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Scope of Dr. Kanev's Magnetic Treatment Method for Body-educational Healing: Application of the Method to Treat Benign Hypertrophy of the Prostate Gland using Physiotherapy Weightlessness and Gravity Simulator

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Abstract

Background and Purpose: The scope of this new method is determined by the occurrence and development of synergistic phenomena in the specific organization and purpose of carrying out the method in the form of an educational, healing interaction between the diseased organism and selected external physical impacts.

Methods: The originality of Dr. Genko Kanev's method also lies in the use of medically controlled external, artificial, heterogeneous and multi-component physical impacts, arranged and conducted as a specific and unique type of body-educational, magnetic and/or electromagnetic healing physiotherapy procedures.

The article describes a practical guide to the application of external, physical impact in the topoanatomical region of the lesser pelvis and pelvic floor of a man - treatment of benign hypertrophy of the prostate gland by physical educational impact - Lekcionem Human Corpore. In this case, the physical educational impact was created and carried out through a Physiotherapy (Magnetic and Electromagnetic - PEMF) Positional Weightlessness and Gravity Simulator.

Findings and Results: The summaries comparison of the treatment effectiveness in the main groups versus the control groups showed that the patients in the main groups had clinically significant, clearly visible positive results, recovery of normal or sufficiently close to normal vital functions and activities, and practically completely acceptable increase in the quality of life.

Interpretation and Conclusion: Simultaneously applying a general, physiological approach to various fields of medical theory and practice in space medicine, environmental medicine and modern physiotherapy, I would like to exploit the common patterns between their strictly specific features. I would also like to make an united methodological system and its application in modern and future medical practice.

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Introduction

This article is conceptually and methodically related to Dr. Genko Kanev's method in his article explaining the application of his method in patients with algodistrophy of the knee joint. This article was published under the title "A New Unique Magnetic Treatment Method in Physiotherapy for Body educational Healing: Observations on Algodystrophy of a Knee Joint" – Kanev, Int J Phys Ther Rehab 2024, 10:185, https://doi.org/10.15344/2455-7498/2024/185.

The scope is expressed in the common features between the variant application of the method to treat patients with algodystrophy of the knee joint and the application of the method in patients with benign hypertrophy of the prostate gland.

The possibilities of Dr. Kanev's method can be demonstrated more fully by expanding the scope of the method's application and explaining and presenting the observations of the results achieved in other, different sections of the nosological units: For example, in patients with benign hypertrophy of the prostate gland.

This scope of the method is determined by the occurrence and development of synergistic phenomena during the specific organization and implementation of the method in the form of an educational, healing interaction between the diseased organism and selected external physical impacts. In other words, the scope is expressed in the common features between, on the one hand, the specific medical devices, tools, manipulations and variant application of the method in the treatment of patients with algodystrophy of the knee joint, and on the other hand - the specific devices, tools, manipulations and variant application of the method in patients with benign hypertrophy of the prostate gland. These specific features and differences in the practical application of the method form two varieties of its implementation, but with the same range of goals and high quality of the results achieved in the different nosological groups. These goals and results are: controlled expansion of the real limits (normal physiological limits and/or pathologically changed limits) of certain homeostatic parameters according to the characteristics of the damage to the organism; transition of the organism to a new, more adequate working mode; recovery of the homeostatic state or its development to a new level, i.e. homeorrhea and/or allostasis; concurrent homeomorphosis. In general, this is the way of the new, better healing processes in the organism and, accordingly, the

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course of the planned treatment procedures in Dr. Kanev's magnetic treatment method in physiotherapy for body-educational healing. The content so far is an initial, brief, systematized explanation of the scope of the method.

The parts of the diseased organism and the selected external physical impacts in the creation and running of the synergistic processes are different and asymmetric. The organism's contribution to these synergistic phenomena is much greater. Therefore, this article begins by examining the interactive properties of the organism's reactivity, which underlie both the synergistic phenomena between the diseased organism and the external physical impacts used, and the natural educational processes, (which are controlled and directed in this healing – educational method). The interactive properties are a potential opportunity for the organism, which through the body-educational method are additionally stimulated and implemented in its healing processes.

Please, find below a description of the requirements for the external physical impacts that are used in Dr. Kanev's method, and with the controlled use of which the occurrence of synergistic phenomena between the diseased organism and these external impacts is actually possible and sufficiently probable. The external physical phenomena selected by the method have mainly an initiating role for the occurrence of the synergistic phenomena and a smaller supporting role in their maintenance in the organism.

Method - General Part

The new healing, physical, educational method of Dr. Genko Kanev is based on the role and importance of the interactive properties of the reactivity of the organism for maintaining and developing its homeostasis, homeorhesis and homeomorphosis. The originality of the method also lies in the use of medically controlled external, artificial, heterogeneous and multi-component physical impacts, arranged and conducted as a specific and unique type of body-educational, magnetic and/or electromagnetic healing physiotherapy procedures

Development of the interactive properties of the reactivity of the organism, aimed at creating synergistic phenomena with selected external, physical impacts penetrating its structures and functions

In the event of any extraordinary, unexpected and/or unknown stimulus (which is also typical of the occurrence of pathogenic processes), the organism responds in a polyvariant and polyvalent manner [1].

The healing processes are an elite positive component selected by the organism, which results from a huge number of simultaneously and/or consecutively running isophysiological processes and isomorphic and isofunctional metabolic chains. These isophysiological processes and metabolic chains self-organize in the form of a first-stage response of the organism to its damages. What all isophysiological processes, isomorphic and isofunctional metabolic chains have in common is that they are prototypes of the healing processes. The typical feature of the multiple prototypes is - according to the conditions in the organism and the qualities of its vital activity - that in addition to the positive healing processes, certain incomplete and imperfect processes, as well as certain incomplete and unfinished metabolic chains, develop in parallel and simultaneously with them. Therefore, healing can be perfect or imperfect, complete or incomplete (partial).

The healing processes of the organism (a manifestation of the organism's self-organization) are multistage ones and develop as a natural continuation of its reactivity in combination with its memory capacity.

The interactivity of the organism (from its general reactivity to internal and external stimuli) related to its memory properties is the basis of the use of the principles of the educational processes. Thus, the interactivity of the organism and the involvement of its memory properties in the form and in the quality of a high-tech educational mechanism ensure the organization and implementation of this new, healing, physical method.

The method of physical treatment, which is organized and carried out in the form of education on the healing processes in the organism, is subject to the general biological phenomena of education in multicellular organisms.

More specifically, the principles of the educational processes can be used as a high-tech mechanism to increase the intensity, scope and magnitude, memorization and long-term consolidation of the educational processes in the organism. For this purpose, education is a multiply repeated external physical two-component impact, modified and controlled by a medical operator (tutor). Thus, the organism responds to the external, physical, two-component, or better, multi-component impact interactively - through a series of actions, each action being connected or caused by the previous actions.

A more elementary but illustrative example of the natural interactivity in the organism is the series of responses of the nerve cells to a series of frequency-exciting, electrical impulses. In this case, if during the refractory period the repeated excitatory impulses fall on the nerve cells, there will be no responses of these cells.

The new method of physical healing education involves multiply repeated series of multi-component, external, physical impacts - but similarly to the illustrated example above, physical healing education involves multiply repeated series of exemplary, two-component, external, physical impacts. For better clarity, at the beginning of the article and in the descriptions of the practical application of the new method, I will often indicate that the external physical impacts selected and used in the method are two-component ones, but it should be taken into account that in many cases the new method is implemented by multicomponent physical impacts. Therefore, during the treatment educational procedures, the two-component impacts are repeated series, and the procedures themselves are repeated on the day of the treatment and on subsequent days during the entire course of treatment. Thus, figuratively speaking, the organism expects each subsequent repetition of the educational impact, being already prepared (in this sense, structurally and functionally changed) for it.

Certain physical impacts from the external environment cause the manifestation of the interactive properties of the reactivity of the organism, as well as the activation of its memory capacity. Thanks to these phenomena, from the multiple primary reactive effects to these external impacts, the organism repeats and consolidates the effects, which leads to a positive life result for it. Thus, the synergistic processes and phenomena of the interaction between the organism and certain physical impacts from the environment due to the superadditive, i.e. superimposed, highly positive, high-quality results typical of the synergistic phenomena, occur naturally and are

maintained by the organism [2]. What appropriate external impacts should be used to carry out the new healing physical method?

Thus, the test is based on selected sequences of physical changes of important, major (disease-significant) homeostatic constants. These constants are created by the tutor in the ongoing physiological processes in the focus of disease and the adjacent healthy tissues. Also, these constants are crucial and defining for the pathogenetic chain. On the one hand, they are common for the causes and etiology of the disease, and on the other, they are constituents of the physiological foundations of the educational training test [32].

The external impacts that can be used in the new method are selected by origin, properties, and characteristics of artificial, reshaped, heterogeneous and various physical factors of the natural environment of the organism. In the above-mentioned example of the exciting electrical impulses, the organism always primarily responds with the similar, even the same type of responses - creating and conducting its own nerve electrical impulses of the same shape and size – according to the so-called "all or nothing law". The subsequent encoding or work of these impulses in series, as well as other similar changes in the organism, are not a primary response to the external impact. In the implementation of the new method, the external impacts must primarily cause diverse, multi-variant, multi-type responses in the organism. In addition to this necessity, with the new method of educational, physical treatment, the organism must respond primarily and simultaneously to the external, physical impact through the greatest possible number and variety of its own structures. In this sense, these primary responses are not strictly deterministic, but they are not random either. They are probable and their probability depends on the current state of the organism and the specific work it is doing at that moment. As to fulfill the requirement that the organism should primarily respond simultaneously through a greater number and types of its structures to the external, physical impact, this impact must cover not only the damaged part of the organism and the tissues closest to it, but also the more distant structures of the same organism, as far as this is possible. In this sense, the best option for the application of the educational, physical method is the possibility that this educational external physical impact covers the entire organism in a controlled manner: as an overall impact on the organism that is constant or periodic, or as a phased distribution on different, separate parts of the organism. That is, this method requires the simultaneous impact on all tissues of the entire organism or on most of them. The need for the above-listed requirements to the applied external, physical impacts according to the new educational, physical, healing method stems from the desire to include a maximum number of hierarchical levels of education, typical of the multicellular human organism, in the healing treatment process. The devices, technologies and design of such heterogeneous, combined, local and general external impacts will be described and illustrated further down in the text, in the more detailed description of the method.

Thus, with these impacts, the organism has many options for primary responses and not only one option to carry out its multi-stage vital activity. Here I will provide an example of one of the suitable preformed physical factors of the environment used in the new method - a magnetic field, a constant magnetic field or, even better, a low-frequency pulsed electromagnetic field (I will provide the technical characteristics later, in the more detailed description of the method). I would like to point out right away that even with the currently widespread medical, magnetic and electromagnetic devices and methods, which are intended for local application on the patient's body, the superimposed influence of the simultaneous, general impact of the geomagnetic field with its day and night variations should be also considered and taken into account. The new educational physical method does not rely only on the natural geomagnetic field but in certain cases creates an artificial magnetic or electromagnetic field in the patient's body and around it. There are devices, technologies and designs for applying the new method to both local artificial external impacts alone and combined local and/or general impacts.

In general, all isophysiological processes of the body (called above prototypes of healing processes) can be divided into two main types: first type - the body's own, independent of external impacts (determined by the genotype and by the phenotype already formed before the new external impacts), and the second type - isophysiological processes created by the organism, but initiated by an external impact (forming the new phenotype of the organism during the new external impacts). In other words, the second main type of isophysiological processes, i.e. those initiated by an external impact, requires that the organism does not act as a separate or closed system in its internal environment, but as an open system to the environment, and form with certain of its properties and impacts a new, common and unified, larger-scale reactive system. This unification is possible if the specified properties and impacts of the environment or their variants and components, in the historical chronology of the general biological development of the organism, are inherent and compatible with its internal environment and other organismal structures. The compatibility between the factors (the above-mentioned properties and impacts or their variants and components) of the external and internal environments takes place due to their historically created memory traces in the organism through its phylogeny and ontogeny. In this way, through the general, structural-functional, supra-organismal system formed by the organism, it repeatedly enhances its interactive properties and qualities.

During the new external physical impact, the organism creates simultaneously and in parallel both types of prototypical, isophysiological processes indicated above. And here I would like to emphasize one particularly important aspect of the educational method - due to the organization of the external, physical impact in the form of an educational, training impact - the increasingly better trained organism during this impact selects only the more successful of the new isophysiological, prototype processes. That is, the organism selects - chooses and confirms the conduct of only the more effective isophysiological processes of the second type. This immediately creates a unique opportunity, and the parallel and simultaneous older, self-created isophysiological prototypes of healing processes of the organism are combined with more effective new isophysiological, healing processes created by the supra-organismal system they share with the external factors and impacts. The healing result for the organism is greater, due to the overlaying of the processes in a conjugate and superadditive manner, and the probability of the appearance and progress of the synergy phenomenon is constantly increasing until it actually occurs (see the healing results at the end of the article).

The supra-organismal system arranged by the organism is an expression of the leading role of the organism in its interaction with the external, physical impact. This leading role and predominant activity are known in the systems theory (in this case, the systems are two: the organism, considered as a separate system, and the other system - the external environment around the organism with its

magnetic component) under the name of asymmetric interactivity. In conclusion - the two main types of isophysiological processes reviewed above (described as prototypes of the healing processes, as well as the subsequent final healing processes) are created by the organism as a result of its natural historical, phylogenetic training and individual, ontogenetic training.

The new method is directly aimed at affecting the self-organization of the isophysiological processes, the isomorphic and isofunctional metabolic chains of the prototypes of healing processes.

The essence of the new method is an educational impact with artificially created (inside the organism), additional, auxiliary and educational isophysiological processes, isomorphic and isofunctional metabolic chains. These auxiliary and educational processes and metabolic chains are synergistic, more successful analogues of the organism's own independent prototypes and prototypes independent of any external impact (i.e. the ongoing imperfect and incomplete healing processes as well as the unclosed and incomplete metabolic chains, before the physical, educational impact) in the self-organization of the healing processes. Synergistic analogues are combined and superimposed superadditively on the naturally occurring processes of self-education in the self-organization of all morpho-functional levels in the healing processes of the organism.

The possibility of a medical impact arises from the interaction achieved by this method between the natural processes in the organism and the externally applied impact according to the rules of the general biological mechanisms of education, the memory mechanisms and their expression as functions and structures. That is, reception and assimilation of the external medical impact by the organism is achieved with permanent, more successful, superadditive changes in it. These permanent, superadditive changes in the organism are the resulting and final physiological functions and anatomical structures of the already described prototypes of the healing processes.

Global significance of the interactive properties of the reactivity of the organism for its vital activity

As already described, the interactive properties of the organism have two main significant roles that are used in the present method:

1. They provide the synergistic phenomena between the organism and appropriate, selected, organized external, physical impacts.

2. They develop the occurrence and improvement of education as a general biological phenomenon, and on this basis, it is possible to create and apply this method for the purposes of controlled, educational healing.

The interactive properties of the organism are amplified with the active participation of its memory properties and lead to more effective education. This amplification is clearly expressed in the involvement of an increasing number of the organism's structures, as well as in the engagement of the entire organism by the described, external, physical impact.

The interactive reactivity of the organism has a decisive impact on the communications between its structures in the processes of memory and education. In this article, I will examine the occurrence and conduct of education in the organism's structures and their levels of organization, which possess mainly subcognitive characteristics.

In general, the objectification of education in the organism at all structural and functional levels is carried out by registration and tracking of the changes in the communications in them [3].

The mechanism of education according to the method of the body-educational, physical treatment is a set of dynamic, strengthening and enhancing changes of the communications in the organism and their transition into an organized educational - training system, to carry out more successful natural selection of the isofunctional prototype analogs (generally prototypical constituents) of the healing processes for combined synergistic phenomena with an advanced, superadditive, healing result.

In short - when educating the body of the sick organism according to the new method, the potential properties of the organism's reactivity are activated and directed to synergistic phenomena with significantly more successful healing results.

The natural selection of the constituent, prototypical components of the healing-treating processes is carried out by the organism itself, assisted by metabolic and functional stimulation and involvement by the external, physical impact, by its origin, nature and characteristics, as well as by its organized application on the sick organism.

In general, the organization of the application of external physical impact according to this method can be described as a type of practical guide for conducting medical procedures, through specific medical devices and facilities. This practical guide to education of the organism is a system of chronological and sequential series (procedural tests) of artificially induced, real, physiological exercises, training procedures, physically modeled mechanical or other physical impacts on the sick organism. These procedural tests from the practical training guide are repeated several times during the day and in the following days for a certain procedural treatment period. While conducting the tests, the relevant physiological and similar isophysiological responses are created in the body. These responses are responses of the organism in controlled external conditions and correspondingly changed conditions of the internal environment of the organism.

The conditions of the internal environment of the organism follow the controlled changes of the external, physical impact. Through the controlled changes of the internal environment (representing transitional states of the homeostasis of the sick organism), the method aims at achieving significant changes of predetermined parameters of the internal environment, which are directly related to the place of damage in the organism and its adjacent tissues, and in some cases - general changes in the homeostatic parameters of the organism. The significant changes in the indicated parameters of the internal environment are expressed in an expansion of the limits of the parameters, which before the application of the present method were normal or pathologically narrowed or distorted mainly in the place of the damage. This is how homeostasis development phenomena begin - the so-called homeorrhea and allostasis development, as well as homeomorphosis development [4, 5].

In this new state of its internal environment, the sick organism, assisted by the specific medical educational procedures, creates new and synergistic prototypes and manages to achieve higher positive healing results. In the situation described here, this organism manages to include more or all of its memory structures and memory levels, managing to superimpose and combinatively combine isophysiological processes from different organismic, hierarchical

levels (containing variants of isophysiological processes varying in complexity and completeness and interconnectedness, with different genotypic or phenotypic origin and different compatibility) in vivid superadditive, synergistic phenomena. Finally, the organism manages to consolidate the most successful new isophysiological processes (healing prototype processes), and it is now able to reproduce them independently and use them without the need to exercise any auxiliary, external, physical impact. In short, it means that the organism has been educated.

A summary of all written above:

The natural, asymmetric interactivity of the organism, in the controlled physical healing method and in the use of the principles of education, covers all the structures of the organism in general, but it primarily occurs for maintenance and development of its **homeostasis and its other two forms - homeorhesis and homeomorphosis**.

Therefore, this new method is aimed at affecting all structures of the organism, but primarily at its **homeostasis and its other two forms - homeorhesis and homeomorphosis** [6, 7].

Method- Special Part

Organization And Conduct of Body-Educational Treatment and Healing According to Dr. Kanev's Method: Two Examples of Practical Guides According to The Nosological Group of Diseases.

The practical guides include all specialized medical, physiotherapy devices, apparatus, and physiotherapy weightlessness and gravity simulators (from Figure 1 to Figure 3 and from Figure 5 to Figure 15), which are fully manufactured by "Synergetic Intellectual Systems – SIS – Kanevi and Co" Company.

For a clearer presentation of the principles necessary to develop the practical guides, I will also use the opportunity to compare their similarities and differences by applying the same structural plan to their description. I will describe two sample guidelines specialized and intended for two different nosological groups of diseases consecutively and immediately one after the other.

Differences between the first and second exemplary practical guide:

First exemplary practical guide - practical guide for application of external physical impact on human limbs - treatment of algodystrophies (in diseases and injuries) of the knee joint through physical educational impact - Lekcionem Human Corpore according to Dr. Kanev's method [8, 9]. In this case, the physical educational impact is a two-component one (Author's note: with the general and complete requirements of the method, the physical educational impact is multi-component with the possibility of using, in the different practical guides, a different number of components depending on the specific goals and tasks set for the different nosological groups of diseases and injuries).

First component: of the physical impact and its contribution to the practical guide:

The development of a practical guide is based on the controlled induction in the organism of the physiological effects of the first component of the physical impact - application of external, mechanically - cuffed intermittent occlusions and reperfusions of the peripheral blood circulation in a precisely defined, topoanatomical area of the diseased limb. Chronologically and periodically arranged multiples of cyclic, intermittent sequences of the indicated occlusions and reperfusions are conducted [10, 11].

Due to the dependence of blood circulation on the position of the body of the human organism in the gravitational field of the space, it is necessary to determine the position of the body in advance and maintain or change it in a directed and controlled manner. The mutual arrangement of the organs and parts must also be determined in advance and controlled subsequently. In the exemplary case presented here, the position of the body is horizontal, lying on a horizontal plane on the back, with the limbs retracted towards and along the length of the patient's body. The patient's position does not change during the individual procedures and the entire course of treatment.

Medical procedures, physiotherapeutic and other medical devices, specific equipment and appliances, providing and implementing the first component of the multi-component (two-component in this case) physical impact, which are used in the first exemplary practical guide to Dr. Kanev's method of body-educational treatment and healing:

Thus, the external, physical, two-component impact is a controlled, chronological sequence of external, cuff-dependent occlusions and reperfusions of the blood circulation of the limb proximal to the focus of the disease (about 2 to 4 cm proximal to the kneecap on healthy tissues) combined with simultaneous external, magnetic and/or electromagnetic impact on the focus of the disease and the adjacent healthy tissues (Figure 1).

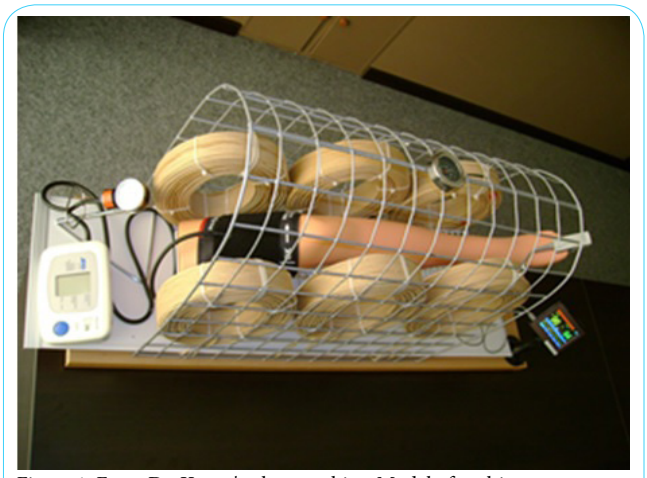

Figure 1: From Dr. Kanev's photo archive: Model of multi-component (in this case - two-component) physical training, impact according to Dr. Kanev's method in knee joint algodistrophy.

The devices and appliances required for the exemplary impact on the human limbs and their methods of use determine the procedures of the medical professional serving the patient, (hereinafter referred to as tutor). The way of using the devices and appliances represents a specific sequence of usual medical procedures.

A pneumatic tourniquet is used for the procedures of external cuff-dependent occlusions and reperfusions of the blood circulation of the limb - a pneumatic cuff sphygmomanometer for routine and standard measurement of arterial blood pressure. Through a series of stepwise gradient-increasing changes in the cuff pressure, the tutor achieves

stepwise increasing occlusions of the limb's circulation distal to the site of the sphygmomanometer cuff placement. The maximum value of the cuff pressure is determined by the tutor, usually around the value of the patient's systolic pressure measured according to the Riva Rocci method. Through a series of gradient-descending changes in the cuff after reaching the maximum, the tutor achieves gradient-escalating reperfusions.

The minimum pressure value in the cuff is 0 mm Hg. The difference between two adjacent stepwise degrees of pressure is determined by the tutor and is usually 5 to 10 mm Hg.

The pressure in the cuff, typical of each individual step of the ascending or descending series is maintained by the tutor for a time determined by him (usually 2 to 3 minutes).

Changes in cuff pressure from minimum to maximum or vice versa form a series of pressures that are repeated many times during the educational treatment procedure. Between two sequences there is a time - a pause, also determined by the tutor (usually between 2 and 5 minutes). One sequence of the previously described changes in the cuff pressure combined with a time-pause form a cycle. A cycle can be more complex and contain more than one type of sequence and be a combination of sequences. Several consecutive cycles of pressure changes in the cuff and together with a parallel magnetic or electromagnetic impact on the site of the disease and adjacent healthy tissues form an educational training procedure. The educational training procedure is basic and determining for the educational training test in the education of the human body.

Second exemplary practical guide - a practical guide to the application of external physical impact in the topoanatomical area of the lesser pelvis and the human pelvic floor - treatment of benign hypertrophy of the prostate gland by physical educational impact - Lekcionem Human Corpore according to Dr. Kanev's method. In this case, the physical educational impact is a two-component one (this is a specific, exemplary version of the multi-component external physical impact - see the Author's note in s. 1), created and applied through a Physiotherapy (Magnetic and Electromagnetic - PEMF) Positional Weightlessness and Gravity Simulator.

First Component of the physical impact and its contribution to the practical guide.

The same methodological approach when determining the first components to the two different exemplary practical guides for the application of Dr. Kanev's method is expressed in the selection and organization of two symmetrically similar physiological sources of development or physiological "generators" of controlled changes in the available initial state of homeostasis of the sick organism.

The common goal is achieved through the specific technical devices and standard medical equipment and the specific organization and conduct of medical procedures developed in these practical guides. This common goal is the creation of controlled changes in the homeostasis of the sick organism, using the natural possibilities of the body's reactivity to form highly active, temporary attractor structures, or the so-called physiological "generators".

A necessary condition is that the controlled changes provide an expansion of the limit values of a significant number of homeostasis parameters, specific and significant for various diseases and injuries.

This expansion of the limit values must be strong and vitally significant for the sick organism, so that it adequately updates its homeostatic state and moves into a new working mode of its vital activity.

In the first, exemplary guide aimed at the treatment of algodystrophy of the knee joint, the structural-functional unity and contradiction between the phenomena of occlusion and reperfusion of the peripheral blood circulation of the diseased lower limb were chosen as a physiological "generator" for a source of homeostasis development [12, 13].

In the second exemplary practical guide aimed at the treatment of benign hypertrophy of the prostate gland, a symmetrically similar physiological "generator" in the diseased organism is chosen - structural - functional unity and contradiction between the phenomena of antiorthostatic weightlessness (microgravity) and natural, planetary gravity.

Medical procedures, physiotherapeutic and other medical devices, specific equipment and appliances, providing and implementing the **first component** of the multi-component (two-component in this case) physical impact, which are used in the second exemplary practical guide to Dr. Kanev's method of body-educational treatment and healing:

Dr. Kanev's method (implemented systematically and in full through this practical guide), which uses the dependence of the blood circulation, lymph flow, intercellular and tissue fluids on the position of the body of the human organism in the gravitational field of the space (i.e. the manifestations of antigravity homeostasis, which is a constituent element of the overall homeostasis of the organism) requires that the positioning of the patient's body be determined in advance and maintained or changed in a directed and controlled manner. The relative positioning of the organs and parts of the body must also be determined in advance and controlled subsequently 14, 15, 16]. For the purposes of its method, Dr. Kanev created an original and unique Physiotherapy (Magnetic and Electromagnetic - PEMF) Positional Weightlessness and Gravity Simulator. The bed mechanism for placing the patient's body is the first basic technical module in the specialized design of the physiotherapy simulator and is intended to mechanically achieve and provide dynamic and intermittent positioning of the patient's body, place purposefully defined, topological areas of the patient's organs and systems in space, as well as the mutual positioning of the movable body parts and organs relative to the body contour of the same patient (Figure 2 and Figure 3). Thanks to the automated bed technical module, different variants of successive cyclical sequences of intermittent positions of the patient's body with different durations of time required by the method are conducted. In general, the sequence of positional placements of the patient's body includes: end position 1- state of antiorthostatic position (from a maximum inclination of - 45 degrees of the bed plane of the bed module relative to the initial horizontal plane of the simulator, with the patient lying head down and legs up (in the world medical literature, this state is known as „head-down bed rest – HDBR, usually with a slope of -6 to -30 degrees", see Figure 4); equilibrium position 2 - a state of transient horizontal position of the patient in the horizontal plane of the simulator, coinciding with 0 degrees of the horizontal bed plane of the bed module; and end position 3 - state of orthostatic position (up to a maximum reverse inclination of +45 degrees of the bed plane of the bed module relative to the horizontal plane of the stimulator - the patient lies with his head up and the legs down).

Figure 2: From Dr. Kanev's photo archive: Bed mechanized weightlessness and gravity module - model 01.

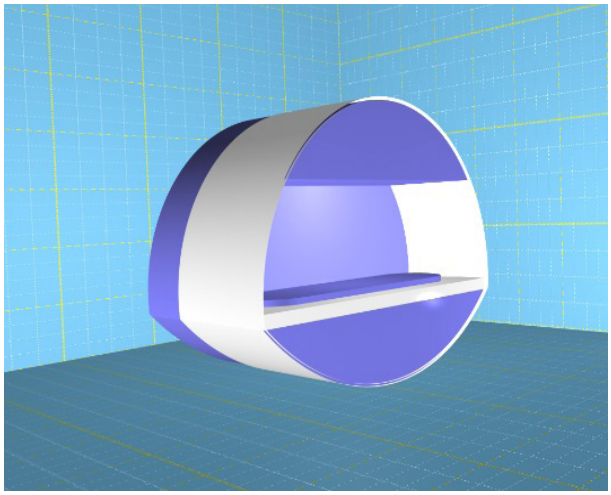

Figure 3: From Dr. Kanev's photo archive: Bed mechanized weightlessness and gravity module - model 02.

Figure 4: Simulated weightlessness and microgravity – "head-down bed rest – HDBR": NASA/ESA/DLR 60-day rest in bed with the head inclined down at -6 degrees. (According to the article of Jan-Niclas Honemann, S.Moestl, A.Diedrich et al.).

The second exemplary practical guide for the two-component physical impact according to the method of the body-educational treatment and healing serves the above-described dynamics of the mechanical operation of the bed module of the physiotherapy weightlessness simulator by providing selected and controlled positions of the patient and the transitions between them. That is, these are versions of transitional positions of the bed modules with a patient on them from the above-described three-phase general sequence of positions of the patient's body - from a maximum inclination of the body of -45 degrees, through the horizontal transition from 0 degrees, up to a reverse maximum inclination of +45 degrees.

The bed mechanism module of the physiotherapy simulator performs automatic, mechanized movements to create and maintain an unlimited number and degrees of inclination of its working patient bed platform. Its initial position is always horizontal in relation to the overall structure of the simulator. The bed module can make a single slope corresponding to a certain position of the patient's body or create suitable patient positions for certain periods of time. Thus, the bed module can go into oscillating (rocking) cyclic modes with preset amplitudes. Cycles can be single or repetitive, cycles of the same type of amplitudes or combinations of types, and provide selected pauses between the cyclic modes.

Everything described so far is defined as a specialized typified set of mechanical automated movements and positionings combined with appropriate mechanical medical procedures to create and maintain the first component of the multi-component (two-component) physical educational impact.

In the exemplary case here, the initial position of the body of the patient with benign prostatic hypertrophy is horizontal, he is lying on a horizontal plane on his back, with his limbs retracted to and along his body.

Chronologically and periodically arranged cyclical intermittent sequences of the indicated specific positionings of the patient's body are carried out and the medical and physiotherapy measurements are taken simultaneously and in parallel.

At the same time, in parallel with the positionings of the patient's body, certain medical, securing, logistical procedures are directed and carried out in the area of the patient's pelvis, abdomen and lower limbs.

During the implementation of this specialized positioning mechanical typified complex through the bed mechanized module of the physiotherapy simulator, the processed manipulated sick organism responds with numerous, expected from the treatment method, physiological changes, including primarily in its homeostasis.

Conducting the specialized typified complex on a patient for the purpose of healing through the body - educational physical healing is a training educational test in the exemplary practical guide on the physical educational impact - Lekcionem Human Corpore, in cases of benign hypertrophy of the prostate gland.

For the reactivity (mostly its interactive properties) of the sick organism, the positioning mechanical typified complex is a provoking system for strenuous physiological (and mostly methodically targeted, homeostatic) exercises to maintain or adequately change the working vital modes of the cells, tissues, organs and organ systems of the sick organism.

The development of a practical guide is based on a controlled induction in the organism of the physiological effects of the first component of the physical impact - application of external, anti-gravitational and gravitational - mechanically achieved, specific positionings of the patient's body, on the differently inclined, flat, working surface of the physiotherapy weightlessness and gravity simulator, and which positionings achieve intermittent, hemodynamic, rheological changes of the peripheral and central blood circulation of the sick organism, lymph flow, intercellular and tissue fluids, change in the elastic connections between the organs in the body of the organism [17-19].

Dialectically connected and dialectically contradictory technological units of transitional, interval work complexes in the cause-and-effect chain, achieving a change in the physiological processes in the sick organism and movement and expansion of the limit values of the homeostasis parameters, development of homeorrhea, allostasis and homeomorphosis.

These dialectical units represent controlled-transitory, interval-time combinations of interrelationships between the specific characteristics and properties of the physiotherapy simulator at a certain, current for this time interval spatial position, on the one hand, and on the other hand - the momentary positional state of the sick organism in the simulator. The individual technological units can be arranged and combined in a different way by the attending medical professional conducting the mechanical procedures of the first component of the multi-component (in this case – two-component), educational physical impact. List of the technological units mentioned above, which are also effects of the influence of gravity and weightlessness in the organism [20-23]:

1. Zero gravity effects – when the patient's body is placed horizontally on the mechanized bed module:
2. Gravitational "G" Forces effects

   2.1 Positive G effects – when the patient's body is placed in an area of the mechanized bed unit that rises upwards.

   2.2Negative G effects (gravity in the direction from the legs to the head when flying or standing on the head; opposite of positive G) – when the patient's body is located in an area of the mechanized bed unit that moves downward.
3. Normal gravity effects [24-27]:

Both venous and arterial pressure are affected by gravity. The pressure in any vessel below the level of the heart (at the level of the right atrium) is increased by the effect of gravity. The pressure in any vessel above the level of the heart is lowered by the effect of gravity.

Above the level of the heart, the pressure decreases by 0.77 mm Hg (column of mercury) for each centimeter of vertical distance. Below the level of the heart, the pressure increases by 0.77 mm Hg for each centimeter of vertical distance.

Average pressure in a large artery of the head (in an adult) in a standing position – 62 mm Hg. Average pressure in a large artery of the leg in a standing position - 105 mm Hg.

4. **Weightlessness effects** include redistribution of fluids in the human body to the head, changes in the conditions of blood circulation and the shape of elastic structures and reduction in the load - weight applied to the musculoskeletal system.

   Weightlessness is a state in which the force of pressure of a body against the support, arising due to the gravitational attraction or the acceleration of the body, disappears. Another name for this effect is **microgravity**.

The most popular and widely used method of reproducing the long-term effects of weightlessness on the human body is antiorthostatic bed rest (antiorthostatic hypokinesia, AOHK) with a small negative (head down) inclination of the body in the range of -5 to -15 degrees in relation to the horizontal level.

5. **Zero gravity effects:**

The average pressure in the vessels in supine position at all levels is the same (due to zero effect of gravity). The blood becomes weightless - it flows very easily to the brain.

6. **Positive G effects:**

Positive G: An acceleration force that acts on the body during upward motion.

Venous return is reduced - therefore cardiac output is reduced. Blood is directed to the lower limbs - therefore the pressure in the vessels increases. Blood is withdrawn from the upper part of the body - therefore cerebral arterial pressure decreases.

Brief presentation of related chain effects in the organism caused by positive G:

Changing the position of the body in space from horizontal to vertical leads to an initial decrease in the venous return through the vessels of the lower limbs and the veins of the body located below the level of the heart, which is accompanied by a decrease in blood supply to the right half of the heart, significant reduction in stroke volume of the heart (up to 45%) and minute volume of blood flow (by 20 – 40% up to 1 – 1.5 l/ min). In order to normalize the tissue oxygen supply, the arteriovenous oxygen difference increases compensatory (by almost 70% compared to the initial level) and reflex reactions are triggered in response to a decrease in the activity of the pressure receptors in the main vessels (until decrease in the systemic arterial pressure) and an increase in the activity of the chemoreceptors of the main vessels (lower pO_2 and increased pCO_2). These reflex reactions cause activation of the pressor department of the vasomotor center and sympathetic centers for regulating the activity of the heart, which leads to the occurrence of tachycardia (which contributes to the normalization of the minute volume of blood flow), an increase in the tone of the arterioles, a transient increase in the tone of the veins and strengthening of the suction action [28-30].

7: **Positive G effects:**

Negative G: Deceleration force acting on the body during downward motion.

Venous return increases - cardiac output also increases. The pressure in the veins of the lower limbs decreases. Cerebral arterial pressure increases. Increased congestion in the blood vessels of the head and neck - a throbbing headache with flushing appears [31-33].

Having in mind the considerations above, the mechanized bed module can be defined as a training simulator for the physiological processes and homeostasis of the sick organism. The manipulated physiological processes and their corresponding homeostatic state can be maintained for some time as constant (i.e. periodically or intermittently constant) or change dynamically in time, according

to the change in the mechanical procedures on them. The dynamic changes in the physiological processes and their corresponding adequate homeostatic changes can be of progressively decreasing intensity or progressively increasing intensity in accordance with the vital goals and tasks and the needs of the healing organism. In this way, series of consecutive separate stationary states of the individual work mode of the organism are formed for a certain time interval and these states can be externally, mechanically and medically regulated in multiple repeated body-educational training test cycles by the simulator. This is how separate treatment procedures are organized several times during the day and in the following days until significant clinical results are achieved for a completed course of treatment.

General Patterns And Symmetrical Similarities Between The First And Second Exemplary Practice Guidelines:

Second Component of the physical impact and its contribution to the two exemplary practical guides through physical educational impact - Lekcionem Human Corpore according to Dr. Kanev's method:

Also, these practical guides are based on the physiological effects in the body of a controlled external impact from the second component of the physical impact - an artificial, constant magnetic field or a pulsed electromagnetic field /PEMF/ (including their combinations) applied to precisely defined, topo-anatomical areas of the pathological damage. Chronologically and periodically arranged sets of cyclically repeating magnetic and/or electromagnetic external influences are conducted [34-36].

The magnetic impact or the electromagnetic impact simultaneously take part with the cycles of the cuff pressures (that is, take part in the occlusion/reperfusion cycles and the time-pauses in them) in the treatment of knee algodystrophy and simultaneously take part in the cycles of the positional states of the physiotherapy simulator and is the second main constituent component of the physical multi-component educational impact. The only precondition for the selection properties of the artificially reshaped second component of the two-component physical impact – namely the magnetic field or the electromagnetic field, is to influence the organism's homeostasis in the damaged area and/or the general homeostasis processes in the organism in a multivariate and heterogeneous manner. The evaluation criteria of the impact on the homeostatic state of the patients depend on the technological capabilities of the attending medical team.

The tutor performs the following magnetic procedures: arrangement and attachment of electromagnetic inductors or permanent magnets around the diseased area and the adjacent healthy tissues. The electromagnetic inductors and permanent magnets are the impacting tips (cases) on the human body of common medical devices and magnetic therapy tools [37].

Medical procedures, physiotherapeutic and other medical devices, specific equipment and appliances, providing and implementing the **second component** of the multi-component (two-component in this case) physical impact, which are used in the first exemplary practical guide to Dr. Kanev's method of body-educational treatment and healing:

The end actively operating modular elements (end tip technical cases) are placed directly next to and around the sick human body and are permanent magnetic discs and plates or ergonomic electromagnetic inductors manufactured for the specific purpose. They can be different in number and have different sizes and specific technical characteristics. These end impacting magnetic and electromagnetic cases can be different in mechanical appearance and have different mechanical fastening around the body of the sick person, i.e. they can have their own supporting mechanical constructions of different types and purposes, allowing their distribution in the space around the body of the sick person and their permanent fixation in certain topological anatomical places where they are needed [38-40].

The end cases may be portable, they may be equipped with independent and autonomous control units and power units and may be temporarily arranged around the patient for the purposes of the treatment procedure. The patient lies on a standard physiotherapy couch or bed or on the mechanical mechanized bed module of the physiotherapy simulator (see Figure 5 and Figure 6).

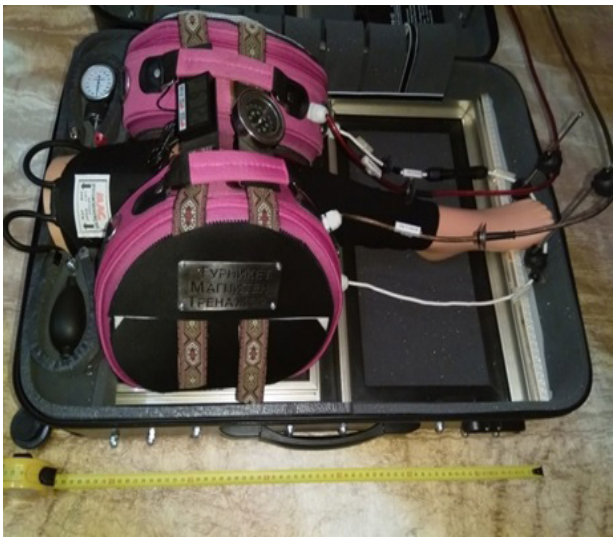

Figure 5: From Dr. Kanev's photo archive: Portable electromagnetic device for body-educational treatment and healing - the two impact inductors and a lower limb mockup.

Figure 6: From Dr. Kanev's photo archive: Portable electromagnetic device for body-educational treatment and healing– complete battery-powered kit.

In addition to these relatively small portable systems of permanent magnets and/or electromagnetic inductors – the so-called inductive cases, there are also specialized technological systems of such magnetic and/or electromagnetic cases, which are structurally embedded as magnetic or electromagnetic component modules in the complete multi-component specially manufactured physiotherapy weightlessness and gravity simulators.

For example, see Figure 7 – medium-size electromagnetic physiotherapy simulator 03.

Figure 7: From Dr. Kanev's photo archive: Medium-size electromagnetic physiotherapy simulator 03.

See Figure 8 – Medium-size electromagnetic physiotherapy simulator 04.

Figure 8: From Dr. Kanev's photo archive: Medium-size electromagnetic physiotherapy simulator 04.

See Figure 9 – Medium-size electromagnetic device 05.

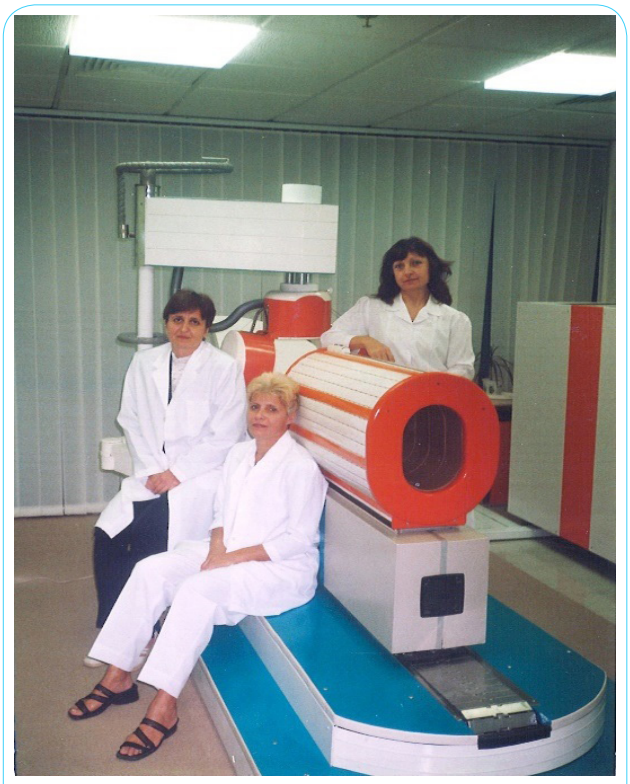

Figure 9: From Dr. Kanev's photo archive: Medium-size electromagnetic device 05.

See Figure 10 – Large electromagnetic physiotherapy simulator 06.

Figure 10: From Dr. Kanev's photo archive: Large electromagnetic physiotherapy simulator 06.

See Figure 11 – Large electromagnetic physiotherapy simulator 06 – upper electromagnetic module.

Figure 11: From Dr. Kanev's photo archive: Large electromagnetic physiotherapy simulator 06 - upper electromagnetic module.

See Figure 12: Large electromagnetic physiotherapy simulator 07.

Figure 12: From Dr. Kanev's photo archive: Large electromagnetic physiotherapy simulator 07.

See Figure 13 - Large electromagnetic physiotherapy simulator 08. A physiotherapy direction in Aerospace and Aeronautical Medicine was formed at the manufacturing company.

Figure 13: From Dr. Kanev's photo archive: Large electromagnetic physiotherapy simulator 08.

See Figure 14 – Large electromagnetic physiotherapy simulator 09.

Figure 14: From Dr. Kanev's photo archive: Large electromagnetic physiotherapy simulator 09.

See Figure 15 - Physiotherapy simulator 10 with permanent spirally rotating magnetic disks around the patient and simultaneous central axial rotation of these magnetic disks, mechanical and mechanized bed module available in the form of a capsule, with an option of automated movement along the transverse and longitudinal axis of the patient's body.

The magnetic component of impact as the second component of the physical educational impact has a supporting and logistical role in the organism's response to the first foundational component of the physical educational impact – namely, the cuff occlusion and reperfusion of the limb described above distally to the site of the injury and in the region of the lesser pelvis and lower abdomen above the projection of the benign hypertrophied prostate gland in the antiorthostatic, horizontal, and orthostatic positions of the weightlessness and gravity physiotherapy simulator. More specifically, the magnetic component has a role in the physiological effects of the organism to the states of occlusion and reperfusion of the limb's circulation and in the physiological effects of the organism in the stationary positions of the physical therapy simulator just listed.

Figure 15: From Dr. Kanev's photo archive: Large electromagnetic physiotherapy simulator 10.

The maintenance and logistics of the magnetic impact is implemented by prioritized (compared to the organism's reactions to standard magnetotherapy) perception and assimilation of the magnetic impact exercised by the organism in its physiological effects to the occlusion and reperfusion of the blood circulation and the changes in the general blood circulation of the sick organism and the pathology's local blood circulation in the positions of the simulator [41, 42, 43].

The primary direct goal of the physical educational impact is to achieve vital changes in homeostasis in the tissues of the educated sick human body, distally to the applied pneumatic cuff and the topological region of the prostate gland (for homeostasis - see below). But the ultimate goal of the physical educational impact - conducted in the form of a lesson on the sick human body, is the organism's response directed and prepared by the tutor.

In general, the organism's response to the two-component physical educational impact is expressed during dominant physiological processes in the focus of disease and in the neighboring healthy tissues, as the organism switches to a new working mode.

The dominant physiological processes of the organism and its new working mode are the reason for the occurrence and progress of new and more successful healing processes (see below).

The Two Components of the external physical impact are most often used simultaneously or very rarely out of phase, i.e. strict accuracy in their synchronization is not necessary.

The medical procedures typical of the two components are periodically carried out to achieve the above-mentioned physiological effects in the organism. Through these external procedures and the physiological effects caused by them inside the organism, controlled, biologically significant (and later therapeutically effective and significant) changes in certain homeostatic constants are achieved, in which a change and expansion of the boundaries of the homeostatic constants can be achieved. Changes in the working mode of the organism naturally and naturally follow, aiming at the recovery of the homeostasis state or development and transition of homeostasis into a new, more adequate state, known as homeorrhea. Allostasis and, in general, parallel development of homeomorphosis are also possible.

During the periodic implementation of the medical procedures according to the requirements of this practical guide to the method of the body-educational healing, synergistic phenomena occur between the organism and the two-component external physical impact, which very actively and effectively support the homeostatic changes and development and help the organism improve its vital activity, and, in this specific case – the quality of the healing processes [44, 45].

Organization and Conducting of a Physical Multi-Component Educational Impact on The Sick Human Organism

Lesson on the human body (LEKCIONEM HUMAN CORPORE) - treatment with physical multicomponent educational impact. The tutor, in his role of an educating and treating person, through the medical procedures of the physical educational impact described above, conducts a lesson on the sick human body in the form of an educational - training test.

The educational physical impact is organized as training by lessons in the form of educational and training tests. These tests - trainings are created on the basis of the above described mechanical and magnetic procedures of the tutor, which are series of tasks - exercises with different values of important homeostasis constants for the sick organism.

The subject and purpose of the educational training test are series of values of homeostasis constants artificially achieved by the tutor, such as – saturation of blood and tissues with oxygen, saturation of blood and tissues with nutrients, pH of blood and interstitial fluid, intravascular blood pressure (arterial, capillary and venous), tissue pressure dynamics etc.

Thus, the test is based on selected sequences of physical changes in important, major (disease-significant) homeostatic constants. The tutor creates these constants in the ongoing physiological processes in the focus of the disease and the adjacent healthy tissues. Also, these constants are crucial and determining for the pathogenetic chain. They are common for the causes and etiology of the disease on the one hand, and on the other - they are constituents of the physiological basis of the educational training test.

The sick human organism responds to the educational training test by striving to maintain its homeostasis or pass into a state of allostasis, forming isophysiological processes and switching to isomorphic and isofunctional metabolism. Thus, from the achieved temporary changes in the homeostasis constants, the organism begins to create and carry out isofunctional and isomorphic metabolic chains and isophysiological processes. These new metabolic chains and physiological processes are artificially and purposefully induced analogue prototypes of the naturally occurring long-standing but imperfect healing processes and their incomplete and unfinished natural prototypes.

When conducting these tests, the tutor aims for the organism to respond through effective adaptive changes in the course of the physiological processes in the focus of the disease and the adjacent healthy tissues.

These adaptive changes in the physiological processes, including the adaptive changes in the limit values of the constants, are usually obtained after several repetitions of the tests during the day and during the entire course of treatment. These repetitions are the basis of the organism's training in its healing.

One of the possible explanations for the organism's acquisition and selection of adaptive resultative physiological processes is the following: of the many isomorphic and isofunctional metabolic chains and isophysiological processes that have begun to take place, only those that manage to close a full metabolic and functional cycle end comprehensively and definitively. Most often, due to the substrate depletion of the above-mentioned metabolites, the organism selectively stimulates their production, simultaneously suppressing the production of the remaining isomorphic and isofunctional metabolites, as well as the flow of the rest of the isophysiological processes. This happens more and more obviously and in contrast when conducting each subsequent educational test (lesson). Over time and education, the organism's memory and structural mechanisms are activated. Thus, during the education, the organism repeatedly strengthens and expands the recovery of homeostasis to the extent of allostasis, creating synergistic and analogous isophysiological processes and isomorphic and isofunctional metabolites in its healing processes. That is, the organism switches to a new working mode, in which more successful healing processes are possible and take place - new quality healing occurs.

On the one hand, during the educational training test, through his force procedures, the tutor induces a maximum expansion of the homeostasis limits in the organism, including until the occurrence of allostasis.

On the other hand, the physiological educational impact, especially through the activated magnetic force component, supports the organism in its processes of recovery of homeostasis to the extent of allostasis. More specifically, it supports the organism that perceives and assimilates it and more successfully forms isomorphic and isofunctional metabolites and carries out synergistic and analogous isophysiological processes.

Thus, when using the second component (the magnetic one) of the physical educational impact, the mechanically induced oscillatory changes (i.e. the first component of this impact) can be not only partially perceived or even neutralized by the organism, but in these magnetic conditions they are actively and effectively used more easily and more successfully by the same organism - to achieve another more adequate balance of its homeostasis and build a higher level of its self-organization (healing).

In more general words, in the method of education on the patient's body - if the cuff-dependent occlusion/reperfusion of the peripheral blood supply is used alone, or if only positional mechanical states of the simulator are used alone to change the blood circulation, tissues and organs of the organism, the resulting physiological and isophysiological changes are isolated, limited, or neutralized by the organism, while with the simultaneous use of additional external magnetic activity, the same oscillatory changes are unfolded and developed by the evolutionarily created biological mechanisms in a new quality for this organism, i.e. reorganization of the healing processes is going on.

With the use of the proposed method (in the cases provided here, algodystrophy of the knee joint and benign hyperplasia of the prostate gland), in the areas of the dystrophic loci and around them, tissues are reorganized and sanogenic antihypoxic and antihypotrophic sources and self-organizing factors of restorative and adaptive processes appear with pronounced homeorhesis and homeomorphosis and an adequate volume, weight and structural ratio between the organs in the organism.

First Exemplary Practical Guide In Action:

Statistical methods and observations regarding the medical effectiveness of the application of the two-component physical impact when conducting medical-educational events, organized according to the original method "lesson on the human body - Lekcionem Human Corpore" on patients with algodistrophy of one knee joint. A double-blind study.

The physiological approach in physiotherapy consisting of controlled, educational changes and homeostasis processes in the damaged part of the human body achieves remarkable, positive, clinically significant healing results.

This description and content are not the subject of this article. Information is available in Dr. Kanev's article "A New Unique Magnetic Treatment Method in Physiotherapy for Body educational Healing: Observations on Algodystrophy of a Knee Joint" – Kanev, Int J Phys Ther Rehab 2024, 10:185, https://doi.org/10.15344/2455-7498/2024/185. Here I will quote only the conclusion, which will be used for the purposes of comparison and understanding the common aspects in the treatment of the two different nosological groups and will demonstrate the scope of the application of Dr. Kanev's method:

Conclusion: The physiological approach in physiotherapy, which is expressed in controlled educational changes and processes of homeostasis in the damaged part of the human body, achieves remarkable positive clinically significant healing results.

Second Exemplary Practical Guide in Action:

Statistical methods and observations regarding the medical effectiveness of the application of the two-component physical impact when conducting medical-educational events, organized according to the original method "lesson on the human body - Lekcionem Human Corpore" on patients with benign hypertrophy of the prostate gland - by limited use of the mechanical mechanized bed module of the physiotherapy weightlessness and gravity simulator - during the entire course of treatment, the patient is only in an antiorthostatic position, with his head down and a constant bed inclination of 20 degrees. In such medical fields as resuscitation and surgery for surgical interventions in the pelvic region - for example, in prostate surgery, in operations on organs in the lower abdomen, in gynecological surgeries and other types of medical procedures, this position of the patient's body is known as the Trendelenburg position. To achieve an impromptu Trendelenburg position, a tilting table with a simple mechanical design (or even a simple table or a physiotherapy couch - placed by a simple, preliminary lifting of one end - at an inclination of between 15 and 20 degrees) is used and can be easily reproduced in hospitals and outpatient settings. That is, the application and use of the body-educational treatment method can be organized relatively easily in the conditions of an improvised Weightlessness and Gravity Physiotherapy Simulator in most physiotherapy units, with standard magnetotherapy and electromagnetotherapy equipment. I recommend the use of low frequency, Pulsed Electromagnetic Field (PEMF) - including a portable device for body-educational treatment and healing that can be used safely– see again Fig. 6 and Fig.7. The two electromagnetic end impacting cases in red-pink insulation bags are not placed around the knee joint (as shown in this figure), but in the projection areas of the prostate gland: one electromagnetic case touches the front wall of the lesser pelvis, the second electromagnetic case fits snugly against the pelvic floor. **A double-blind study**.

Objectives:

1. One of the objectives of this study is to determine the clinical significance and contribution of the use of two-component physical treatment, including a magnetic treatment component, to the physical education of the patient's body as a new type of physical treatment. And more specifically, to make a comparison with the well-known effectiveness of the widely used standard, low-frequency, pulsed, electromagnetic therapy in patients with benign prostatic hypertrophy.

2. The methodology and medical practice of space and aviation medicine (also known as space and environmental medicine) are not widely used in the methodology and practice of modern, standard physical therapy.

   When applying a general physiological approach simultaneously to the above-mentioned two different areas of medical theory and practice, I would like to point out the common patterns between their strictly specific features. I would like to make a facilitating analogy between certain methodological principles of space medicine and certain methodological principles of physiotherapy, aiming at the mutual utilization of their independent successes into a single methodological system and its application in modern and future medical practice.

   Therefore, I use the approach of comparing the treatment of knee joint algodystrophy (detailed, clearer and phenomenological in modern physiotherapy) and the treatment of benign prostatic hypertrophy by the physiotherapy weightlessness and gravity simulator, which is currently unknown in both medical fields mentioned above.

   Thus, this new method of body-educational treatment and healing could be used not only in the limited scope of space, aviation medicine and environmental medicine, but mostly in the wide healthcare system of the society.

3. Another aim of the study is to evaluate the attitude and (tolerability), tolerance of patients with benign prostatic hypertrophy to the use of the first component of the two-component physical impact. This is the controlled, educational, sparing (low-grade - between 15 and 20 degrees) stationary, short-term, antiorthostatic head-down, supine position of the patient in the mechanized bed module of the physiotherapy weightlessness and gravity simulator during the application of the electromagnetic impact (the second component of this two-component physical impact). The study also focused on the task of establishing whether there is a dynamic in the patients' tolerance to the second component of the two-component physical impact. It also tried to observe the nature of the change in the dynamics of the tolerance and establish whether the electromagnetic impact has a characteristic and regular influence on this tolerance.

4. To demonstrate a more accessible version of the application of the physical weightlessness and gravity simulator - i.e. to use with a clinically significant positive intent, permanently, the tilted patient table or bed in the so-called anti-orthostatic Trendelenburg position in combination with mass-produced and widely distributed magnetic and electromagnetic medical devices.

5. To demonstrate the perspectives and trends of development of the multi-component physical impact according to Dr. Kanev's method of body-educational treatment and healing. In the specific case, these are combinations of treatment of knee joint algodystrophy in the physiotherapy weightlessness and gravity simulator, where the physical multi-component impact is three-component - namely: 1- antiorthostatic, positional inclination of the patient table or bed; 2- simultaneous occlusions and subsequent reperfusions of the peripheral circulation proximal to the knee joint of the diseased leg; 3- simultaneous use during the procedural time of synchronized magnetotherapeutic and electromagnetotherapeutic impacts. I have observations with exactly this three-component physical impact during body educational treatment and healing with wonderful results.

Another version of the two-component physical treatment of algodystrophy of the knee joint is the use of magnetotherapeutic or electromagnetotherapeutic impact on a patient lying head down on an antiorthostatic plane – patient table or bed at an angle to the horizontal between 15 and 20 degrees, without using the physiological effects of occlusion and reperfusion of the circulation of the diseased limb proximally to the injured knee joint. But the materials under this subsection 3 are the subjects of other articles.

Determination of patients eligible for statistical processing and selection of methods and criteria for evaluation of disease manifestations and for their comparative analysis regarding the obtained treatment results. The determination of the patients was carried out according to the requirements of information and consent of the patients and in compliance with the rules of the medical ethics committee:

To achieve the goals and tasks defined above, I selected two main groups - first (1) and second (2) - with 78 male patients aged between 45 and 60 in each group, with the age distribution within the groups being symmetrically reciprocal. Patients in both main groups have had benign prostatic hypertrophy for more than one year. All patients were examined multiple times by specialists in urology, who determined their diagnosis, which in all cases was objectified by ultrasound and X-ray, computed-axial tomography. They have been treated repeatedly with temporary and unsatisfactory results. The treatment in 93% of the patients in each group is conservative – with medicines, and 27% of the patients in both groups mentioned above permanently wear a temporary urinary catheter while waiting for their proposed future surgical intervention, which, according to their treating urologists, is necessary and unavoidable.

Scheme of Anamnestic Documentary Assessment Test - ADAT test to assess the severity of the disease - benign hypertrophy of the prostate gland, and the assessment represents a total value - number that is the calculated sum of the values of the following indicators and criteria (more than one indicator or criterion from one subgroup of the test can be taken):

1. Examination by a specialist - urologist and determined diagnosis of "Benign hypertrophy of the prostate gland" (an attached medical document is required) – 10 points are added to the overall assessment of the severity of the disease.

2. Ultrasound data on the grade and nature of hypertrophy of the prostate gland (an attached medical document is required):

- Slight enlargement of the prostate gland – 3 points
- Enlargement of one of the lobes of the prostate gland – 4 points
- Enlargement of both lobes of the prostate gland – 6 points
- Enlargement of the paraurethral prostate glands – 8 points
- Enlargement of the prostate gland of 30% or more – 10 points

3. Ultrasound-determined amount of residual urine in the bladder after water loading and micturition (an attached medical document is required):

- Amount of residual urine up to 80 ml – 5 points
- Amount of residual urine up over 80 ml – 7 points

4. Micturition and dysuric disorders:

- Increased total number of nighttime urinations – 2 points
- Increased total number of urinations during the day and night – 3 points
- Thin, weak urine stream – 4 points
- Interruption of the urine stream – 4 points
- Urgent (immediate) urges to urinate – 4 points
- Painful urination – 5 points
- Burning when urinating – 5 points
- Feeling of incomplete emptying of the bladder – 6 points
- Feeling of bladder pressure after urination – 6 points
- Difficulty starting to urinate – 7 points
- Extra effort needed to empty the bladder – 7 points
- Urine leaking in drops when urinating – 8 points
- Involuntary discharge of urine – 8 points
- Temporary urethral catheter placed – 10 points

Note – The patient is required to have stopped any medications 7 days prior to the present body-educational treatment and not to conduct any other type of treatment independently and concurrently with the ongoing treatment. The maximum grade and severity of the benign hypertrophy of the prostate gland, expressed as a total number of points under the ADAT test, is 120 points.

Patients in each main group were further divided into two groups – conditionally named – active (A) and control (C) with 39 patients in each group. All approved participants - patients in the groups for the further observations had grade and severity of the disease above 100 points, expressed as a total calculated score under the ADAT test conducted by independent medical personnel.

Four groups of 39 patients were formed and numbered as follows – 1A, 1C, 2A and 2C. The healing impact was performed on the patients for 45 minutes, once a day, for 15 days in all groups.

Actions to apply the methods

The treatment was organized as follows:

- For group 1A - a two-component physical impact in the form of a "lesson on the human body" on the anti-orthostatic mechanical bed module of the physiotherapy weightlessness and gravity simulator inclined at 15-20 degree, with synchronously and normally operating electromagnetic inductors around the projection area of the diseased prostate gland;
- For group 1C, placebo - control group, a single-component mechanical physical impact was applied, with the patient placed in the position described in 1A group, but the electromagnetic inducers were placed placebo and demonstratively around the projection area of the diseased prostate gland without working;
- For group 2A – a single-component physical impact with working electromagnetic inductors around the projection area of the diseased prostate gland, with the patient lying in a horizontal, stationary position in the mechanical bed module of the physiotherapy simulator;
- For group 2C - in the form of a single-component physical impact, which consisted only of the anti-orthostatic, constant mechanical position of the bed module of the physiotherapy simulator. In this control group, the patients had no electromagnetic inducers placed around the projection area of the diseased prostate gland or elsewhere on their bodies.

The patients and the medical personnel conducting the physical procedures and evaluating the initial conditions and the results achieved in the patients did not know the composition of the patient groups and the actual working modes of the physiotherapy devices used.

Results and Discussion

Summary comparison of the effectiveness of the treatment in group 1A versus group 2A - clinically significant, clearly visible positive results were obtained in the patients of group 1A - restoration of normal or sufficiently close to normal life functions and activities, practically completely acceptable increase in the quality of life. The ADAT grade and severity score at the end of the treatment course for group 1A generally ranged between 5 and 17, with a group mean of 11, and was statistically significant due to the fact that improvements occurred simultaneously in all indicators and follow-up criteria defined in the baseline ADAT test and the further improvements are in steady, daily increments of rapid, demonstrably noticeable, medically and socially significant improvements.

Patients' tolerance to the procedures induced by the antiorthostatic position of the bed module in the physiotherapy simulator increased during each subsequent procedure. This was also achieved probably due to the achievement of remarkable positive clinical results by the patients themselves.

The ADAT grade and severity score at the end of the treatment course for group 2A generally ranged between 48 and 85, with a group mean of 66.5, and is statistically reliable due to the fact that the improvements occur simultaneously in all indicators and follow-up criteria defined in the baseline ADAT test, and in addition, the improvements are at a steady, daily step of slow and hard-to-detect improvement.

Assessment of treatment effectiveness in group 1C – clinically insignificant improvement in 14% of the cases.

The ADAT grade and severity score at the end of the treatment course for group 1C generally ranged between 76 and 93, with a group mean of 84.5, and is statistically reliable due to the fact that the improvements occur simultaneously in all indicators and follow-up criteria defined in the baseline ADAT test and, furthermore, the improvements are at a consistent, daily step of unsatisfactory improvement.

Patients showed very good tolerance to the procedures induced by the anti-orthostatic position of the bed module in the physiotherapy simulator. Despite the unsatisfactory treatment effect, all patients completed the course of treatment.

Assessment of treatment effectiveness in group 2C – variable and insignificant clinical improvement in 4% of the cases.

The ADAT grade and severity score at the end of the treatment course for group 2K generally ranged between 84 and 100, with a group mean of 92, and is statistically reliable, due to the fact that the improvements occur simultaneously in all indicators and follow-up criteria defined in the baseline ADAT test and, moreover, the improvements are at a constant, daily step of minimal and insignificant improvement. Seven of the patients withdrew on day 8 from the start of treatment.

Conclusion

The physiological approach in physiotherapy, which is expressed in controlled educational changes and processes of homeostasis in the damaged part of the human body, achieves remarkable, positive, clinically significant healing results.

The body-educational healing method of multi-component physical impact significantly increases the positive results of magnetotherapy and electromagnetotherapy.

The physiotherapy weightlessness and gravity simulator is a successful medical solution and has a progressive perspective.

Conflict of Interests

The author declares that he has no conflict of interests.

The activities of the scientific, medical, technical developments and manufacturing of specialized medical, physiotherapy devices, apparatus, and physiotherapy weightlessness and gravity simulators are fully and completely organized, financed, operated, technically serviced and supported personally by Dr. Kanev, majority owner, founder and permanent manager of "Synergetic Intellectual Systems – SIS – Kanevi and Co" Company.

In confirmation of the above, I will point out one of the prestigious achievements of Dr. Kanev: For his outstanding invention in the field of synergistic evolution and its application in medicine, in November 1998 its author, Dr. Genko Marinov Kanev, was awarded a GOLD MEDAL and a certificate by the World Intellectual Property Organization (WIPO) based in Geneva, Switzerland.

Refrences

1. Kanev GM (2024) A New Unique Magnetic Treatment Method in Physiotherapy for Body-educational Healing: Observations on Algodystrophy of a Knee Joint. Int J Phys Ther Rehab 10: 185.
2. Zhang L, Zuo X, Li S, Sun M, Xie H, et al. (2019) Synergistic therapy of magnetism-responsive hydrogel for soft tissue injuries, Bioact Mater 4: 160-166.
3. Guenther Witzany (2018) Memory and Learning as Key Competences of Living Organisms, In book: Memory and Learning in Plants pp.1-16
4. Wilkinson N, Claunica A (2023) Hanging in there: Uterine Buoyancy Defines Homeostatic Set-Points for Gravity Adaptation in Humans.
5. Ramsay DS, Woods SC (2014) Clarifying the Roles of Homeostasis and Allostasis in Physiological Regulation. Psychol Rev 121: 225-247.
6. Kryzhanovsky GN (2004) Some categories of general pathology and biology: health, disease, homeostasis, sanogenesis, adaptation, immunity. New approaches and notions. Pathophysiology 11: 135-138.
7. Mikhaĭlov VP, Vizilo TL, Kuz'michev AA, Petrushenko KV (2001) Aktivizatsiia sanogeneticheskikh mekhanizmov pri narusheniiakh tsentral'noĭ nervnoĭ sistemy [Activation of sanogenesis mechanisms in central nervous system disorders], Vopr Kurortol Fizioter Lech Fiz Kult 3: 10-13.
8. Chen Li, Duan X, Xing F, Liu G, Gong M, et al. (2019) Effects of pulsed electromagnetic field therapy on pain, stiffness and physical function in patients with knee osteoarthritis: a systematic review and meta-analysis of randomized, controlled trials. J Rehabil Med. 51: 821-827.
9. Pipitone N, Scott DL (2001) Magnetic Pulse Treatment for Knee Osteoarthritis: A Randomised, Double-Blind, Placebo-Controlled Study. Curr Med Res Opin 17: 190-196.
10. Chabel C, Russell LC, Lee R (1990) Tourniquet-induced limb ischemia: a neurophysiologic animal model. Anesthesiology 72: 1038-1044.
11. Hori K , Tsujii M, Iino T, Satonaka H, Uemura T, et al (2013) Protective effect of edaravone for tourniquet-induced ischemia-reperfusion injury on skeletal muscle in murine hindlimb. BMC Musculoskelet Disord 14: 113.
12. Billah M, Ridiandries A., Allahwala U, Mudaliar H, Dona A, et al. (2019) Circulating mediators of remote ischemic preconditioning: search for the missing link between non-lethal ischemia and cardioprotection. Oncotarget 10: 216-244.
13. Murphy T, Walsh PM, Doran PP. Mulhall KJ (2010) Transcriptional responses in the adaptation to ischaemia-reperfusion injury: a study of the effect of ischaemic preconditioning in total knee arthroplasty patients, J Transl Med 8: 46.
14. Coupé M, Tomilovskaya E, Larcher F, Diquet B, Pastushkova L, et al. (2013) Body Fluid Changes, Cardiovascular Deconditioning and Metabolic Impairment Are Reversed 24 Hours after a 5-Day Dry Immersion. Open Journal of Nephrology 3:13-24.
15. Olufsen MS , Ottesen JT, Tran HT, Ellwein LM, Lipsitz LA, Novak V (2005) Blood pressure and blood flow variation during postural change from sitting to standing: model development and validation. J Appl Physiol 99 4: 1523–1537.
16. Pucci G, Battista F, Anastasio F, Sanesi L, Gavish B, et al. (2016) Effects of gravity-induced upper-limb blood pressure changes on wave transmission and arterial radial waveform, J Hypertens 34: 1091-1098.
17. Socci RR, Wang M, Thierry-Palmer M, Emmett N, Bayorh MA (2000) Cardiovascular responses to simulated microgravity in Sprague-Dawley rats. Clin Exp Hypertens 22: 155-164.
18. Baranov MV, Katuntsev VP, Shpakov A, Baranov VM (2016) A Method of Ground Simulation of Physiological Effects of Hypogravity on Humans. Bull Exp Bio Med 160: 401-405.
19. Iwase S, Nishimura N, Tanaka K, Mano T (2020) Effects of Microgravity on Human Physiology, In Book: Beyond LEO – Human Health Issues for Deep Space Exploration.
20. Effect of Gravity on Circulation, Medico Apps.
21. Capodicasa, Tassi EC, Rossi R, Mezzasoma L, Valiani M, Biondi R (1997) Effect of antiorthostatic hypokinetic/hypodynamia on urinary endothelin-1 and N-acetyl-β-D-glucosaminidase excretion in rats. Clinica Chimica Acta 260: 35-48.
22. Shilov A (2018) The influence of Hypoxic Hypoxia and Antiorthostatic Hypokinesia on the Activity of Motoneuron Pools in Man. In Russian Forum of Young Scientists (RFYS). KnE Engineering 3: 97-101.
23. Deavers DR, , Musacchia XJ, Meininger GA (1980) Model for antiorthostatic hypokinesia: head-down tilt effects on water and salt excretion. J Appl Physiol Respir Environ Exerc Physiol 49: 576-582.
24. Dubinin NP, Vaulina EN (1976) The evolutionary role of gravity, Life Sci Space Res 14: 47-55.
25. Adamopoulos K , Koutsouris D, Zaravinos A, Lambrou GI (2021) Gravitational Influence on Human Living Systems and the Evolution of Species on Earth. Molecules 26: 2784.
26. Nagy TE, Szolnoki E (2023) The effect of gravity on the evolution of life on earth based on general relativity and the low of free fall. Aeron Aero Open Access J 7: 150-168.
27. Kakurin LI, Kuzmin MP, Matsnev EI, Mikhailov VM (1976) Physiological effects induced by antiorthostatic hypokinesia. Life Sci Space Res14: 101-108.
28. Hoenemann JN, Moestl S, Diedrich A, Mulder E, Frett T, et al. (2023) Impact of daily artificial gravity on autonomic cardiovascular control following 60-day head-down tilt bed rest. Front Cardiovasc Med 10: 1250727.
29. Amirova L, Navasiolava N, Rukavishvikov I, Gauquelin-Koch G, Gharib C, et al. (2020) Cardiovascular System Under Simulated Weightlessness: Head-Down Bed Rest vs. Dry Immersion. Front Physiol 11: 395.
30. Wilkinson NM, Takashi Ikegami, Claunica A (2023) Hanging in there: Prenatal origins of antigravity homeostasis in humans, arXiv:2310.04168

31. Kakurin LI, Lobachik VI, Mikhailov VM, Senkevich YA (1976) Antiorthostatic hypokinesia as a method of weightlessness simulation. Aviat Space Environ Med 47: 1083-1086.
32. Sayenko DG, Saenko IV, Shestakov MP, Ivanov AM, Kozlovskaia IB (2000) The effect of 120 day anti-orthostatic hypokinesia on the status of the posture regulation systems. Aviakosm Ekolog Med 34: 6-10.
33. Savenko DG, Tomilovskaya ES, (2020) Effects of microgravity on postural control: Concepts pioneered by I B Kozlovskaya. Aviakosmicheskaya I Ekologicheskaya Meditsina (Russia) 54: 43-49.
34. Cantello R (2002) Applications of transcranial magnetic stimulation in movement disorders. J Clin Neurophysiol 19: 272-293.
35. Prakash D, Behari J (2009) Synergistic role of hydroxyapatite nanoparticles and pulsed electromagnetic field therapy to prevent bone loss in rats following exposure to simulated microgravity. Int J Nanomedicine 4: 133-144.
36. Cvetkovic D, Fang Q, Cosic I (2008) Multiple human electrophysiological responses to extremely low frequency pulsed electromagnetic field exposures: A pilot study. Estonian Journal of Engineering 14: 138-153.
37. Zaporozhan V, Ponomarenko A (2010) Mechanisms of Geomagnetic Field Influence on Gene Expression Using Influenza as a Model System: Basics of Physical Epidemiology. Int J Environ Res Public Health 7: 938-965.
38. Sandyk R (1997) Resolution of sleep paralysis by weak electromagnetic fields in a patient with multiple sclerosis. Int J Neurosci 90: 145-157.
39. Shah JP, Midkiff P, Brandt PC, Sisken BF (2001) Growth and differentiation of PC6 cells: the effects of pulsed electromagnetic fields (PEMF). Bioelectromagnetics 22: 267-271.
40. Yoshii T, Ahmad M, Helfrich-Förster C (2009) Cryptochrome mediates light-dependent magnetosensitivity of Drosophila's circadian clock. PLoS Biol 7: e1000086.
41. George MS, Nahas Z, Kozel FA, Li X, Denslow S, et al. (2002) Mechanisms and state of the art of transcranial magnetic stimulation. J ECT 18: 170-181.
42. Jacobson JI (1994) Pineal-hypothalamic tract mediation of picotesla magnetic fields in the treatment of neurological disorders. Panminerva Med 36: 201-205.
43. Brizhik L, Zavan B, E., Fermi E (2015) The working principle of magnetic resonance therapy, Cornell University ARXIV > physics > arxiv: 1509.04475; Physics > Medical Physics.
44. Gao Q, Leung A, Yang YH, Lau BWM, Qian Wang Q, et al. (2021) Extremely low frequency electromagnetic fields promote cognitive function and hippocampal neurogenesis of rats with cerebral ischemia, Neural Regen Res 16: 1252-1257.
45. Kinoshita Y, Monafo WW (1994) Nerve and muscle blood flow during hindlimb ischemia and reperfusion in rats. J Neurosurg 80: 1078-1084.