

Innovative technologies and personalized music  
"Musical Energy Key"  
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Music is an unconscious exercise of the soul in arithmetic.  
G.V. Leibniz

Synergistic approaches and individual music

From the point of view of synergetics - a modern interdisciplinary theory of self-organization of complex systems, which include, among other things, a person considered as a synergetic model, as a complex, self-developing system - everything in nature is interconnected in a certain way [1]. Music does not exist in isolation from other types of knowledge. The laws by which music exists, from sounds to the appearance of logic in works, coincide with the laws of the physical world described by mathematics. Modern research considers the picture of the world as harmonious coincidences of the laws of music and atomic physics, chemistry, crystallography, astronomy, architecture, botany, etc. We are talking about the basic ratios of ordinal numbers, which we hear as intervals. For example, musical nature is seen as a building block in Max Planck's quantum theory. The mode of action of the atomic nucleus from the point of view of the proportions of musical intervals was described by Wilfried Kruger, an expert in the field of atomic physics and music theory [2].

The emergence of individual music (IM) was preceded by studies of the correspondences of the laws of nature in areas of seemingly distant knowledge systems - the science of natural cycles and rhythms and music (the concept of IM is based on knowledge of the biorhythms of human birth). The research was carried out using the methods used in scientific practice. A synergetic approach and the principle of integration of various knowledge, studying the diverse aspects of human nature, methods of analogies and symbols and mathematical research, were used, the semiotic space of the field of study was studied.

Studies have shown that there are analogies between the process of translating the biorhythms of human birth into the language of music and the mechanism of unconscious response. That is, the source that gives rise to acoustic and physiological phenomena in the process of perceiving music is in the unconscious, where the patterns of energy processes occur that transform mental stress into sound matter. This conclusion coincides with the concept of musical phenomena by the music psychologist Ernst Kurt, the main thesis of which is the discovery of the psycho-energetic nature of the movement of sounds, which unites the theory of music and psychology [4]. IM received the name "Musical-energy key" (IEC).

IM is a piece of music consisting of a chain of intervals arranged in a certain sequence. Considering

biorhythms of birth as a “project of human nature” (an aggregate principle of existence), named by psychologist A. Meneghetti onto Inse, IM is a “project of human nature” translated into the language of music. A person is realized when his actions coincide with the onto In-se [5]. From the position of In-se, striving for identity, a piece of music is presented as a sounding mandala - a symbol of self-sufficiency and inner integrity.

#### Individual music in the context of epigenetics

The logic of the alternation of consonances and dissonances in a musical fragment means the existence of a harmonious principle in the energy project of human nature, which distinguishes false and harmonious. A harmonious beginning can be compared with the natural reactions of a person in the absence of discomfort in the usual mechanisms of response to stimuli and stimuli. A harmonious beginning is present from birth, but its inclusion depends on many factors that epigenetics explains.

From the point of view of epigenetics, a science that studies changes in the activity of genes that do not affect the structure of DNA, many genes possess information about the structure of a cell and how it functions and are active throughout a person's life. Epigenetics explains how the environment can influence genes to turn on and off. Adaptation to the environment is formed by the so-called epigenetic switches. With their help, a person is able to change the properties of his body, both for the better and for the worse, which depends on the characteristics of epigenetic switches [6].

The translation of the biorhythms of human birth into the language of music, the logic of the alternation of consonances and dissonances in a musical fragment indicates the presence of an information channel through which access to a harmonious beginning is opened, and the language of music does this at an unconscious level. IM can play a role epigenetic switch, including a harmonious program functioning, which is associated with the quality of the incoming energy-informational signal, when the body carries out normal control of its functional systems.

#### Individual music in music therapy

The creation of IM IEC was the beginning of experiments related to its effect on the human body and its use in music therapy (MT). It is known that the physical effect of sound has a great impact on the human body and psyche. A logical scheme of intervals constructed in a certain way, being an epigenetic switch, can have a positive psychological and physical effect on a person, restoring his health. Clinical studies of the effect of IM IEC on the functional and psychophysical state of the body, on the bioelectric activity of the brain have been carried out [7, 8].

The research results have shown that IM MEK contributes to: harmonization of the functional state, bringing the parameters of the energy-informational balance of the organism closer to the corridor of the physiological norm; increase cerebral

activity; harmonization of neuropsychic well-being; acceleration cognitive and restorative processes; reducing the level of anxiety and tension; normalization of blood pressure and frequency of cardiovascular contractions.

The therapeutic effect of IM IEC does not depend on musical preferences and musical education of the patient and is due to the following factors:

- the biological effect of superweak factors and the connection between the biorhythms of a living organism and the space clock [9];
- the concept of choice and feedback in information theory, on which musical influence is based; in a musical message "is just a sequence of signals governing the selection of meanings from the stock that the recipient has; listening becomes the process of decoding this information "[10];
- Human DNA is capable of interacting with specific commands of a linguistic nature and specific melodic (vibrational) coloration;
- the field structure of the DNA cell has an electromagnetic and acoustic nature, being an antenna that records incoming information and has wave immunity; the study of the phenomenon of return Fermi-Pasta-Ulam (FPU) proved the existence of the wave type of memory of the genome [11];
- reflex psychophysiological reactions and resonant responses to field effects from sound-sensitive functional systems [12];
- from the point of view of a synergistic approach in the field of controlling and organizing influences on complex systems, weak, properly organized resonant influences (acoustic) are consistent with the internal properties of a nonlinear system, which result in strong responses [13].

IM as an acoustic model resonates with the natural harmonious program of human energy and physical states existing at the field level; the listener unconsciously disposes of the store of meaning that is in this sound information to establish a certain context, and listening becomes the process of decoding this information, restoring the memory of cells [7, 8].

Since the human psyche reacts spontaneously to the sound sphere, IM MEK, while not being a work of art, nevertheless, can include emotional perception and feelings, and their somatic symptoms become a reaction to music. In this regard, the individual selection of instrument timbres for a musical fragment becomes an important factor. The psychophysiological consequence of music has a different duration and is associated with the manifestation of eidetism - the continuing psychophysiological reaction of excitement in the nervous apparatus after listening to music [14].

In this context, exposure to MT IEC has a long lasting effect

positive emotional and sensory reactions and harmonious somatic symptoms.

#### Chronophysiotherapy and individual music

IM IEC refers to the clinical direction of MT using receptive technology. Since the concept of MI is based on knowledge about the biorhythms of human birth, an individual MT MEK can be attributed to chronobiological direction in medicine, which is currently developing.

The chronobiological direction deals with the correction of the functional state of a person and his homeostatic systems, i.e. opens up the possibilities of systemic treatment with the normalization of self-regulation at all levels of the organism of a particular person, acting on physical factors based on biofeedback, taking into account the integral integrity of the organism [15].

In MT MEK, chronobiological methods of treatment and prevention are used, the effect is of a systemic nature, the mechanisms of self-regulation are enhanced, the ratio of the sympathetic and parasympathetic tone of the body and the functional state of the neuro-humoral regulatory systems are normalized.

MI allows you to individualize the effect of therapy, to implement the fundamental principle of chronophysiotherapy "do no harm", excluding side effects. MT MEK is both a method of treatment and a method of prevention with correction of a person's functional state, regardless of the degree of its impairment, weakening unfavorable loads. Various options for individual MT MEK can be used to improve falling asleep, increase cognitive efficiency, and relieve emotional stress.

#### Individual music and computer program

On the basis of IM technology, a computer program "Musical energy key".

The program is intended for use in preventive and restorative medicine as a means of increasing the general body resistance of both sick and healthy people without age restrictions. Only a very serious clinical condition is a contraindication.

The program can be used in spa treatment, doctors of various specializations, music therapists, psychologists, as well as anyone who wants to improve the functional and psychophysical state of the body.

The computer program "MEK" allows:

- using a chronobiological approach, create an individual piece of music in several versions: one melody, a melody accompanied by sounds of nature, a melody accompanied by harmony, a melody accompanied by harmony and sounds of nature;
- to create a piece of music, use any music editing program designed for recording and digital processing of sound;

- effectively navigate the program using minimal sound skills;
- use different versions of MT MEK, depending on the individual therapeutic objectives;
- to carry out the selection of timbres of instruments and sounds of nature;
- create musical fragments in various rhythmic versions;
- improve in creating individual music as you master the creative process of working with sound;
- the peculiarities of the individual impact of different versions of MT IEC can be tested empirically and used for practical purposes.

The program is accompanied by recommendations for creating a musical fragment and conducting an MT MEK session.

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