

Some recommendations and examples in the activation therapy practical implementation (according to L.K. Garkavi, E.B. Kvakina and M.A. Ukolova's research studies)

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Abstract

Knowledge of laws of the different organism reactions to external and internal influences in case both of general unspecific adaptational reactions of different types and the periodic system of the repetitive pattern reactions offers us a possibility to target and control the organism resistance level using the activation therapy methods. Given are some examples of using the available biologically active means and the programmed modes of their dosing which demonstrate simplicity and efficacy of the stable health state restoration and maintenance.

Keywords

Anti-stressor reactions, Leukogram, Programmed modes of dosing, Activation therapy

Imprint

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Introduction

Nowadays it is widely known that many pathological processes are based on the chronic stress development. However, even the anti-stressor reactions may depend on the over-activation, "training" and some subtypes of "activation" at low and very low reactivity levels. Thus, the activation therapy aim is to control the organism unspecific resistance, namely, to take the organism out of its unfavorable strained states.

Important is the fact that a treatment may be unsuccessful, uncontrolled without a special accounting of the quantitative values of an influence on the organism and without the proper understanding that the same influence agent varying in its doses may produce various and even contrary effects on an organism.

It is not a top secret that at the present time very strict schedules of medication and rigid

dosage prescriptions without due consideration of an individual sensitivity and an assessment of the initial state of a patient are very common in medical practice. But it is a matter of fact that the therapy outcome depends on just the above factors since an influence or an exposure of the same quality may cause different changes in an organism. It is quite obvious that the qualitative and quantitative principle application allows using a great diversity of factors for increasing the resistance and improving the organism functional state in the most expedient way.

The activation therapy may be administered to almost everyone, but some individuals need it for recovery, other for prevention or treatment applied either independently or in combination with a great variety of types of therapy and surgery. The activation therapy is capable of protecting from damaging fac-

tors of any nature, heavy loading (both of the physical and psycho-emotional nature) and decelerating the aging process as well.

The activation therapy is based on the proper selection of an influence or an exposure and the mode of its application (program) followed by an adequate evaluation of the objective parameters of the response (taking into account the subjective signs of a reaction). Each of the adaptational reactions is characterized by many parameters, but among them are the so-called parameters of order: they are signal indicators of the integrated system of signs. So, the lymphocyte level in the hemogram is treated to be the parameter of order identifying the adaptational reaction type.

Speaking about the targeted activation therapy it is necessary to take into account that the activation reaction is divided into the calm and elevated activation reactions, which show some differences. Thus, in case of the calm activation, the values of the adrenal cortex glucocorticoids output are within the lower half of the zone of the norm, and the values of secretion of the adrenal cortex mineralocorticoids and a number of the other hormones as well as the immune system activity are within the upper half of the zone of the norm, but below the maximum values of the immune system activity. In case of the elevated activation, as against the calm activation, the adrenal cortex glucocorticoids output is within the upper half of the zone of the norm, secretion of the other hormones and the immune system organs activity values in animals and humans are higher, as compared with the calm activation, close to the upper limit of the norm, sometimes even exceeding it. Besides, in case of the calm activation in blood the performance activities of the coagulant and anti-coagulant systems are well balanced, but in case of the elevated activation the anti-coagulant system activity slightly prevails.

Further studies have shown that in order to pass from one reaction to another (training to activation, activation to stress) it is enough to change the acting factor value by 15-30% (a coefficient of 1.15-1.3) depending on the human or animal individual sensitivity (in the majority of the cases by 20%, i.e. by 1.2 times). In case of an improper dosing, leading to over-dosage, the over-activation reaction may develop. The over-activation reaction is similar to the elevated activation reaction in the direction of a number of changes, but it is

characterized by hyperactivity and extremely high and rigorous synchronization of the performance of the regulatory systems (hyper-synchronization). As opposed to the stress reaction, under the over-activation conditions, the lymphocyte percentage rises in the other direction and exceeds 40-45%; a sharp predominance of the excitative processes is observed in the CNS; the activity in various segments of the endocrine and immune system is noted, and the activity of the catabolic processes becomes excessively high. It often leads either to a breakdown converting into stress or to an even more pronounced over-activation with agranulocytosis in progress and leukopenia as a result. Later it was marked that the stable over-activation is an unspecific background for development of a variety of diseases (collagenosis, some forms of tuberculosis, chronic polyarthritis, lymphoma, etc.). In humans and animals, the signal indicator of the anti-stressor reaction type, similarly to the marked earlier for the stress, is a percentage of the lymphocytes in the peripheral blood leukogram calculated at least for 200 cells (Table 1).

In addition to the percentage of the lymphocytes, the other indicators of the leukogram reflecting a relative content of basophils, eosinophils, segmented neutrophils, monocytes and the total number of the lymphocytes in the peripheral blood are significant for characterizing the anti-stressor reaction. In case of development of physiological anti-stressor reactions, the above indicators are within the norm. When the above indicators deviate from the normal values (being greater or less), provided that the lymphocyte percentage corresponds to any anti-stressor reaction, some unfavorable alterations and deviations from the norm are observed in the state and the performance of various systems in an organism. For example, a reduction in the counts of the eosinophils up to zero under high level of the lymphocytes (the upper limits of the elevated activation reaction) demonstrates a relative insufficiency in the adrenal cortex glucocorticoid functioning. We call such anti-stressor reactions tensioned reactions, and the deviations of the mentioned above hematologic indicators are treated by us as the signs of tension, correspondingly. The higher is the number and the more pronounced are the signs of tension, the more unfavorable is the relevant reaction (Table 2).

Table 1 | Percentage of the lymphocytes in peripheral blood in humans as indicator of the type of unspecific adaptational reaction of organism (UARO) for different age groups

Age / character UARO	Stress	Training	Calm activation	Elevated activation	Over activation
3-5 years	< 29,5	29,5-37,5	38-45	45,5-57	> 57
6-9 years	< 25	25-32	32,5-40	40,5-51	> 51
10-13 years	< 23	23-30	30,5-38	38,5-48	> 48
14-16 years	< 20,5	20,5-28,5	29-36	36,5-46	> 46
Adults	< 20	20-27,5	28-34	34,5-44	> 44

It has been shown that the stress reaction can be also expressed as various adverse alterations in the organism that is reflected immediately in the reaction type signal indicator, namely, the percentage of the lymphocytes in blood. Thus, stress is classified into a very severe stress condition that often leads to death (lymphocytes < 5%), a severe stress condition (lymphocytes 5 - 10%), a middle-scale stress condition (lymphocytes 10 - 15%) and a "soft" stress condition (from 15 to 20% of lymphocytes according to the leukogram).

It is well known that the range of intensities or strength of different influences and exposures, which induce a respond by an organism, starting from their threshold up to their greater values, is very wide. But it should be mentioned, as it has been already indicated above, it is enough just to change the acting factor value by 10-30% (a coefficient of 1.2 is more often utilized for the purpose) to pass from one reaction to another (an adjacent one).

Our experiments demonstrated that a change in the influence/exposure value (an increase or a decrease therein) in accordance with the reaction coefficient leads to a repeat of the complex of the already known reactions, i.e. stress, training, calm activation and elevated activation. Moreover, the UARO under the same name may develop as a re-

sponse to an influence or an exposure showing a significant difference in its intensity. The periodic pattern of the general unspecific adaptational reactions system (GUAR), where the existence of different organism reactivity levels is taken into account, has been established by us, using influences and exposures, varied in strength and intensity, on representative samples of animals and later by studying large-scale human cohorts.

It has been demonstrated that a reaction to a low absolute value dose does not have any elements of tension, and in case of a high absolute value dose influence some elements of tension are observed to different degrees of their expression (Table 2). The reactions to low absolute value influences or exposures are more beneficial for an organism, and they increase an unspecific resistance of organism, including anti-tumor resistance. However, an uncontrolled application of low absolute value influences or exposures cannot always lead to development of the favorable anti-stressor reactions (tension-free states), and under the conditions "a strong action to weak stimuli" may appear, that is a topic of many contemporary discussions, conferences and symposia in the scientific community and that indirectly confirms the fact of the periodic system of the different levels of reactivity: high, middle and low ones.

Table 2 | Evaluation of reactivity levels by intensity of tension signs in the peripheral blood leukogram

Blood cell type	Degrees of tension				
	0	I	II	III	IV
Monocytes	5-7	7,5-8,5 4-4,5	9,0-11,0 3,0-3,5	11,5-15,0 2,0-2,5	> 15 < 2
Eosinophils	1-4,5	5,0-6,0 0,5	6,5-8,5 0,5	9,0-15,0 0	> 15 0
Basophils	0-0,5	1	1,5	2,0-3,0	> 3
Segmented neutrophils	3-5,5	6,0-7,0 2,0-2,5	7,5-9,0 1,0-1,5	9,5-15,0 0,5	> 15 0
Total number of leukocytes	4-6•10 ⁹	6,1-6,5•10 ⁹ 3,7-4,0•10 ⁹	6,6-7,9•10 ⁹ 3,2-3,6•10 ⁹	8,0-10•10 ⁹ 2,9-3,1•10 ⁹	>10•10 ⁹ < 2,9•10 ⁹
Additional data				1-2 plasma cells	more than 2 plasma cells or appearance of early plasma cells
Toxicogenic granularity of neutrophils	N/A	N/A	in some individual cells	in a half of the cells	almost in all cells

The studies of different physical factors of low intensity, adaptogens and other biologically active substances used in low doses have shown that the sensitivity in most humans changes (declines) with age. The high sensitivity declines in humans during their life, therefore human individuals demonstrate weaker age-related responses to low influences or exposures. First of all, such a decline in sensitivity is applicable to males from 20-25 years old, and especially it refers to males aged of 60-65 years. In females, the decline is marked less; this fact is evidently connected with the respective cyclic changes in the female organism. In elderly population the sensitivity increases again. In healthy humans the sensitivity is high, and it is reduced in ill individuals. Thus, the problem of how increase the sensitivity to low influences is on our agenda to be discussed.

To raise the sensitivity, we developed some special regimes of an influence, based on a nonlinear, close to exponential, dependence between the adaptational reaction and the influence intensity (dose) in the living organism. It is known that many biological processes are exponentially dependent. Such dependence also exists between an influence or exposure value and a response to a specific stimulus. Any exponential dependence has a certain coefficient. Basing on the analysis of the conducted studies, we have found that an exponent with a coefficient of 0.7 is applied to recover from stress and develop the training, calm and elevated activation reactions, and in order to recover from the stable over-activation state the 0.8 coefficient (i.e. a more flat exponent) is utilized.

In other words, coefficients of 0.7 or 0.8 are needed to reduce the dose according to the exponential relationship. Besides, it is necessary to take into account the stability of the usual state of every human organism, which is determined by the nature of the organism typical reaction and the reactivity level the reaction usually develops on. It dictates certain tactics in changing the intensity (exposure, dose) of an influence. Thus, at first a little change by 10% during 2-3 days is used, then a sharper change according to a coefficient of 0.7 (0.8 under over-activation) should be provided. Next we reduce the previous intensity (dose) by 10% again during 2-3 days and then weaken the previous influence or exposure again according to a coefficient of 0.7 (0.8) and so on.

In this case, it is important to identify the initial value of the influence or exposure. For males aged from 20 to 60-65 years (showing the least sensitivity), an intensity (a dose) of the first-time influence or exposure correspond very often to the lower limit of the relevant therapeutic values. If no cardiovascular diseases are reported, the intensity (the dose) may be raised and achieve the middle-scale values. An initial intensity (a starting dose) of the first-time influence or exposure within the upper limit of the relevant therapeutic doses is seldom applied. For females, no matter what the age, for males over 60-65 years old or under 20-25 years (18-20 years old), an intensity of the starting influence, as a rule, should correspond to the lower therapeutic values, and if cardiovascular diseases are available, the said intensity (dose) should be reduced by $1/5-1/4$.

As to children, if biologically active immune modulating substances are used, the initial dose should be equal to the lower therapeutic dose related to the respective age group, i.e. the number of drops should be equal to the actual age of a child. The second and the third dose should be decreased (2-3 days later) every time by 10%, and only later the dosage should be reduced according to the exponential coefficient, considering the initial reaction in its character. The type of the initial reaction should be determined either according to the signal indicator, or upon completion of our specific self-evaluation questionnaire.

Our self-evaluation questionnaire has been prepared on the basis of the results from our long-term experience in studying self-feeling and psycho-emotional states in human individuals showing different types of the reactions and levels of reactivity. The questionnaire contains 10 questions to be answered by an individual within a short time (without thinking) with evaluating one characteristic of the actual state or another within the given range from +3 (the highest score) to -3 (the lowest score). The questions to be answered cover such personal features like anxiety, irritability, fatigability, depression, change of physical efficiency in time (CPET) (how long can actually the person work) and change of physical efficiency in velocity (CPEV) (how fast can actually the person work), appetite, sleep, optimism or depression and finally his activity.

Our discovery of the GUAR system and an

elaboration of new methods of formation of effective actions or influences on the human organism, which are based thereon, have made it possible to develop a new treatment technology: the activation therapy. The exponential mode of changing an intensity (a dose) of an acting factor is applied in treating human subjects with the initial stress reaction or with various diseases, including cancer patients, as well as for the health-recovery and prevention purposes. Our experience in applying the exponential regime of unspecific influences or exposures under clinical conditions results in an increased efficacy of treatment of inflammations and chronic coronary insufficiency. The activation therapy technology can be successfully used for the purpose of general health-recovery and prevention therapy or in cases when patients report general abnormalities or disorders. Besides, we have succeeded in achieving retardation and even regression of tumors (in seldom cases) in patients with malignant tumor processes, when a long-term tension-free activation reaction status is maintained. With the use of the said influence regime, we successfully achieved a reduction in the recurrence and metastasing rate by 3-5 times. Below given are some examples of applications of some exposure factors under different pathology processes. *Example 1.* A female, 40 years old, with chronic inflammation process in ovary. The leukocyte formula data before influence /exposure: lymphocytes (lph): 18% (soft stress); eosinophiles (e): 0,5% (deficit); basophiles (b): 0 (norm); segmented neutrophiles (sgs.): 7% (above the norm); monocytes (m): 10% (above the norm as it is often the case with chronic inflammatory processes). The question is what reaction at what level of reactivity should be induced in the patient in order to eliminate the chronic inflammation process?

Our answer is: the reaction of activation should be produced. But which of the activation reactions should be initiated?

The reaction of calm activation does not produce an anti-inflammatory effect, because secretion of the "anti-inflammatory" hormones, namely, glucocorticoids under the said reaction is within the lower half of the zone of the norm. But the reaction of elevated activation is just the reaction which has the anti-inflammatory effect, especially in cases of chronic inflammation processes since under this reaction the secretion of glu-

cocorticoids is within the upper half of the zone of the norm. It provides a combination with a high-active functional state of the protective subsystems in the organism and leads step by step to the complete health recovery instead of converting an acute inflammation into a chronic one, as with the stress condition, or instead of just moderating acuteness of an inflammation as it is the case with the training reaction.

An exponential regime with a coefficient of 0,7 should be chosen (since the initial reaction is stress). In this case, eleutherococcus extract as acting factor should be administered because it is acceptable, feasible, affordable, sustainable, effective and safe. Since in the considered case no cardiovascular diseases are reported, an initial dose of the extract should be specified to be equal to the lower therapeutic one.

So, the following influence regime should be used: day 1: 20 drops; day 2: 18 drops (reduction by 10%); day 3: 16 drops (reduction approximately by 10%); day 4: 11 drops ($16 \cdot 0,7$); day 5: 10 drops ($\approx 10\%$ reduction); day 6: 9 drops ($\approx 10\%$ reduction); day 7: 6 drops ($9 \cdot 0,7$); day 8: 5 drops; day 9: 4 drops. As it is seen from the above dosage change scheme, a dosage reduction is not always should be provided in the most accurate way (and it is rather the frequent occasion). It should be noted that accuracy is not required for the purpose, since any inaccuracy is introducing an element of inaccuracy, some chaoticness into our organism so that it may increase efficacy of the exponential regime of treatment.

But where is the lower limit of the exponent? What minimized dose should be used according to the exponential scheme of dosage?

First and foremost the dosage reduction should be 4 drops at most. In this case, it is expedient to trace all responses of the organism to every eventual change in dosage and detect the lowest dose which is able to produce a response by the organism, based on blood count data or the patient's questionnaire.

But how the tracing should be provided? To start therewith, we ask our patient: when do you feel well (mood, cheerfulness, activity, change of physical efficiency in velocity (CPEV), change of physical efficiency in time (CPET), appetite): in case when you take the largest dosage (20, 18, 16 drops), or when you take the smallest dosage (6, 5, 4

drops), or when medium dosage is used (11, 10, 9 drops)? If the patient is facing with difficulties in answering clearly the above questions, then the self-assessment questionnaire should be completed. If both attempts to obtain the patient-related data are not successful, or in case when the patient's condition deteriorates, or when we deal with a severe disease, then the signal indicator of the nature of the unspecific adaptational reaction of the organism (UARO) (relative lymphocyte count) should be involved, and we should assess elements of tension according to the leukocyte formula and correct the dosage. If thereupon no deterioration is reported, the exponential regime of taking the administered treatment agent should be repeated over and over again (starting with 20 drops and decreasing to 4 drops); in doing so, we obtain the complete picture of the responses so it is possible to judge to what extent the applied exposures are capable of improving the patient's conditions and what measures should be taken else in order to increase the treatment efficacy.

It should be particularly emphasized that the exponential regime of exposures should be used for a long time, since even after recovery the organism can be exposed to stressing factors that may result in recurrence of the disease or triggering other diseases which may develop under the stress conditions in the organism. Upon cessation of the exponential regime of unspecific therapy exposures, a high resistance of the organism to damaging factors is reported: the state of the organism which results from the development of the stable elevated activation and which is maintained for a certain period of time, depending on the individual specific features of the organism and the external environment conditions.

We believe that the offered simple, harmless, cost-effective therapy should be carried out systematically, taking into account the fact it is also an effective rehabilitation way and an efficient active prevention of possible diseases, to which the organism of the individual in question may be susceptible.

Example 2. A male patient, aged 35 years, acute inflammation process: bronchitis. Complaints: pains, coughing, fever ($t^{\circ} = 38,3^{\circ}\text{C}$) etc.

According to blood count data: acute stress, the total number of leukocytes: 9500 (above the norm, leukocytosis); e: 0 (aneosinophilia, it is precisely the condition which is typical

for acute stress); segs. : 15 (exceeding significantly the norm); lymphocytes: 14 (stress at middle levels of reactivity); monocytes: 10% (above the norm, monocytosis).

Considering this case, first we should initiate development of the reaction of training at high or at least at middle levels of reactivity to produce pronounced anti-inflammation effect that does not require considerable energy quantities. Later on, it is reasonable to trigger development of the reaction of elevated activation at middle levels of reactivity, in order to avoid the transition from the acute inflammation process to the chronic one and achieve recovery.

How it can be realized? The reaction of training can be initiated in the proper way with the use of permanent magnetic field, and, for this purpose, therapy permanent magnets practically with any conventional field strength may be utilized. Usually, when a magnet is applied to the pain area, then a periodical altered pain sensation is noted. In the most frequently reported cases, pain is diminished, then it comes back and appears again etc. As soon as the pain relief is reported by the patient in the treatment, the magnet should be removed from the affected area. It is possible to combine the magnetic field treatment with medication therapy: administering an aspirin dosage half as much as it is the case with the therapeutic dosage, as well as some secretolytic agents like herbal medicine Mukaltin (3 tablets should be dissolved in warm water, and the medicine solution should be taken orally).

Example 3. Ischemic heart disease. Chronic heart insufficiency, grade 1b. Female, aged 59. Reported are complaints: pains in the heart area, weakness, bad mood, low physical efficiency both in velocity and in time. Findings according to blood test data: moderate severe stress. Leucocytes, total: 4600; e: 3%; b: 0%; segs.: 2%; lymphocytes: 15%, and monocytes: 7%.

Which of the adaptational reactions should be initiated under the conditions? The answer should be as follows: the reaction of activation of high reactivity levels. Since no signs of an inflammation process are available, it is probable that the reaction of calm activation is required, because a higher level of the excitation processes under elevated activation in such patients would be undesirable. The exposure regime should be exponential. In this case, eleutherococcus extract should be administered. The starting dosage should be by 1/5 lower than the therapeutic one.

For treatment, the following exposure regime should be maintained: day 1: 16 drops, day 2: 14 drops (a reduction by $\approx 10\%$), day 3: 12 drops (reduced by $\approx 10\%$), day 4: 8 drops ($12 \cdot 0,7$), day 5: 7 drops, day 6: 8 drops (reduced by $\approx 10\%$), day 7 : 5 drops ($8 \cdot 0,7$) and day 8: 4 drops. The lowest dose should be at least 4 drops since it may be the case when the organism will not respond to such lowered dosage. It is required to keep track of the progress: whether the treatment relieves pains, whether cheerfulness appears, whether sleep, mood and appetite are improved and whether activity increases. It is acceptable to administer for a certain period of time some soft sedative drugs for symptomatic treatment, the dosage of which should be gradually reduced and finally cancelled as complaints disappear.

The target of increasing sensitivity of an organism to eleutherococcus effects in order to initiate the development of the activation reaction at high reactivity levels should be achieved by controlling the very slow exponential growth towards lower values with monitoring of their effects. For this purpose (when the desired effect is reported), the conventional eleutherococcus extract widely offered in pharmacies should be thinned with water in the 1:2 to 1:4 ratio (for easy use). The prepared eleutherococcus extract should be kept in a refrigerator not longer than for 5 days. In doing so, the treatment should be systematically repeated for a long time (years) for the purposes of prevention and health maintenance.

Example 4. A child, aged 6 years, excessively active and aggressive, having excessive movement; reported are frequent colds and sleep disorders; appetite is OK.

Findings according to blood test data: reaction of over-activation: the age-related lymphocyte percentage is too high and reaches 57%. Besides, the 12% percentage of eosinophiles is recorded that is unfortunately detected in many children at present time. In case with the reaction of over-activation, following the advice by Prof. M.N. Kondrashova (who is the leading expert in the field of cell energetics studies) we should use plantain juice as remedy. The plantain juice may provide an effective reduction in excessive activity of energy exchange in cells that is typical for the reaction of over-activation.

The starting dosage of the above remedy should be equal to the actual age of a child:

the initial dosage in our case should be 6 drops. In order to provide an ease of dosage, some juice should be thinned with water in the ratio of 2 water to 1 juice. The prepared juice remedy should be stored in a refrigerator. An eyedropper should be used to measure out 18 drops of the above prepared remedy to be put into a glass, one third to one fourth full of water (not boiling!) (that corresponds to 6 drops of the original non-thinned remedy); the prepared thinned juice should be mixed before taking, and the remedy should be given to the child immediately after getting-up in the morning (latest at 9 a.m. since it is just the time limit of the formation of the desired reaction). The schedule of taking the prepared thinned remedy should be as follows: day 1: 18 drops, day 2: 16 drops, day 3: 14 drops, day 4: 11 drops ($14 \cdot 0,8$), day 5: 10 drops, day 6: 9 drops, day 7: 8 drops, day 8: 6 drops ($8 \cdot 0,8$ – over-activation), day 9: 5 drops, day 10: 4 drops (diluted with six times its quantity of water, lesser concentration is not reasonable). The said schedule of taking the prepared remedy should be repeated more than once. In doing so, it is necessary to monitor whether a reduction in aggressiveness and over-excitation is observed, whether sleep is improved and whether the child becomes calm.

It is reported that efficacy of this treatment method is usually high, and we succeed in converting the reaction of over-activation into the physiological reaction of elevated activation. It is of interest that under the conditions not only the percentage of the lymphocytes but also that of the eosinophiles decreases (is normalized) that is an indication of a rather high level of reactivity, where an anti-stressor reaction develops.

Example 5. An oncological patient, aged 64 years, inoperable lung cancer. Chemotherapy completed; admitted to home.

The initial reaction was severe stress. Leukocytes, total: 3600 (leukopenia). Data according to leukocyte formula: b: 0; e: 7%; segs. – 5%; lph. :12%; m: 9%. First, leucopenia should be managed. For this purpose, magnetized water was given to the patient (water should be magnetized with magnetic funnel. Magnetized water should not be boiled. It should be taken several times a day (the procedure according to Invention Patent Certificate No.2032424 issued to Garkavi L.Kh., Kvakina E.B., Ukolova M.A., Rubtsov V.P. et al., 1995). As the result of the magnetized water therapy, the number of leukocytes has

been increased to 5400, but the stress reaction was unchanged.

For further therapy, eleutherococcus extract should be administered in the exponential regime. The administration schedule should be as follows: day 1: 20 drops, day 2: 18 drops, day 3: 16 drops, day 4: 11 drops, day 5: 10 drops, day 6: 9 drops, day 7: 6 drops, day 8: 5 drops, day 9: 4 drops. An effect should be traced. If no noticeable effect is reported, then blood tests should be provided, and the eleutherococcus extract dosage should be adjusted according to the signal indicator. In doing so, last small dose might be increased, if no response to the decrease of that is reported (since the sensitivity of the organism is not adequately high).

If the above activation theory exponential mode is not effective, the regime of “the double exponent” should be used as follows:

Day 1: 1st dose – 10 drops,
after 2 – 2,5 hours – 20 drops;
Day 2: 1st dose – 9 drops,
after 2 – 2,5 hours – 18 drops;
Day 3: 1st dose – 8 drops,
after 2 – 2,5 hours – 16 drops;
Day 4: 1st dose – 6 drops ($8 \cdot 0,7$),
after 2 – 2,5 hours – 12 drops;
Day 5: 1st dose – 5 drops,
after 2 – 2,5 hours – 10 drops;
Day 6: 1st dose – 4 drops,
after 2 – 2,5 hours – 9 drops, etc.

In the special case when a critically ill oncological patient is rehabilitated, the application of the above exponential modes of the activation theory takes a lot of time and patience. In such cases, the most important thing is to obtain positive dynamics of the patient condition. At the beginning, it is required to get at least stress “moderation” and progress to development of the energy-saving reaction of training, which contributes to normalization of the number of leukocytes in blood and provides an anti-inflammatory effect. Next we should achieve another objective: to provide development of the reaction of activation, and in the case under consideration, the reaction of elevated activation should be preferable since it increases the anti-tumor resistance of the organism in the most effective way. In doing so, it should be noted that the reaction of elevated activation should be developed not at low and especially not at very low levels of reactivity of the organism, but rather at high or at least at middle-scale reactivity levels. Besides, development of the stable over-activation state should be avoided since it may favorable to tumor

metastasing. Another benefit of the reaction of elevated activation is that this reaction is capable of considerably improving the psycho-emotional state of the patient, raising the activity of the protection systems in the organism and increasing the sensitivity. Under the conditions, the organism is able to respond to a weak stimulus and even “select” the latter (by resonance) as the controlling factor (developing the reaction) from a number of the factors of various intensities, acting at the same time thereon. It is precisely this fact that determines an increase in the level of reactivity, the physiologibility of the developing anti-stressor reaction and, consequently, building-up of the unspecific resistance of the organism.

In the vast majority of the cases demonstrated has been a distinct positive effect in oncological patients when the activation therapy is used for a long time both as an accompanying treatment in combination with the specific anti-tumor medication and as an independent treatment course between chemotherapy courses, or as a single treatment for the purpose of palliative care in incurable patients. In a number of cases, an apparent increase in efficacy of anti-tumor treatment is reported, but it should be noted that more often we can deal rather with a prolongation of the lifespan in the above patients and improvement of their life quality.

The issue on the activity relationship between the local and general anti-tumor mechanisms is of great importance since we have demonstrated that not only the general unspecific adaptational reactions of the organism exist, but the local ones as well. Our studies have shown that the same stimulus can initiate development of differing local reactions in the tumor area under the same general reaction. So, if we deal with the general reaction “stress”, the reaction of over-activation can be found in the tumor. Consequently, the main, not always achievable, goal of the activation therapy in oncology is to develop the general reaction of elevated activation, when the tumor demonstrates the stress reaction in progress with tumor tissue degeneration.

When an acute inflammation process accompanying with a pain occurs, it is reasonable to locally induce the reaction of training with the use of permanent magnet. In this situation, the reaction of elevated activation should be preferable as the general adaptational reaction.

When we started our studies on the nature of the reactions in aging and elderly population, mainly the stress reaction was expected to be detected by us. But actually we have found all the above mentioned adaptational reactions along with the stress reaction. At the same time, it should be noted that the anti-stressor general unspecific reactions of the organism were tensioned and were developing at middle and low levels of reactivity. Probably, according to “the law of deviation from homeostasis” by V.M. Dilman, adaptational reactions in aging and elderly persons go to lower levels of reactivity that is clearly associated with the deteriorated performance of the regulation systems in the organism as against their performance in young individuals. We are also attributing this fact to an elevated sensitivity of the organism to excitation humoral signals while the organism sensitivity to inhibition signals decreases. With such imbalanced sensitivity alterations in aging and elderly persons, the regularly occurring factors are perceived as more intense, and the organism transfers in gradual manner to lower reactivity levels.

A portion of aging and especially of the elderly population shows highly stable reactions being a sort of the attractor states as listed below: too severe stress, or tensioned activation (mainly elevated activation), or over-activation. Efforts to control the organism conditions in order to initiate a transfer to any other reaction by varying intensities (dosage) of an action often go unrewarded. It seems to be as if the organism had stopped responding in general. We have introduced our definition of the organism condition: it is the state of areactivity.

As stated above, as a result of our long-term research studies (covering the cohort of more than 6000 children) we have succeeded to establish the relevant indicators of the unspecific adaptational reactions of the organism (UARO) for children of different ages. Following this way, we have identified that critically ill children may show the relative number of the lymphocytes equivalent to that detected in adults under the stress conditions (comparable with “soft” stress or middle-scale stress). It should be also mentioned that in our opinion the reaction of training even at high reactivity levels cannot be considered as the norm for children as compared with adults. We believe that only the reactions of calm and elevated activation at high and some-

times middle levels can be treated as the normal UARO in children.

In the context of growing importance of prevention and rehabilitation medicine and health-saving care, it becomes evident that health service institutions like sanatoria have been assuming a new significance within the health care system. The treatment options offered by sanatoria are classified as follows: local treatment to address an affected organ or subsystem in the organism and general treatment aimed at health recovery of the organism as a whole with an increase in its unspecific resistance and the ability to develop adaptations. The local treatment is usually a specific therapy option, and it can include some physiotherapeutic procedures and medication to be administered taking into account each individual pathology case. The general health-recovering treatment is of unspecific nature and is capable of involving all resort-related natural and preformed factors, physical loading activity, some physiotherapy options, adaptogens and biologically active additives.

The local treatment allows achieving pronounced favorable effect to a certain extent and may lead up to complete elimination of pathology symptoms. As to the general exposure to the resort-related factors, such health-recovering technology is used in sanatoria only, but it may be often misused producing an incomplete positive effect on the general health state as it is the case with an adequate control of the due application of the favorable resort factor exposure intensity and time. An over-dosage of the resort factor exposure is reported to be especially in summer time, and in the Southern resort areas it takes place almost all the year round. It results in an excessive overloading of the organism that provokes initiation of adverse UARO and affects the general health state of the organism, its unspecific resistance level and its ability to adaptations. The sanatorium resort therapy can be optimized by the proper dosing of exposure both of the resort-related factors and physical activity loading.

By this means, the factual evidence of the periodical system of the general unspecific adaptational reactions in organisms of animals and human individuals can be successfully applied to an effective optimization of various therapeutic, health-saving and health care preventive technologies in the contemporary medicine.