

Rustam Kh. Rakhimov

INFRARED
RADIATION:
A MILD APPROACH
TO MEDICAL
TREATMENT



TASHKENT - 2000

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R. Rakhimov. Infrared Radiation: A Mild Approach To Medical Treatment.

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The book is intended for a wide readership as an introduction to the world of narrow-range infrared radiation. Using plain language it describes the potential of the new method of therapy.

In the last chapter the author gives answers to the questions he is asked most often, which enables the reader to form a better understanding of the principles of treatment by means of narrow-range infrared emitters.

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Healthy skepticism is my credo, and I think I will be supported by most people who have become wise through experience. This trait is particularly apparent in the people of medical science who deal daily with enthusiasts of myriad newfangled panaceas. Only after thorough in-depth investigation of the theoretical background of the process, unique methodology, and, mainly, its striking results, have I understood and can frankly tell others that Rustam Rakhimov invention is a real revolution in medicine. It is impossible to overestimate its value and all its aspects which, to my mind, can be fully revealed, only by several generations of researchers.

Undoubtedly, the significance of this discovery will be fully realized in the coming millennium, and it will occupy a worthy place in the history of human thought. And still it would be irresponsible to wait for this moment without allowing sick people to avail themselves of the opportunities provided by this discovery.

This booklet will undoubtedly be useful for both researchers and practicing doctors but the main purpose of writing it was to acquaint the public with the idea behind the method.

I believe that most readers are fairly familiar with IR radiation, which is well known and widely used in our everyday life-from transferring heat to dwellings to the remote controls of home electronic appliances.

The know-how of simple generation and usage of narrow spectrum IR-radiation has been devised by the Uzbek scientist Rustam Rakhimov from Tashkent. He is a physicist, chemist and biophysicist, the author of over 200 inventions and 1500 new materials with desired properties. Using oxide ceramic materials as most stable he has developed a number of materials emitting energy in desired ranges. His work on ceramics is a result of his own 30-year research and that carried out by two generations of his teachers.

A person dreams about health. A doctor dreams about having an ideal means that will combat many illnesses without having side effects. The method of treatment proposed by R. Rakhimov is based on using far IR-radiation which is in resonance with the processes to be normalized. This method is effective and has no adverse consequences. Narrow spectrum IR emitters have made it possible to cure many diseases, including those considered incurable before.

The method of treatment is undergoing approbation in the clinics of Germany, the Republic of Korea, Estonia and Georgia. A network of similar clinics has been set up in Uzbekistan. More clinics are ready to be launched in the USA, Japan, Thailand, India, Vietnam. The method has also been approved for use in the Penawar clinic in Malaysia. Hundreds of patients who lost all hope of being cured have restored their health. High performance of IR-emitter treatment has resulted in a growing network of similar clinics spreading all over the country.

Knowledge is said to be a weapon. Knowledge of the capabilities of Rakhimov's method is a shield needed by anyone. I recommend reading this brochure to all interested in their own health and the health of their beloved and dearest people.

Doctor Abdulla Zawawi

AUTHOR'S FOREWORD

We arbitrarily classify science into chemistry, physics, biology, medicine, and these further into smaller disciplines. But nature does not care what we call its laws. It uses them as it sees fit. Even in elementary physics we have to make a number of assumptions and simplifications and create ideal models in order to establish this or that law. The technique makes it possible to form a better understanding of the process, but simplifies it so much that actual systems cannot be fitted into our calculations, and we have to make corrections by introducing various coefficients and functions.

Scientific quest usually takes several routes. As the knowledge base built up, research in each area of human endeavour became increasingly deeper, and the procedures grew more and more sophisticated and specialized. The number of objects also grew exponentially. As a result, science kept splitting into numerous narrow fields, but a more extensive body of knowledge enabled new laws to be discovered which would have been extremely difficult to grasp without this separation. Thus, using in vitro techniques in immunology has produced really epoch-making results; however, they have their limitations. It should always be borne in mind that the living organism, by means of its regulatory mechanisms, can both replenish the necessary substances by speeding up metabolic processes and triggering specific reactions that result in formation of substances that help to normalize homeostasis, and eliminate metabolic waste products.

The same applies to medicine. We can regulate processes at a hormonal level, at the level of microorganisms, enzymes and other catalysts such as vitamins and trace nutrients, but tend to forget that, in the final analysis, the metabolism of the living organism is made up of parallel and sequential chemical and photochemical reactions. Ensuring that they are in step is a decisive factor in maintaining homeostasis and providing an adequate response to a changing environment. Cancerous processes are at the same time chemical ones and obey their own regulatory factors such as the number and type of radicals, competing and inhibiting reactions, and so on. Such radicals usually have extremely high activation energy for recombination, which is why they are "immortal".

There is no denying the role of the genetic factor. But this is the ability of the body to carry out a complex of specific processes. Here is a simple example. The presence of a high concentration of ions of mercury or another heavy metal in the body results in sure death, no matter what the genetic factor is. Dioxin also affects all levels of regulation. All these processes occur via elementary chemical processes. In other words, a disturbance at the level of elementary chemical reactions results in changes at all the other levels and, vice versa, disturbances at higher levels are at the same time disturbances at the level of chemical processes. For example, smoking greatly increases the risk of developing cardiovascular diseases for the simple reason that haemoglobin forms an insoluble compound with carbon monoxide which is deposited on vascular walls. And tobacco smoke contains more than 1,500 toxic compounds, of which carbon monoxide is by no means the most harmful.

Cancerous processes can have external or internal causes on which the genetic factor has little effect. Thus, V.A. Chaklin in his books *Quest for the Mystery* and *Quest for the Mystery Continues* gives statistics on the dependence of types and incidence of cancer on the way of life and customs of various peoples. On the other hand, the cancerous process can be stopped by doing away with (eliminating or recombining) radicals with high activation energy. In this case it does not matter how they have formed in the body: produced by oncoviruses, exposure to ultraviolet and other types of radiation; oxidative stress, organic poisons such as dioxin or butyphos, heavy metal ions, impaired blood circulation, and so on. In other words, if we have a system that enables us to control processes at the molecular level we can restore homeostasis.

Moreover, if we pin down the root cause of the illness and eliminate it, the success of the treatment can be guaranteed.

For many years it was thought that the main cause of myocardial infarction was hypoxia resulting from, atherosclerosis. But numerous studies have revealed that an increase in oxygen partial pressure, together with eliminating the hypoxia, speeds up the reaction of peroxide oxidation of lipids. This also results in formation of free radicals that greatly increase energy consumption and cause disintegration of the cell membranes. This is the main cause of myocardial infarction. To stop the process, it is necessary to control the reaction of peroxide oxidation of lipids. Although antioxidants are now in the lime-

light, one can take them as much as one likes without the slightest effect. This usually results from impaired blood circulation or a changed composition of the intestinal microflora, which provides structural and energy-rich materials, vitamins, other nutrients, antibiotics and so on. If the microflora cannot ensure their absorption, even with a surplus of, say, vitamin A or other vitamins in the food the person will develop severe vitamin deficiency.

Countless examples could be given of processes getting out of whack at an elementary molecular level. It is important to bear in mind that any biological process, even the most complex, is ultimately a chemical one. These processes should be synchronized with each other as to both types and kinetic parameters. The body's regulating mechanisms make it possible to control these chemical and photochemical processes, but the body, as any system, has limitations. In this case it is necessary to help it exactly at the molecular, chemical and photochemical levels of metabolism. The therapy method being proposed that is capable of destroying pathogenic microorganisms including viruses, eliminating disturbances in metabolic processes, recombining free radicals with high activation energy, controlling reactions of peroxide oxidation of lipids, and normalizing the hormonal balance in the body, will prevent many diseases and allow one to live a full life.

MECHANISM OF IR-EMISSION

It is known that light is emitted in photons. Under the condition of Bohr frequency, when the atom changes the energy, the difference ΔE is released as a photon with frequency ν . Quantum energy of a photon depends on a wavelength of light pursuant to an equation $\Delta E = h\nu = hc/\lambda$

where

h - Planck constant (1.58×10^{-34} cal .sec or 6.626×10^{-34} J-sec)

ν - radiated frequency,

c - speed of light in vacuum,

λ - wavelength of light.

The shorter the wavelength, the higher the energy. For example, one mole (6.02×10^{23}) of red-light photons (the wavelength 635 nm) contains approximately 45 kcal of energy.

Light absorption is the first step in any photochemical process. When the photon is absorbed, the electron becomes energetic enough to jump from the internal orbit into the external one. As a result, the molecule becomes "excited".

Due to a restricted number of orbits having the special energy level, on which electrons can exist, any given atom or molecule can absorb light only of a definite wavelength.

Man emits IR photons that can be detected and measured. Their power is about 50-100 W. An emission is caused by chemical (photochemical) processes in an organism. Any pathological processes lead to a change in the energy state of a organ, its parts or the whole organism. Being aware of these processes, we can correct them using definite wavelengths according to the equation above.

The wavelength of IR-radiation for medical applications should have quantum energy not exceeding that produced by man himself, as otherwise we may come across undesirable damaging processes. At the same time it must be such that could be used for equalization of speeds of photochemical processes of an organism, normalization of immune processes, dissolution of pathological formations (e.g. collagen, athero-mata etc), and also destruction of bacteria, fungi and viruses.

Our approach implies the creation of composite systems of energy conversion on the basis of ceramic materials with desired properties ' which are capable of absorbing electromagnetic radiation of a broad spectrum, and to release IR in a narrow long-wave range.

The ceramics are made by special multistage and very complicated technology at temperature up to 3000°C in a solar furnace with a capacity of 1 million W, which is equivalent to the light radiation of a nuclear explosion. It allows us to obtain ultra-pure materials, as the melting is done by means of radiation energy. The full technological process takes 1-12 months.

Currently 15 types of ceramic converters are used in medicine. Each of them emits strictly defined wavelengths.

The ceramics is applied to the surface of any source of light energy, e.g. an electric lamp or another heating source. When the primary source of radiation is on its energy is converted, as was marked, into longwave IR-radiation of a desired narrow spectrum range. This process is autocatalytic and occurs whenever the primary source of radiation is energised.

The process of absorption and emission continues constantly throughout the ceramic layer, as a result of which the ceramics generates radiation of a definite frequency due to the absorption of 'disorganized' energy. The process of conversion is based on the fact that, as a result of miscellaneous wavelength energy absorption, certain photochemical reactions occurring in ceramic materials increase the overall energy of the system. After reaching a saturation point (energy of activation or power barrier) the system reverts to the initial energy state, releasing the absorbed energy as a definite quantum, i.e. we obtain desired radiation of the wavelength. The duration of every single process is about 1/100 microsecond.

Therefore, by setting the properties of the ceramics and, thus, changing the height of the energy barrier of a system, we can obtain radiation of a definite wavelength. Taking into consideration the fact that for practical purposes first of all we need the radiation in a wave band from 8 up to 50 μm ($1 \mu\text{m} = 1000 \text{ nm} = 1 \times 10^{-6} \text{ m}$), our efforts were aimed to create functional ceramics generating monochrome radiation in the given spectral area. The wavelength is determined only by the type of ceramics.

Individual reactions are similar to "pumping" processes inside active photochemical elements and occur very quickly. It is characteristic that every photochemical reaction is driven by its specific wavelength. Thus, we achieve a fuller use of energy from an initial source. When the system returns into the initial energy state, the energy is already emitted in a certain spectrum band determined as $\Delta E = h\nu = hc/\lambda$.

GENERAL CHARACTERIZATION OF THE METHOD OF EXPOSING THE BODY TO RESONANCE INFRARED RADIATION

The essence of the method is to normalize physiological processes and eliminate pathologic ones by exposure to IR radiation that is in resonance with the processes to be corrected. In other words, the radiation normalizes metabolic processes and eliminates the root cause of the disease and not only its manifestations.

The emission of ceramic IR emitters generates a certain wavelength in a narrow waveband. The IR emitters have various temporal characteristics and can be continuous, pulse, or generate energy in a sophisticated pattern.

As to design, there are general and topical emitters. The general ones(b) affect the whole surface of the body, whereas the topical ones(s) the particular organs or body parts involved in a pathologic process.

There are following types of emitters:

K-line used for immune-stabilization

KL is used for low rates of metabolic processes;

KH, for high rates of metabolic processes;

KB, to speed up bone tissue regeneration;

KS, for prophylactic purposes.

G line have an antibacterial and anti-inflammatory effect

GI is widely used to treat infectious and inflammatory diseases.

GL, GM, GH to treat mild and severe endocrine diseases.

AF - has a more pronounced antimicrobial and antifungal effect

R-line

RV - has antiviral effect and recombines free radicals

RC - has anticancer effect, recombines free radicals

Z-line

ZB - to normalize microcirculation, eliminate deposits from vascular walls, and convert insoluble pathologic tissue into a soluble state.

ZC - to treat the systemic disorders of connective tissue.

AK - to treat systemic collagenoses, organs severely afflicted by connective tissue (liver cirrhosis and so on), and to disperse keloid scars and commissures. It can also be used instead of the ZB emitter, with an efficacy about 10 times greater (when it is so used, the time of exposure should be reduced tenfold).

AV - is used for diseases afflicting veins. It can also perform all the functions of the AK emitter with an efficacy about 10 times greater (when it is so used, the time of exposure should be reduced tenfold).



TREATMENT OF ONCOLOGICAL DISEASES

It is known that a tumour represents an abnormal organoid formation rising from an initial germ by means of proliferation of its own elements, for which reproduction is an overall objective.

J.Burnet speaks about a tumour as a "genetic paradox" not conformant with organism of a cell do not only continue to exist, but also actively reproduce themselves. It was established that one of the reasons of growth and reproduction of tumour cells are radicals of high activation energy.

The population of cells of a tumour is heterogeneous, which is linked to their mitotic activity. The data on the mitotic activity of tumours is relevant for rational realization of chemical

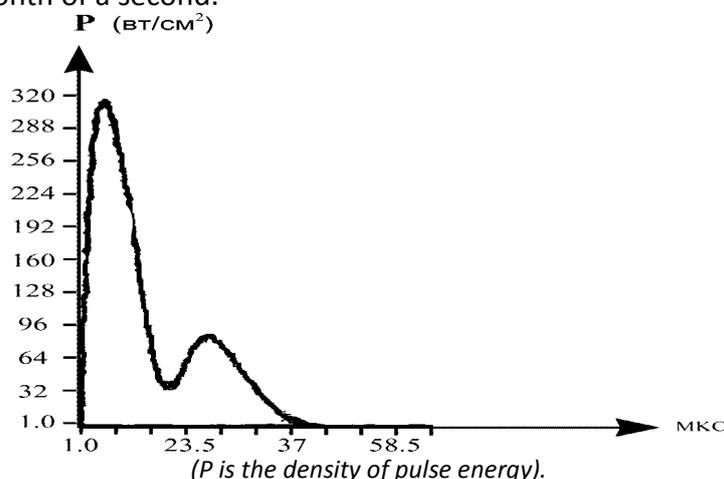
and radiation therapy used by traditional medicine. Radiation therapy applied for cancer affects a tumour by destroying cells by very high quantum energy (the shorter the wavelength the higher the energy). However, the surrounding normal cells are destroyed, which causes grave complications. Besides that, the high level of applied radiation results in the formation of new radicals; each of them under certain conditions can give rise to a new tumour.

Multiplying tumour cells are targeted by chemotherapy. Chemotherapy drugs surround an active radical of a dividing tumour cell and either enter or not enter into chemical reaction with it, and thus only temporarily suspend the growth of a tumour. First, they do not have enough activation energy to enter into reaction with an active radical of a tumour cell and put an end to its growth. Secondly, they are carcinogenic by themselves (as they have a molecular structure with mobile p-electrons), which are very much likely to produce new radicals and, accordingly, tumours in future.

Following these data, it is possible to say with confidence that chemotherapy is not capable of eliminating all the cells of a tumour; it can only bring their number down to certain values. Besides, it becomes practically impossible to preserve the activity of the cells of the immune system, and of the immunity as a whole. General cytolytic and the immunodepressive effect of radiation therapy and chemotherapy is well-known.

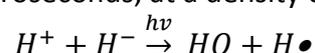
The application of radiation therapy or chemotherapy in a certain period (be it a month or even two years) in many cases shall cause a more severe disease, as again the derived radicals with high energy of activation create at a molecular level new centres of oncological processes in the organism.

In contrast to chemical and radiation therapy the method offered by us affects only the oncological process, without involving the healthy tissues of the organism. The mechanism of anti-cancer action of the RC emitter is achieved by defusing the active radical of an atypical cell, which maintains its infinite reproduction and growth. RC releases two consecutive impulses for a very short time - in a millionth of a second.



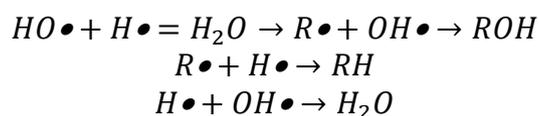
The first has the necessary activation energy to create an active radical from the ionised water compounding 10-14 of the total water content in the organism. The second causes an active radical of a dividing cancer cell to combine with the derived radical of water and, thus, to stop the growth of a malignant tumour.

The first pulse lasts for 10 microseconds, at a density of energy of 120W per square cm.



The second pulse lasts for approximately 13 microseconds and causes the newly derived radicals to enter into reaction with a radical in the cell.

Besides this, the pulse results in a recombination of radicals derived from water.



(the radical of a molecule of water does not exist long, as at it always tends to be in H₂O combination).

As a result of the effect produced by the emitter we will obtain a chemically stable system permitting us to terminate the development of the oncological process. Simultaneous application of other kinds of emitters allows us to normalize microcirculation, to consolidate the immune system, to erase pathogenic infection, normalize intestinal microflora, and so on.

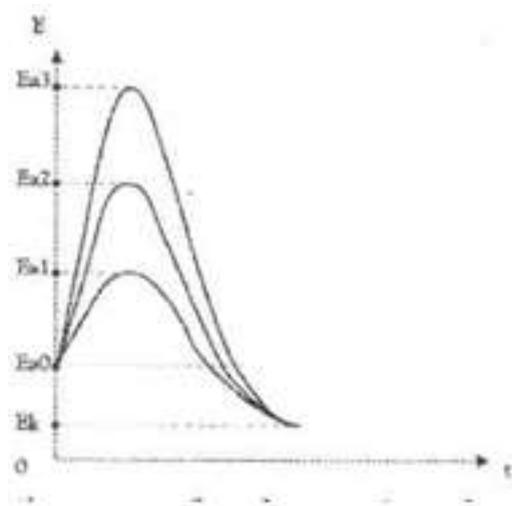
CANCER PREVENTION

All organisms receive vital energy from composite oxidation-. reduction reactions. The energy freed during these processes is spent on different activities within the organism: contraction of muscles, anxiety, formation of new proteins and cells. These processes are carried out with the help of special catalysts - proteins.

Alcohol, for example, is oxidized in an organism with the help of the enzyme alcohol dehydrase. The enzyme and alcohol taken separately do not produce EPR (electronic paramagnetic resonance) signals. At the moment when these two substances combine together the EPR-spectrometer display shows the signal testifying to the formation of free • radicals. In the same way we can find free radicals in cell respiration, when riboflavin, an enzyme indispensable for it, turns into a free radical form. What is the further destiny of these radicals?

Any chemical reaction involves the modification of electronic shells of atoms and molecules. Usually molecules react with each other either via direct collision or through an intermediate sequence. If we count up how frequently molecules can collide in a living cell (as a result of heat motion) different molecules, it will appear that at the temperature of about 37 degrees of Celsius with warmth blooded organisms the reaction should proceed much more slowly than is actually observed. We know that they are accelerated by do enzymes, but how the molecules interact here?

The human body is continuously exposed to radicals coming from outside with nutrients or derived under the effect of different energetic fields (e.g. by ultraviolet rays etc). The organism has its own mechanism of getting rid of these radicals, eg by means of antioxidants. In case of any reasons radicals of higher energy activation appear in the organism the antioxidant factors do not work and a number of free radicals increases; thus there are radicals having a high energy of activation for the reaction of recombination - their removal becomes impossible and leads to the «unmanageable» growth of the tumor. What does the energy of activation mean?



Energetically (thermodynamically) it is expedient that free surface be smaller. If the system has an initial level of energy E_0 and final E_k its transition from a condition E_0 to E_k is a thermodynamically expedient process, at which free energy ΔE equal to $E_0 - E_k$, so that the system passes to a lower energetic level. We shall illustrate this with the examples. If two drops of water are placed close to each other, they will join as the energetic barrier (E_{a1}) is determined by the power of surface tension of water. If two plasticine balls are placed close together, their merger will also become expedient (as the surface decreases as much as in the case of drops of water), but it is necessary to expend the efforts for

their merger, as activation energy (E_{a2}) in this process is higher). If we try to merge two steel beads of the same size, the energy of activation (E_{a3}) in this process will be so high, that huge efforts would be required to implement such a thermodynamically advantageous process. At the same time a steel bead can freely interact with a drop of oil or plasticine ball. Energy of activation of this process will be low enough. But a drop of oil and a drop of water will not coalesce; the activation energy of this process is very high, as water is a polar liquid, and oil is not.

As the process of recombination of radicals with high energy of activation is similar to the process of merging two steel beads (the energy activation or power barrier of the recombination of radicals is too high).

The application of IR-emitters can prevent the development of the oncological process by defusing of free radicals with high energy of activation even before the occurrence of untypical cancer cells. Therefore, there has appeared a real opportunity of early preventive measures and full treatment for cancer patients. Our purpose is to use the applicable IR-emitters for cancer prophylactics, especially among children, to lower morbidity for the consequent generation.

SUPPRESSION OF VIRAL REPLICATION

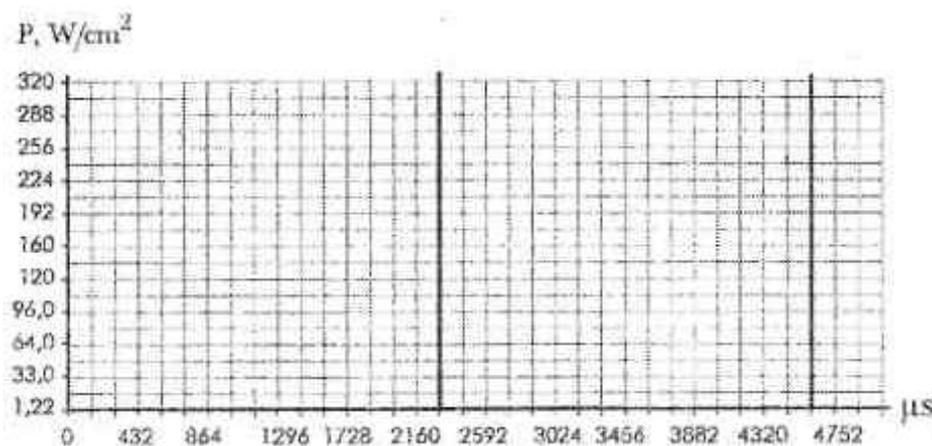
Retroviruses are viruses whose hereditary information can be inscribed in cells in the form of DNA, and in virions in the form of RNA, due to the presence of reverse transcriptase in their lifecycle (DNA synthesis on an RNA template). The process of reverse transcription is controlled by a viral enzyme - reverse transcriptase - that is responsible for the reverse flow of information from RNA to DNA; in fact, retroviruses have been so named because of it (Latin retro - backwards). Retroviruses are characterized by a high rate of reproduction and an ability to capture extraneous genes (cellular or viral). It stands to reason that after capturing a new gene a retrovirus acquires new properties. This gene may enhance the capacity of the virus for propagation hundredfold and sometimes thousandfold. Retroviruses are classified into 3 groups:

- oncoviruses, which contain oncogenes that give rise to tumours in a short time;
- lentiviruses, or «slow» viruses;
- Gallo viruses, intermediate between onco- and lentiviruses.

Lentiviruses are one of the causes of cancer, since they contain oncogenes. However, oncogenes do not always give rise to cancerogenesis. They first have to be activated by, eg, a viral promoter, cell promoter, cofactor such as a chemical carcinogen, or through interaction with other oncogenes.

Most retroviruses have no cytopathic effect, that is, the virus and host cell can peacefully coexist indefinitely, the virus gradually wearing the host down. It is thought that the cause of cellular death is that, the cell contains a great many copies of the free provirus and the vims propagates unchecked, which exhausts the cell.

Exposure to radiation from ceramic emitters RV can disrupt the process of division of various types of viruses that cause such diseases as hepatitis, herpes simplex, and other infections, by inactivating the main enzyme, in particular, reverse transcriptase.



The RV emitter has principally an antiviral effect by inactivating viral enzymes. Unlike the RC emitter, it generates additional, more energetic pulses.

The TL1 emitter also has an antiviral effect but, unlike the RC and RV emitters, it generates one type of pulse.

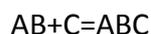
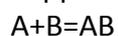
CORRECTING THE IMMUNE STATUS AND METABOLIC PROCESSES

The physico-chemical processes going on in the human body continuously generate heat in the form of infrared photons with a wavelength of $9.36 \mu\text{m}$.

The reactions occurring in a living thing are principally photochemical. It is reasonable to suppose that their rates depend on the amounts of generated and absorbed energies. The immune status and the intensity of metabolic processes are determined by the rates of chemical reactions and depend on the amount of energy emitted. As this radiation becomes weaker the body defences (immune status) deteriorate. The overall decrement in infrared radiation leads to a drop in rates of the photochemical reactions. When these rates decrease uniformly, all the processes occur more slowly, but in the right ratios and sequence. Thus, a boy of 12 and an old man of 80 may have the same body temperature, but measuring the flow of radiation from their bodies reveals that the young organism has a flow 10-20 times that of the old one. It follows, then, that in most cases recovery processes occur faster in young people because of the higher energy flow.

In pathologies the rates of different reactions decrease nonuniformly and, as a result, where they are slow there is a buildup of the products of previous reactions. According to the law of mass action these are spent on other, competing reactions. Thus, the body develops an imbalance of the necessary ingredients, and gradually various pathological disorders come on.

Suppose there is a sequence of reactions going on in a healthy body:



If for some reason the reaction $A+B=AB$ has slowed down, the surplus of A will automatically be spent on the other process $A+C=AC$, which results in a change in the entire sequence of normal reactions and a buildup of the surplus ingredients, one way or another harmful to the body. These same reactions take part in generating the body's intrinsic radiation, and when the processes are unbalanced its amount decreases.

According to a theory we have put forward, if radiation is applied from outside that corresponds to the body's own, the rates of the reactions will balance out, thus normalizing metabolic processes and enhancing the immune status, which is the principle behind K-line emit-

ters. They are often positioned in susceptible areas (the hypothalamus, thymus, 7th cervical vertebra, heels, and pancreas).

K-line emitters can also be used to normalize the status of the sympathetic and parasympathetic parts of the autonomic nervous system and to treat allergic disorders.

The immune status is closely linked to the vessels and the liquids pumped through them—blood and lymph, by which the organs, tissues and cells are supplied with all the substances necessary for normal life activity and metabolic-waste products eliminated. Therefore, in treating various disorders priority should be given to restoring microcirculation. We recommend using Z-line emitters for the purpose.

ASPECTS OF THE INTERACTION OF INFRARED RADIATION WITH COLLAGEN AND THROMBI

During life the vascular walls and intercellular space form deposits of insoluble substances (thrombi, atheromata, pathological collagen), which give rise to various diseases.

Pathological collagen forming in disorders of connective tissue differs from natural collagen in that it has an incomplete structure and large molecular weight. The molecular bonds in pathological deposits are weak, since they are mediated by hydrogen bonds, van der Waals forces, and so on.

The mechanism of action of Z-line emitters is to loosen these weak bonds and convert the insoluble substances into a soluble state, with their subsequent elimination from the body without the danger of thrombus formation.

Z-line emitters are used to treat hypertension, atherosclerosis, stroke, disorders of the vertebral column (exposure restores its mobility by increasing the elasticity of the intervertebral discs), to treat patients suffering from diabetic angiopathy (normalizing microcirculation eliminates such symptoms as numbness, coldness in the limbs, and prevents the development of ulcers and gangrene).

There are 4 types of **Z-line** emitters. They differ in their power and, in ascending order, are arranged as follows:

ZB → ZC → AK → AV.

The ZB emitter is often used to clean up the vascular system, and normalize microcirculation. The ZC and AK emitters are used in systemic collagenosis to disperse pathological connective tissue. The AV emitter is used to treat disorders of the veins (varicosis, thrombophlebitis).

FIGHTING MICROORGANISMS

If the division of bacterial cells is considered at a molecular level, the process will be represented as a chain of sequential chemical reactions occurring at a certain rate. If just one process in the chain is stopped or suppressed, the bacterium will stop to divide and eventually die.

This is the principle behind the action of the G-line emitters. Precisely selected, the spectrum of their radiation is aimed at disrupting the chemical reactions involved in the division of pathogenic microbes. Unable to divide any longer, the microorganisms (bacteria, protozoa) will die, since their lifecycle is extremely short. The emitter does not affect human cells, since the emission spectrum of dividing pathogenic microorganisms differs from the absorption spectrum of humans.

The use of infrared radiation with a broad spectrum of action in medicine can sometimes result in overheating the body because the absorption processes predominate over the emission ones, and vice versa. For this reason it is contraindicated during a recrudescence of inflammatory disorders. The G-line emitters have no such side effect, since they emit at a specific wavelength

that does not cause overheating. It should be added that, to prevent the formation of large amounts of toxins capable of activating biologically active substances as a result of the death of the infectious agents, which may give rise to free radicals and trigger inflammatory response, the GI-line emitters usually contain ceramics with anti-cancer properties such as the RC type. According to the concentration of these additives they are marked as, say, GI (0.5%), GH (5%), and so on.

The AF emitter also has an antibacterial effect several times more powerful than that of the G-line emitters. Whereas the latter can halt cell division by disrupting isolated reactions, the AF emitter disrupts tens and hundreds of division reactions in the pathogenic microflora. Besides, due to a specific wavelength the AF emitter dehydrates fungal cells, which results in their rapid deactivation. This makes it suitable for treating mycoses.

"CT" APPARATUS



There is an urgent need for effective methods of treating disorders of the organs of the small pelvis.

Based on the method of resonance therapy a new "CT" apparatus has been devised that can be successfully used to treat various disorders of the organs of the small pelvis and intestine.

The "CT" apparatus consists of three emitters (RC/RV, GI/AF, ZB), any or all of which can be switched on as needed according to the cause of the disease. The emitters directly affect the perineum and organs of the small pelvis.

By correctly selecting a combination of the emitters fitted in the "CT" apparatus one can achieve great effect in treating colpitis, vulvovaginitis, proctitis, paraproctitis, endometritis, adnexitis, prostatitis, cystitis, urethritis, prostatic adenoma, myoma, benign and malignant tumours of the genitals, erosion of the neck of the uterus, anal fissures and so on without administering medicaments.

Affecting a pathological process through the anterior abdominal wall and peritoneum simultaneously greatly reduces the time necessary for eliminating the signs of the disease. Combining general and topical emitters in the "CT" apparatus enables one to obtain impressive results in a short time. It has been found that using the apparatus normalizes the immune status as well:

The action of infrared radiation on the rectum, sigmoid colon, urinary bladder, and genitals, besides relieving inflammation, destroying viruses and improving blood circulation, enhances the synthesis of immunoglobulin A (IgA), which is produced in the mucosa of the genitourinary organs and gastrointestinal tract. It is known that reduced levels of IgA are favourable to the growth of pathogenic microflora in the intestine and genitals. IgA is responsible for the local immunity of mucosae, including those of the female genitals, and has an antiviral and antibacterial effect.

Exposure to a combination of the KL(s) emitter and another emitter in the area of the thymus promotes the production of IgM or γ -macroglobulin, which is synthesized with the participation of messenger RNAs on the ribosomes of the granular endoplasmic reticulum of lymphocytes and plasmacytes. IgM has antiviral and antibacterial activity, which is important to the body as a response to a foreign body entering through the so-called portal of entry.

Examples:

Patient N., female, aged 39, presented complaining of abdominal pain, frequent liquid stools during 5 hours. EA V testing produced readings of 82-90 at the point of the small intestine and detected nosod.es of Streptococcum and Salmonella. She was treated by exposure to the GI emitter (within the "CT" apparatus) for 20 minutes. The abdominal pain disappeared after 10 minutes of therapy. The stool went back to normal after the 1st session.

Patient P., male, aged 45, presented complaining of asymptomatic hae-maturia, and examination (ultrasound, X-raying, excretory urography, cystoscopy, per rectum examination) detected prostatic cancer. Treatment: exposing the prostate to the RC emitter (within "CT") 5 times a day, to the RC(b) once a day every day, and to the RV emitter (within "CT"). Under monitoring by means of the Voll meter the topical treatment was done of the liver, kidneys, lungs, intestine, head and. vertebral column. The course lasted for 3 months. The treatment brought the prostate to normal size, and there were no data to suggest prostate cancer. It also cured the accompanying disorders: chronic colitis and vasomotor rhinitis.

Patient C, male, presented with a diagnosis of a recrudescence of chronic prostatitis, complaints of lower abdominal pain, and dysuria. Treatment: exposure to the "CT" apparatus (GI+KL) for 10 minutes and ZB(s) in the area of the urinary bladder for 10 minutes (simultaneously) during 10 days. The treatment brought about a complete remission of the condition.

Patient D., female, was hospitalised with signs of acute cystitis. After one session that included topical exposure of the urinary bladder through the anterior abdominal wall and of the perineum to the "CT" apparatus fitted with R V+GI+ZB emitters. 30 minutes was enough to alleviate all the symptoms of acute cystitis: frequent painful urination, lower abdominal colics, and urination in small portions.

Patient K., male, was hospitalised with a diagnosis of prostatic adenoma. The treatment consisted of exposure to topical emitters RC+ZC+KL for the lower abdomen and to the same types fitted into the "CT" apparatus. Such manifestations adenoma as difficult urination and unpleasant sensations in the lower abdomen he had suffered from for 5 years went away in 12 sessions.

Patient M., female, aged 22, is described in the case history as having had. two^ late spontaneous abortions accompanied by hepatosplenomegaly and anasarca. In both cases pregnancy terminated at the 6-7th month. The examination detected antibodies for cytomegalovirus, and ultrasonography, signs of chronic endometritis. At admission she complained of severe lower abdominal pain, a discharge streaked with blood from the vagina, and frequent headaches. She received 12 sessions of exposure to general and local emitters - RV+AF+ZC+KL - as well as to the "CT" apparatus for the perineum (simultaneous irradiation of the uterus through the anterior abdominal wall and perineum). After 6 sessions the vaginal discharge completely stopped and the lower abdominal pain disappeared. After 12 sessions the patient was tested for blood antibodies for cytomegalovirus, and the result was negative. Ultrasonography reveals a uterus of the usual shape, structure and size without any signs of acoustic pathology.

TYPES OF LAMPS /HEATING ELEMENTS COATED WITH THE CERAMIC

At present there are 15 types of emitters to be used for medical purposes.

Type	Application
KL, KH	To be used in correcting immunodeficiencies
KB	To be used to enhance bone tissue regeneration
G-line (GI, GL1, GL5, GH)	To combat bacterial infections, inflammations
AF	To combat bacterial and fungal infections
TL1, RV	To combat viral infections
RC	To combat cancer
Z-line (ZB, ZC, AK, AV)	To be used to restore microcirculation; to normalize blood circulation; to dissolve pathological connective tissue (systemic disorders, keloid scars, etc)

A set of elements is put together in the form of a device called a topical or general lamp. The topical lamp is either a conventional incandescent bulb or halogen lamp with a reflector, which is used to irradiate individual organs. The general lamp is a long quartz heating element with a nichrome coil inside and the quartz surface coated with a ceramic material. It is intended to irradiate the whole of the body.

There are many frequency windows and processes that we can normalize by selecting suitable emitters or a combination of them.

While using the emitters it is strongly recommended to monitor the patient by means of the EAV meter, which makes it possible to measure electric activity at an acupuncture point and determine the rates and types of chemical processes in the organs. On the whole, this method of diagnostics, which is capable of detecting a system/organ out of balance with the rest, as well as a high/low activity of certain test sites, enables one to select the correct emitter for treatment.

FREQUENTLY ASKED QUESTIONS

1. What is the material used? Is it quartz?

The material used consists of the oxides of rare-earth elements: La, Nd, Ce, Sc, and so on. It does not contain quartz, since this does not transmit waves longer than 3 μm , and is not transparent to the spectrum needed. The necessary wavelengths start from 8 μm upwards.

2. What principle is behind the IR emission from the ceramic?

IR radiation is emitted as a result of energy exchange between the ceramic and an outside source of energy. Thus, for an absolutely black body the higher the temperature, the shorter the wavelength, and the lower the frequency, the less the radiation energy. This applies to passive materials. But with our emitters, no matter what temperature they have, they will generate radiation at the wavelength they are designed for. These are so-called active converters.

3. What is the wavelength of the radiation generated?

This information is irrelevant, as the inventor believes, to the end user. However, it can be said that it lies between 9 and 50 μm . What is important to the user is how to apply a certain type of emitter correctly.

4. Are there enough lamps to treat various diseases?

At present, there are. More can be manufactured whenever the need arises. Besides, there are enough lamps of different types. Emitters with novel properties can be quickly designed at the laboratory if necessary.

5. *Is the ceramic used at all degradable?*

No, it is not. In fact, it is extremely stable. Whereas metals are prone to corrosion and plastics to destruction, oxides are oxidation products. So it can safely be said that ceramic materials are extremely stable, especially in an oxidizing medium, which the earth atmosphere undoubtedly is.

The processes occurring in the ceramics are autocatalytic.

Its operation can be likened to a pump that absorbs light energy at different wavelengths and converts it into radiation with a narrow infrared range at certain intervals. No matter what temperature or wavelength the primary source has, the ceramics will always generate radiation within a certain waveband. But, more important, the system will always revert to the original state and be ready to absorb a new portion of broad-spectrum energy from the primary source in order to convert it into the necessary radiation.

6. *Does the radiation have any adverse effect on pregnant women and developing fetuses?*

We have no such statistics except two women, one of which has been treated during the 1st, and the other during the 2nd half of pregnancy. They gave birth to healthy babies. The inventor is confident that there is no adverse effect on the fetus, since the spectrum either corresponds to that of the human body or lies in a range where the human being is transparent in the absence of pathology. A pathologic process or tissue absorbs the radiation, which brings it back to normal. It can be said that the system is designed in such a way that it itself seeks out pathologic processes and organs, where it automatically carries out the 'right kind of treatment. This opens up unlimited possibilities for the prevention of many disorders without any undesirable consequences - one would not get radiation- or chemotherapy for prevention purposes, since these are potent health hazards that will eventually result in cancer.

7. *Can we prevent cancer by this method?*

We definitely can. To this end, one should be exposed to the appropriate emitter for a few minutes a month to purge one's body of carcinogenic radicals.

8. *Why are so positive that it will prevent cancer?*

We have extensive knowledge of the mechanism of cancer at a molecular level and believe that one of the principal factors that give rise to cancer are radicals with high activation energy. Exposure to emitters that make them recombine prevents a tumorous process from occurring.

It is therefore reasonable to suppose that a noticeable reduction in the incidence of cancer will be obvious in 30-40 years' time, in those who have been exposed to anticancer emitters to prevent the disease.

9. *Why are there no adverse effects?*

The rays have a greater wavelength than 8 μm and the human body is transparent to it. The radiation penetrates the body via water molecules exactly as a ray of light goes along a lightguide. The body contains 70% of water. The radiation penetrates the tissues and, where there is resonance absorption, some interaction occurs, as in a green leaf - only photons of a certain energy (and, consequently, of a certain wavelength) are taken up to synthesize carbohydrates from H_2O and CO_2 . Put another way, only pathologically changed tissue takes up the radiation.

10. *Is there such a thing as a harmful overdose?*

No, there is not. As soon as all the processes go back to normal, further exposure will have no effect whatever. The principle behind the treatment makes use of resonance phenomena and

so, once the resonance areas are healed (that is, we observe that nothing is occurring) the body becomes transparent to the IR radiation from our emitters. However, this does not apply to conventional IR sources, since these are not resonance ones.

11. Can using your method normalize body weight?

Considering that we bring all metabolic processes to normal, it is reasonable to expect that body weight will also become normal. This is what happens in reality. In virtually all the patients that have completed a course of resonance therapy the weight has become almost normal. Two examples will suffice.

Example: Patient A., male, born in 1950, presented with a diagnosis of intestinal dysbacteriosis. He complained of frequent stools of undigested food and a weight loss. Had been ill for two years; had repeatedly given faecal specimens - no pathogenic microflora had ever been detected; had taken medications, which had produced short-lived improvements. Examination results: a weight deficiency of 21% (for a height of 188 cm the body weight was 70 kg), the skin was pale, its turgor reduced, and the patient himself was sluggish and apathetic. The patient was treated by exposure to the GI(s) emitter in the intestinal area for 15 minutes, the GI CT one for 20 minutes, and a combination of the GL(b) and KL(b) ones as a general course for a week. The stool was normalized after the first session, and stamina improved after the 5^ü. The patient received a 2-week therapy course.

Observation for a year has revealed that no intestinal disorders have occurred and the patient has gained 14 kilograms.

Example: Patient D., male, born in 1960, was admitted with a diagnosis of obesity. At a height of 164 cm the body weight was 103 kg. He was given a general course of therapy by means of infrared emitter for a month, which brought about a reduction in body weight. There have been no follow-up courses. It is more than 2 years after the treatment, and he now weighs 72 kg and sticks to no diet.

It should be borne in mind that many poisons, ie dioxin, are soluble in lipids. Therefore, a sudden weight loss brings about a massive release into the bloodstream of the poisons that have been stored in the fatty tissue in an inactive state. As fat is being lost these get into the blood plasma and produce a pronounced effect of intoxication. It follows, then, that the process of slimming should go on very slowly, in pace with the body's capabilities. To eliminate the poisons and neutralize them as quickly as possible it is recommended that slimming be accompanied by a course of treatment by means of the RC+ZB emitters.

12. What are the devices for household use?

The household devices are built around halogen or incandescent lamps coated with functional ceramics. Their power is usually from 5 to 40 W. A special mask has been designed to treat sinusitis. A special apparatus 'CT' fitted with ceramic emitters (shown in the text) is intended to treat prostatic adenomas and genitourinary disorders. In some cases devices are used the size of a pocket torch.

13. What is the device for preventing infectious and inflammatory diseases?

It is an incandescent lamp coated with the GI composition, which is mounted in such a way as to provide a uniform coverage of the room. It can be kept switched on constantly, when there are people there, or as needed. Larger rooms use several such lamps or a special apparatus with a power of 100-600 W, that provides uniform illumination.

14. What role in treating diseases do you allocate to restoring normal intestinal microflora?

One of the necessary preconditions for normal life activity is intestinal microflora, which produces vitamins and enzymes vital to the body; its composition determines the status of the barrier function of the intestine and the level of producing antigens in the parietal lymph nodes. Quantitative and qualitative changes in intestinal microflora and its localization can cause various disorders (not only involving the intestine) and reduce the immune status.

Several years of work have shown that in virtually all patients, with various pathological conditions, and after administering chemo- or radiation therapy, intestinal microflora has been changed, and intestinal function impaired. Using the GI emitter in such cases has made it possible to restore intestinal function in 5-15 days with 3 daily exposures of 10 minutes after chemotherapy, and after radiation therapy, in 30-90 days with the same treatment schedule. In patients that have not received any other therapy it is possible to completely restore normal intestinal function in 1-2 days.

15. Do you think it is possible to combine infrared therapy with medicaments?

From force of the habit acquired over many years physicians tend to prescribe antibiotics for patients to relieve their condition. In the absence of resonance infrared emitters this is entirely justified, since it can help the patients and in many cases save their lives.

Treatment by means of infrared emitters need not be supplemented with antibiotics, and their use can even produce some adverse consequences.

The thing is, the structural and energy-rich materials, vitamins, nutrients, and so on are provided by the normal intestinal microflora. A change in its composition greatly impairs the immune status and the ability to resist external and internal destabilizing factors. The use of antibiotics completely changes the composition of the microflora; therefore, it is desirable not to use them together with treatment by means of infrared emitters.

Antibiotics (laevomycesin, actinomycin D, and so on) and hormones (methyltestosterone, progesterone, prednisolone, and so on) can often give rise to malignant tumours. But, over the period of administering infrared therapy there has not been a single case where a positive result cannot be achieved without using hormonal preparations. Moreover, patients that were taking such drugs prior to our treatment have gradually discontinued them as no longer needed.

Examples: Patient Z., female, born in 1982, presented to the hospital with a diagnosis of dermalomyositis, polymyositis, act 2, stage 2. Personal history: has been ill since March 1996, when she first noticed skin induration on the face, neck, arms, legs and abdomen. She received hormonal therapy for 1.5 years. Signs include skin induration on the skin, hands, shoulders, forearms, back, abdomen, thighs, calves (predominantly on the right and on the extensor surfaces). The body weight was 84 kg at a height of 148 cm. Treatment continued for 3.5 months, with the patient being exposed to the ZC(b) emitter for 5-15 minutes twice a week, the RC(b) emitter on a floating schedule, the KL(b) emitter for 5 minutes daily, the GI(s) emitter in the intestinal area for 15-20 minutes at a time for a month, and the KL(s) emitter in the thymus and pancreatic areas for 2 months. As a result of the therapy, the skin induration has disappeared, the skin colour has gone back to normal, the turgor is preserved, she does not take hormonal medications, and the body weight has decreased to 60 kg. The treatment continued for 3.5 months.

Patient D., male, presented to the clinic with a diagnosis of allergic-rhinitis. Personal history data: has been ill for 25 years, repeatedly received outpatient treatment; periods of remission lasted for up to 4 months, then decreased to 1 month and by the time of presentation had stopped completely. He had to take drugs that

improve nasal breathing- naphihyzinum, halazolinum, sanorinum - as well as kenalogum parenterally. Treatment continued for 2 weeks; he received a course of exposure to the GI(s) + ZB(s) emitters in the areas of the gallbladder and adrenal glands, a general course, the GI(s) emitter in the intestinal area, and the ZB(s) for the vertebral column combined with a massage. The treatment has enabled him to discontinue the drugs, and nasal breathing is now unimpeded.

16. Can one stop taking vitamins during treatment by means of infrared emitters?

People tend to see vitamins as a panacea. They are convinced that vitamins are the best weapon against myocardial infarction, insomnia, frayed nerves, arthrosis, and even cancer. Are they really that useful?

Recently medical workers have raised an alarm. Finnish scientists have abruptly discontinued tests they were conducting on volunteers. The conclusion they have come to is unfavourable: neither pills' containing β -caroten nor vitamins A, C and E will protect us against cancer. The World Health Organization recommends against wasting money and taking vitamins as an anticancer prophylaxis.

To keep metabolic processes going the body needs nutrients in a bound form. This applies to vitamins as well, since they are extremely active substances with a broad spectrum of effects on the enzyme system. When taken in normal doses, purified vitamins can be combined by the body into complexes and stored. But if the doses greatly exceed the need and the body cannot convert the surplus into an inactive form, one or another form of hypervitaminosis will manifest itself. A surplus of vitamins can do grave and sometimes irreparable harm to health. By contrast, in natural compounds most vitamins are in an inactive form, and so the level that can trigger a hypervitaminosis is much higher.

Synthetic vitamins have different properties from natural ones. No scientist has any doubt that vitamins play a key role in metabolic processes, but the fact persists that vitamin pills can have adverse effects, which virtually never happens when vitamins are consumed with natural products. In all likelihood, this has something to do with the fact that plants contain up to 10,000 various compounds, some of which prevent the vitamins from taking effect immediately.

Statistics shows that when children suffering from rickets were given large doses of vitamin D, instead of recovery their condition deteriorated.

How can this be accounted for?

Prescribing vitamin D in the right amount usually restores the normal ratio of calcium and phosphorus salts- and sufficient calcium accumulation in the bones. Excessive vitamin D triggers calcium removal from the bones and they soften again. The signs resemble vitamin deficiency, but there is one important difference: in hypervitaminosis the calcium is not eliminated from the body, since it builds up not in bone tissue but in internal organs such as the kidneys, heart muscle, vascular walls and other tissues. Therefore, if vitamin D administration is not discontinued promptly, the bones and internal organs may suffer permanent damage due to bone decalcification and the calcification of internal organs and tissues.

Vitamin A hypervitaminosis brings on symptoms and signs of severe poisoning: a headache, alopecia, nausea and weakness. German specialists maintain, that vitamin A softens bones, and Swedish medical workers have established that a daily dose of 1.5 mg reduces the density of the femur by 12%.

Hardly anybody can be found who is afraid of an excess of vitamin C. Is it really entirely harmless, or can it trigger hypervitaminosis? The adverse effect of vitamin C is closely associated with its role in physiological development. Unlike other vitamins, it has a broad protective effect on the body. Adequate supply with vitamin C is vital for the activity of many enzymes; it has a

direct effect on the synthesis' of collagen, a protein that accounts for much of the body protein content, and on the formation of protein-containing hormones and nucleic acids.

In the norm, no matter how much vitamin C is administered, even if the amount is great, its content remains optimal for a particular tissue. Its surplus is broken down and eliminated from the body. Adapting so as to eliminate excessive vitamin A when large doses are taken, the body continues for some time to break down and eliminate it at the same rate even after the vitamin doses have returned to normal. As a result, all tissues become greatly depleted of vitamin C. Thus, hypervitaminosis C, like other types, becomes a hypovitaminosis, and the pathological changes in the body develop very rapidly.

Hypervitaminosis C may be attended by insomnia, increased irritability, anxiety, and tachycardia. If people take barbiturates with vitamin C in doses of 0.5 g, they begin to feel hot, have a headache, insomnia, become excited, and break out in cold sweat.

It has been established that excessive vitamin C impairs the supply of the heart with structural and energy-rich materials; excessive collagen (in such cases it is synthesized in large amounts) facilitates the progression of vascular diseases. Vitamin C overdose results in metabolic disturbances, particularly carbohydrate. The primary victims are those suffering from diabetes mellitus, since it is often accompanied by angiopathy.

As it happens, vitamin C has an adverse effect on DNA as well. Daily doses of 500 mg affect heredity and may even give rise to cancer. Taking vitamin C in the form of combined mineral pills, especially if it enters the body together with iron, is equivalent to taking a poison. In the presence of ferric ions ascorbic acid can produce free hydroxyl radicals, whose increased levels trigger mutagenic effects.

It is known that nitrates, after entering the body with food, interact with the hydrochloric acid of the gastric juice, transforming into nitrous acid (HNO_2), which easily gets into the bloodstream and is carried throughout the body. On entering cells it reacts with the nucleoproteins to form oxi derivatives. This introduces defects into the nucleotide triplets, which may result in undesirable mutations. To neutralize the harmful effects of nitrites, meats have come to be treated with ascorbic acid. This, in turn, leads to the formation of dehydroascorbic acid. Unfortunately, before the acid in question is available, a lot of intermediate products emerge, mainly free radicals. These resemble vitamin C to such an extent that the cell is deceived and engulfs the aggressive molecules capable of damaging tissues. The consequences include myocardial infarction, cancers, and so on.

Recent research indicates that large intake of vitamin C (in excess of 1000 mg) contributes to the formation of renal calculi.

Vitamin B₆ in large amounts can cause rashes and vertigo accompanied by cramps and, if administered for a long time, suppress the anticoagulant mechanisms. Vitamin B₁₂, especially in conjunction with vitamin B₁ often gives rise to allergic reactions, inflammation of the oral cavity, and polycythemia.

A distinction should be drawn between natural and synthetic vitamins. This means that, while not differing in their effects in normal amounts, synthetic vitamins produce a hypervitaminosis in excessive amounts.

It follows from the above that, if treatment by means of infrared emitters completely restores metabolic processes, it is sufficient to restore the natural supply of vitamins with food. If somebody cannot stop taking synthetic vitamins, it is necessary to make sure he does not have an overdose, regardless of the method of treatment.

We recommend combining therapy by means of the infrared emitter with consuming natural juices and various salads containing vitamins in a natural form, and with using biopreparations that normalize the status of the intestinal microflora (bifidobacterium, lactobacterium, collibacterium and so on).

17. Can your method be used to treat psoriasis?

In the course of research and medical practice we have had good results for treating the gravest forms of psoriasis. We have found that this condition should be classified according to its aetiology. This can be: infection (bacterial, fungal, viral, protozoan), chemical poisons (pesticides, herbicides, dioxin, dyes, paints, and so on), heavy metal ions, which interfere with the action of the enzymes, impaired circulation, hormonal imbalances, impaired endocrine function (the adrenal glands, pancreas, and so on), intestinal microflora, and the presence of microorganisms in the stomach (such as Campylobacter). The duration and type of treatment by means of infrared emitters depend on the type of psoriasis and the combination of the above factors.



We are certain that no ointments, creams, Dead Sea water and so on will cure psoriasis; all they do is alleviate the signs without affecting the root cause.

Example: Patient N., male, born in 1982, presented with a diagnosis of generalized psoriasis, progressing course, mixed type. He complained of eruptions all over the body with intense itching, irritability, sleep disorders, and impaired appetite. Personal history: along with a diagnosis of 2nd degree adenoid vegetations made at the age of 4 he was diagnosed as suffering from pseudopsoriasis. After excising the adenoids the signs of pseudopsoriasis disappeared. In 1993 flaking spots 25 mm across appeared on the scalp.



Pictures of the patient taken before, during, and after the treatment.

For 2 years he was treated at the hospital for skin disorders, which resulted in a complete remission of the disease. In 1996 the scalp and trunk broke out in plaques the size varying from a pinhead to 25 mm across. From 6 October 1966 he was prescribed treatment by means of an apparatus 'Salute' (devised by Dr Fischer's company in Vaduz in cooperation with scientists from many countries; it is a device generating pulsating current that creates a magnetic field to be used for treatment). In the course of treatment (the 5th-6th sessions) the number and size of plaques increased (the user manual envisages a possibility of recrudescence), and the process progressed rapidly. The condition deteriorated until November 1996. He had been repeatedly treated at the Central Institute for Skin and Venereal Disorders in Moscow, had taken hormones and cytostatics, and been treated by folk medicine practitioners. No improvement, however, had been achieved, and the process had been progressing.

Examination revealed that on the skin of the upper head, face, arms and legs there were plaques of a congestive red colour covered with overlapping silvery scales. The eruptions covered 80% of the total skin area. The nail plates were pitted.

For 3 months the patient was given therapy by means of resonance infra-red emitters GlandKL. After the 10th session the process was stabilized, and the itching stopped. After 1.5 months the face, neck and back almost cleared of the eruptions. By the time the treatment was finished the skin was completely free of pathological elements.

The patient has been observed for 3 years by the doctors of the hospital, and no recrudescence has occurred.

18. What do you think of the problem of oxidative stress and of the use of oxygen for medical processes, considering the processes at a molecular level?

Stress is part and parcel of life, a special state of the body, that occurs as a result of a negative emotion, overeating, overexertion, infection, too high or too low an ambient temperature, and so on. It is also caused by such oxidants as ozone, peroxides, and paramagnetic oxygen derivatives.

Strange as it may seem, oxygen that is so essential to vital activity is toxic to any organism. Animals do not die of exposure to the air only because of the sophisticated biochemical defence mechanisms nature has endowed them with. But the protection is not absolute; it has its limitations. So no organisms have evolved on Earth that would thrive in an atmosphere containing more oxygen than the air does. In an atmosphere of pure oxygen any mammal dies relatively quickly. There are also anaerobic creatures that die in an atmosphere containing very little oxygen where a «normal» organism dies of hypoxia. Is this the reason why the majority of longlivers have been born in mountains, where the partial pressure of oxygen is lower than at sea level?

The chemical bonds in molecules are as a rule formed by electron pairs whose spins are aligned in an antiparallel fashion. Oxygen is an exception, since its molecule contains two electrons aligned in a parallel fashion. This feature prevents it from entering into typical chemical reactions involving both electrons at a time. In most cases such transformations turn out to be unfavourable for it; otherwise neither free oxygen nor organic matter in its usual forms could exist. However, this does not apply to reactions involving the transfer of one electron. Its capture by an O₂ molecule results in the formation of a superoxide anion-radical which triggers a chain of reactions that produce free radicals HO₂• and HO• followed by hydrogen peroxide H₂O₂ and the above-mentioned unpleasant consequences of their transformations.

On contact with oxygen organic materials undergo oxidative destruction, during which other, carbon-containing radicals form. Especially quick to oxidize are vegetable oils and animal fats. Even when kept in air they build up peroxides, hydroperoxides, epoxides, carbonyl compounds and other hazardous products. There are grounds for suspecting that such oxidative transformations of cellular lipids may have rather serious consequences for the body.

As a result of the oxidation of the lipoproteids by peroxides in the body over time there is a buildup of wear-and-tear pigments - lipofuscins (which are manifested as liver spots on the skin). The older a person, the more lipofuscins are deposited in the tissues. This happens in spite of active protection by enzymes such as catalase, glutathione peroxidase, superoxide dismutase that shield the cell from free radicals that can damage and even kill it.

Let us take one kind of cell - red blood cells. They live only 120 days, by the end of which they become old, more susceptible to hydrogen peroxide, and die easily. Is it possible that the different susceptibility of RBCs of different age to oxidation is a feature enabling the body to promptly recognize an aged cell and replace it with a new one? Maybe, something similar happens

to an old animal that has fulfilled its life programme? If it is viewed as a constituent cell of a superorganism termed a biological species, the comparison ceases to seem so far-fetched.

Experiments carried out on human tissue cultures demonstrate that in an atmosphere of pure oxygen the most intensive peroxide oxidation resulting in a buildup of wear-and-tear pigments occurs in the tissues of the lungs, heart and kidneys. In the heart muscle, eg, their amount grows by 0.6% of the total intracellular volume every 10 years. These same organs are the ones most often involved in a pathological process.

The most prevalent external sign of old age, wrinkled skin, appears as a result of the free-radical polymerization of elastin, a protein contained in it. The reaction is initiated by oxygen. The adverse effects of oxygen manifest themselves on its partial pressure rising by as little as one atmosphere, let alone so-called hyperbaric doses nowadays widely used in health-care facilities in many countries.

In recent years some countries have seen a spate of campaigns promoting oxygen therapy (oxygenation) at home, which cannot but give concern. It should always be borne in mind that even a very good medicine, when used uncontrollably, may cause irreparable harm.

In view of the adverse effects increased oxygen levels may have on the body, one should exercise restraint in using hyperbaric therapy. Further, it has been found that in some people hyperbaric oxygen therapy, like slight irradiation, leads to adaptation. Why this happens is yet unknown; one can only speculate that the oxygen activates prostaglandin synthesis (via a free-radical mechanism) and boosts the antimicrobial defences through interferon.

Final conclusions about the causes of a reduced, and in some cases an increased, body resistance to oxidative stress can be made only after deciphering the mechanisms that give rise to it at the molecular level.

The peculiar nature of oxygen is also manifested in the fact that the state's standard for other molecules, where all the electrons are paired, the so-called singlet state, for it is not stable, passive, but on the contrary an active, aggressive one. Usual molecular oxygen O_2 can be converted into active 1O_2 by means of light in the presence of sensibilizers.

The increased activity of 1O_2 arises from the fact that it is prohibited from taking part in bielelectron reactions. It can therefore very easily add to the multiple bonds of organic molecules such as lipids or carotenoids. For this reason the best protection from its action can be p-carotene, a pigment contained in carrot and the skin of ripe tomatoes. It has been proved that the photosensitivity of a body can be reduced by a simple ploy of ingesting carotene. This method is considered the most effective in treating various porphyrias (photodynamic disorders), even very grave ones.

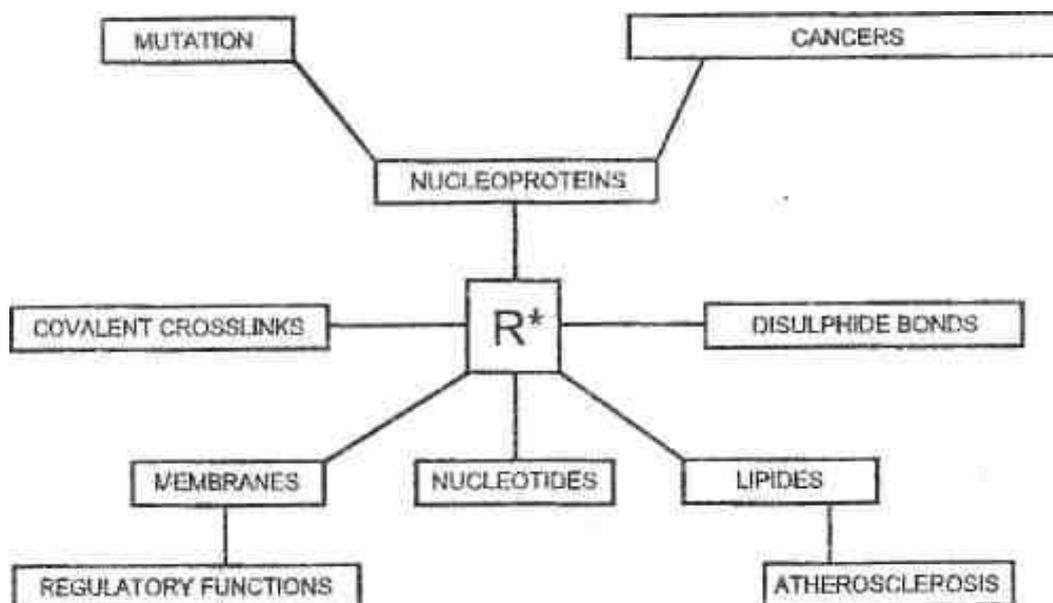
Singlet oxygen can react with saturated molecules as well, if these contain sulphide groups or ammonia residues, for example, with amino acids and proteins. Moreover, its adverse effects is greatly exacerbated by so-called xenobiotics - substances that get into the body from the surroundings. These include the products of tobacco dry distillation, ethanol, and some chlorine-containing compounds. This is another argument against the permissive attitude towards smoking and alcohol drinking that still persists in many unenlightened people.

It is the cells of the liver, kidneys and spleen that specialize in detoxifying foreign substances entering the body. The simplest model of the processes that occur there and that employ mechanisms of single-electron oxidation and reduction can be the reaction of carbon tetrachloride with primary amines. Its first step is as follows:



It produces a couple of radical species: a cation radical of an amino acid, one of those making up the protein chains, and a trichloroethane radical. The fate of the latter is extremely multifarious. The particle may be detoxified by the enzymatic protection mechanisms, but at the same time it may give rise to harmful substances forming as a result of quite ordinary chemical

reactions. Among these are atomic chlorine and the HO• radical, the same as forms in the course of hazardous oxygen transformations, as well as phosgene, hydrogen chloride, and carbon monoxide known for their toxicity...



Then is it not the case that aging is a result of the progressive degradation of the enzymatic protection mechanisms and uncontrollable, destructive processes increasingly come to the fore?

Excessive exposure to oxidants, including air, can give rise to pulmonary, vascular and other disorders. Factor in the fact that urban air contains not only the oxidant but also incomplete combustion products, lead compounds and other contaminants that can act as xenobiotics, and the paradoxical conclusion suggests itself that the more deeply we breathe the faster we age. Each of us comes into direct contact with this air 25,000 times a day at the entire surface area of the lungs, which is about 80 m².

The processes of breathing and energy exchange, although dependent on a number of factors, are controlled by the hormonal systems of the body and the nervous system. First of all it is thyroid hormones, thyroxine and triiodothyronine, that come to mind. It is known that patients suffering from thyroid hyperfunction - hyperthyroidism - consume 1.5 times as much oxygen as healthy people. By contrast, in thyroid hypofunction - myxoedema - oxygen consumption is greatly reduced.

However, the thyroid hormones are by no means the only components of the endocrine system that affect gas exchange and oxygen utilization. These processes are very actively stimulated by noradrenalin responsible for homeostasis, as well as histamin, glucagon, somatotropin, and the male sex hormone testosterone. On the other hand, the 'fight or flight' hormone adrenalin and other stress hormones - adrenocorticotropic, cortisol, corticosterone, aldosterone - greatly suppress oxygen utilization and lower maximal oxygen consumption in humans and animals. Evidently, rather than the localized action of one or another substance, there is an entire sophisticated system of hormonal regulators that are in turn controlled by the central nervous system.

This point of view was formulated and substantiated by V. S. Gorozhanin, a researcher of the National Research Institute for Physical Culture. He classified all people, regardless of training and health status, into two polar types. The first is an aerobe that responds to prolonged exercise by abruptly raising the levels of noradrenalin, somatotropin, thyrotropin, testosterone, glucagon and so on. Such a person needs a lot of oxygen, and he has high maximal oxygen consumption. The second type, an anaerobe, in response to exercise greatly increases the levels of adrenalin and

all the stress hormones - ACTH, β -endorphine, Cortisol, and aldosterone. The blood of such people quickly builds up the lactate, their heart rate greatly increases, and the maximal oxygen consumption falls.

Neither type should be considered good or bad. Each is matched by a peculiar type of activity of the nervous system. Aerobes - usually not very sensitive people - are hyposensors; by contrast, anaerobes are restless and sensitive and hypersensors. To aerobes belong sportstmen whose sport demands stamina, as well as people suffering from bronchial asthma, allergy, hyperthyroidism, and to anaerobes, sprinters, weightlifters and people suffering from neuroses, hypertension, obesity, and atherosclerosis.

19. What do you think of the use of ultraviolet irradiation in medicine?

Exposure to UV radiation gives rise to free radicals with high activation energy which will produce the same effects as result from exposure to hyperbaric oxygen concentrations. Besides, UV radiation promotes theformation of ozone, a powerful oxidant. Therefore exposure to UV radiation automatically results in an oxidative stress.

It should be pointed out that we produce our own infrared radiation without which life would be impossible. Its wavelength is 9.36 μm . As is known, quantum energy is inversely proportional to wavelength. The UV range extends from 0.18 to 0.44 μm . Consequently, the quantum energy of this radiation may exceed our own fiftyfold. This is equivalent to a bomb exploding inside the cells. The human enzymatic system can withstand UV radiation to a certain extent. Again, it depends on whether the UV radiation is used alone or in combination with other regions of the spectrum. The natural radiation spectrum (of the sun) has an IR range as well, which activates the body defences; therefore, natural UV radiation is not as harmful to the body as that generated artificially, since mercury or xenon lamps do not generate IR radiation.

20. Does your method belong to alternative medicine?

Our method is based on the principles of mainstream medicine. The only distinction is that we consider processes at a molecular level as well.

21. Can you say that you have found a panacea?

By no means. Indeed, our method can solve many problems formerly considered insolvable or, although solvable, involving pronounced adverse effects. These include treating viral diseases, normalizing intestinal microflora, destroying pathogenic microflora, dispersing pathological tissues, and normalizing the cholesterol balance. But I can confidently say that it will not enable lost organs to grow again or birth defects to be corrected. In such cases resonance therapy can only alleviate the condition of the patient, eg by speeding up wound healing, relieving pain syndrome, and normalizing metabolism. The live organism is such a complicated system that disturbances of its normal functioning are complex. Part of the restoration work can be done at a genetic level, in other cases only pharmaceuticals are effective, and in still other cases only surgery will do. Our method is another complement to the overall armory of medicine. Only a thorough understanding of the problem and an adequate approach to treatment can guarantee success.

Together with treating refractory diseases, our goal is to provide protection from all diseases for a person from birth or even before. In maternity hospitals many newborns acquire a whole gamut of pathogenic infections (*Staphylococcus aurea*, *Bacillus aeruginosa*, *Proteus*, and so on). Later, catarrhal or infectious diseases, the deteriorated environment, artificial food, and so on erode his health. In all these cases we can help the patient to stay healthy. Our method can prevent cancers and cardiovascular disorders, and it alone can really cure endo-" crine disorders, rheumatism, and tuberculosis.

22. Do you consider your work quite finished?

We are just beginning it. As a matter of fact, only a concerted effort by scientists specializing in different fields can result- in a breakthrough, since the subject is at the interface of chemistry, physics, materials science, molecular biology and, of course, medicine.

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