recover. A few months later he was able to get out of bed and began to learn to walk again. Contrary to all the experience of world medicine, his doctors admitted that it was a medical miracle, yet it happened. The pain remained and would accompany Gary all his life.

This is not a magic fairy tale, but a real story. X-rays of his spine have been published and doctors, looking at all these injuries, are shaking their heads.

Learning to walk again, he began to think about what his next steps would be. There was no returning to his previous life, so Gary decided to study. He stopped taking medicines to clear his brain, went to college, mastered massage, and was deeply interested in herbs and natural methods of treatment. After a while he opened a health food store, and his amazing story began to attract more and more people to him (although at that time there was no Facebook or Instagram).

After gaining experience and having saved up some money, Gary moved to Southern California and went to college for naturopathy, where in 1985 he defended his thesis on naturopathy. After that, he was able to open a small office and center to find methods to restore the physical and emotional condition of people. His only goal was to help people in difficult situations. After 13 years of constant pain and despair – starting his new life in a wheelchair, gradually moving to crutches, then to a stick, to slow walking, which caused pain at every step – he wanted to help people and searched for new methods to accomplish this. He became acquainted with aromatic oils, which became his passion for life.

Having flown to France at the invitation of French doctors, he brought some samples of essential oils, and began experimenting with them. Then he began using them to help patients. He accomplished everything through his intuition and something started to work out. But he did not possess enough knowledge. Several times he flew to France, trying to master the ancient skills of aromatic oils, but nobody wanted to share their secrets with an American traveling with a backpack and sleeping bag and who hardly spoke French.

At his own risk, he set up a company and started selling fragrance oils with recommendations for their use. Let us recall that it was the end of the 80s, before the internet era. (For today's young people it's like a cave age – how could one live and do something without the internet?) Despite the mockery and distrust, things gradually moved on.

In 1990, at a conference on natural medicine in California, Gary became acquainted with French perfumer, Jean-Noel Landel. Having made a pleasant impression Landel invited this young man to visit his farm in France. A week later, Gary suddenly appeared on his doorstep. This was the beginning of many years of friendship and cooperation. Enriched with knowledge, Gary returned to U.S. and began to design his first distiller out of iron barrels. In 1993, together with his wife Mary, a former opera singer, they founded Young Living Essential Oils. With more than three million customers worldwide, his company has become one of the world leaders in the production and distribution of aromatic oils. Created by the persistence and talent of Gary Young, the company owns plantations in the United States, Canada, Ecuador, Oman, Israel.

Together with agronomists, Gary carefully studied the peculiarities of the climate and soil in each region and personally prepared each plantation for planting. At the beginning of his endeavor, he used a professionally operated tractor, which allowed him to collect plants of the highest quality. He would then distill oil at factories built nearby ensuring guaranteed quality. Gary was fond of mixing compositions of several oils, preparing creams and tinctures. All the company's products deserve worldwide success. He accomplished everything despite the fact that disease and pain never left his body. Many times surgeons offered to perform surgery on his spine, but he always refused – the result could be either improvement or complete paralysis. Since nobody could guarantee the success of the operation, Gary preferred to tolerate his pain. Pain never slowed him down. He led a very active life, flying around the U.S. on his plane and traveling frequently abroad. Gary made his dream come true – starting a stable and riding at the first opportunity. He was a very kind and simple man. His house was always open for friends. Once I visited their house. In the morning, when I went out to the kitchen, I saw Gary standing in his apron by the stove making pancakes for the whole family.

I have had a fair amount of communication with Gary and Mary Young. We have developed a special program for them, which allows choosing an individual set of aromatic oils depending on the parameters of the human energy field. Many people use these sets in their practice. Several times I spoke at Young Living conferences in the USA where a huge hall accommodated 5000 attendees. But his evil fate did not let him go. In February 2016 I performed another Bio-Well analysis, which drew attention to alarm signals coming from his heart vessels. Although tests showed no abnormalities, after a few months, his health began to deteriorate.

Detailed tomography tests revealed a complex cardiological problem, apparently congenital. Gary had surgery, became better, but it was not to last for long. On May 12, 2018, he died before reaching 69 years.



Sabina de Vita, Gary Young, Jeff de Vita, Konstantin Korotkov, Mary Young

Mary Young is a charming woman, with energy enough for ten ordinary people. After Gary's death, she runs their huge business with a firm hand, while raising two beautiful sons, and carefully honoring the memory of her amazing husband. Millions of people in the world use aromatic oils from Young's company, and this helps them to stay healthy and vigorous.

Yes, it is the human spirit that defines our whole life, our health and has been guiding the development of the History of Mankind for thousands of years. If we want to live a happy and full life, we must perceive and embrace life in its entirety: enjoy nature and communication, absorb the wealth of world culture, listen to music, read books, watch movies and go to theaters. No quarantine or restrictions can take away from you the wealth of your soul, or prohibit your spiritual self-development. The world is undergoing grandiose transformations. We may never live as before and have to accept that fact. To change ourselves, we need only accept all the good things that our life presents to us.

Everything depends on you. Your life is in your own hands – at the tips of your fingers! Be healthy and vigorous, and stay that way!

You may find more information on our sites:

www.bio-well.com

www.sis-congress.com

www.iuab.club

