

**ASSESSMENT OF INDIVIDUAL INFLUENCE OF THE MUSIC\_THERAPY  
BY MEANS OF GDV-TECHNIC**

Semenikhin E.E.\*, Zeltyakova I.N. \*, Kozlov A.V.\*\*, Kozlova N.V.\*\*\*

\*Medical Academy of Spiritual Development “MADRA”, \*Privat clinic of psychotherapy and east medicine “Urusvati”, \*\*State scientific centre of Russian Federation "NAMI", \*\*\* Lugansk state

medical university

[madra@madra.dp.ua](mailto:madra@madra.dp.ua)

**Abstract**

The paper gives the results of study of complex influence of music on a human carried out by means of gas-discharge visualization technique. It is shown, that the effect of music is individual. For an influence assessment the vibratory coefficient which reflects system character of music effect on a human body and psycho-emotional status have been offered and the possibility of individual selection of music has been demonstrated.

**Keywords:** musictherapy, GRV-technique, entropy, vibratory coefficient.

**Introduction.** Ancient treatises, as well as modern scientific research testify that everything in nature has its own sound and each crystal, a flower, an animal and a human have their sound key. The law of rhythm and harmony lies at the basis of that. Flavius Magnus Aurelius Cassiodorus Senator wrote «Music is the science of good harmony... the sky, the earth and everything, that moves at command of Supreme Being do not exist without the science of music. ... this world has been created by means of music and can be governed by it».

Modern life is very dynamical, full of various stressful situations and leads to disturbance of natural rhythms of a human. The time routine of work and rest is broken,

the sleep is disturbed, and after a while that leads to fast fatigability, absent-mindedness, hampered perception of new information, and in the long term to development of diseases. Music, being reflectance of the higher harmony, helps to find spiritual power and physical health. Now it is undoubtedly proved by scientists, that at the heart of musicotherapy lie some effects - vibratory, physiological, psycho-aesthetic, etc. [1,2,3].

Music can help to return the lost harmony, however, each melody acts on the person variously, which causes necessity of individual selection of music.

**Research objective** is the study of peculiarities of complex effect of music on a person and development of individual music selection method.

**Materials and methods.** Over a period of 3 years a group of 10-15 persons was subjected to musicotherapy sessions the total of 120 persons have been examined. Classical music of various composers – I.S.Bach, L.V. Beethoven, S.Rahmaninov, P.I.Tchaikovsky, A.Prokofiev, V.A.Mozart, A.Vivaldi, etc. - has been used.

For analysis of effect of music on people the method of gas-discharge visualization [4-7] was used. Capturing of luminescence of 10 dactyls of hands before and after music listening session was made. The obtained data were processed with Kirlionics Technology International software and the area of luminescence, symmetry coefficient, entropy, the indicators of luminescence characterizing different organs and systems of a human body were defined [4]. Mathematical processing of data was carried out with software Microsoft Excel 2007 and Statistica 8.0. Also, patients noted down the impressions after music listening session in «a musical diary».

**Results and discussion.** As a result of investigation it has been established that after listening to music the change of energy and improvement of psychoemotional status of patients were noted. For example, listening to Symphony №6 by P.I.Tchaikovsky 53,8% of patients showed reliable increasing of total area of luminescence and harmonisation of an energy field, Symphony №40 by V.A.Mozart - showed 33,3%, Symphony №5 by L.V. Beethoven - 58,3% of patients. Listening Concert for the piano with an orchestra №1 by P.I.Tchaikovsky 46,7% of cases

showed increasing, 46,7% of cases showed decreasing of a total area of luminescence. Listening to Brandenburg concert №1 by I.S.Bach the total area of luminescence showed increase to 42,9%, decrease to 14,3% of patients, and no change in 42,8%. Thus certain tendency is observed, and thought this research is confirmed, individual selection of music is necessary.

The assessment of individual sensitivity to various music was the next task. For example, volunteer K. in the given experiment showed increase of luminescence area at listening to Concert for the piano with an orchestra №2 by S.Rahmaninov by 4,9% (reduction of entropy by 2,0%), to Symphony №5 by L.V. Beethoven - 11,2% (entropy was increased by 6,5%), to Symphony №6 by P.I.Tchaikovsky - 5,7% (increase of entropy by 11,0%). However, organ mass by I.S.Bach led to potential decrease by 2,9% (reduction of entropy by 1,4%). Thus, it has been established, that music effect on an individual and music of various composers unequally influence GDV indicators of the same person.

During the experiment various effects on body organs and systems have been observed. For example, listening to Concert for the piano with an orchestra №2 by S.Rahmaninov showed reliable increasing of luminescence area in sectors of hypothalamo-pituitary-adrenal system in more than 60% of cases, the increasing in sector of coronary vessels and respiratory system (fig. 1) was also observed. At the same time effect of Brandenburg concert №1 by I.S.Bach was observed in sectors characterizing vessels of a brain (the increasing of luminescence area has been noted in 71,4% of cases, reduction - in 21,4%), coronary vessels (in 50% and 7,1% of cases, accordingly), the nervous system (28,6% and 57,1%).

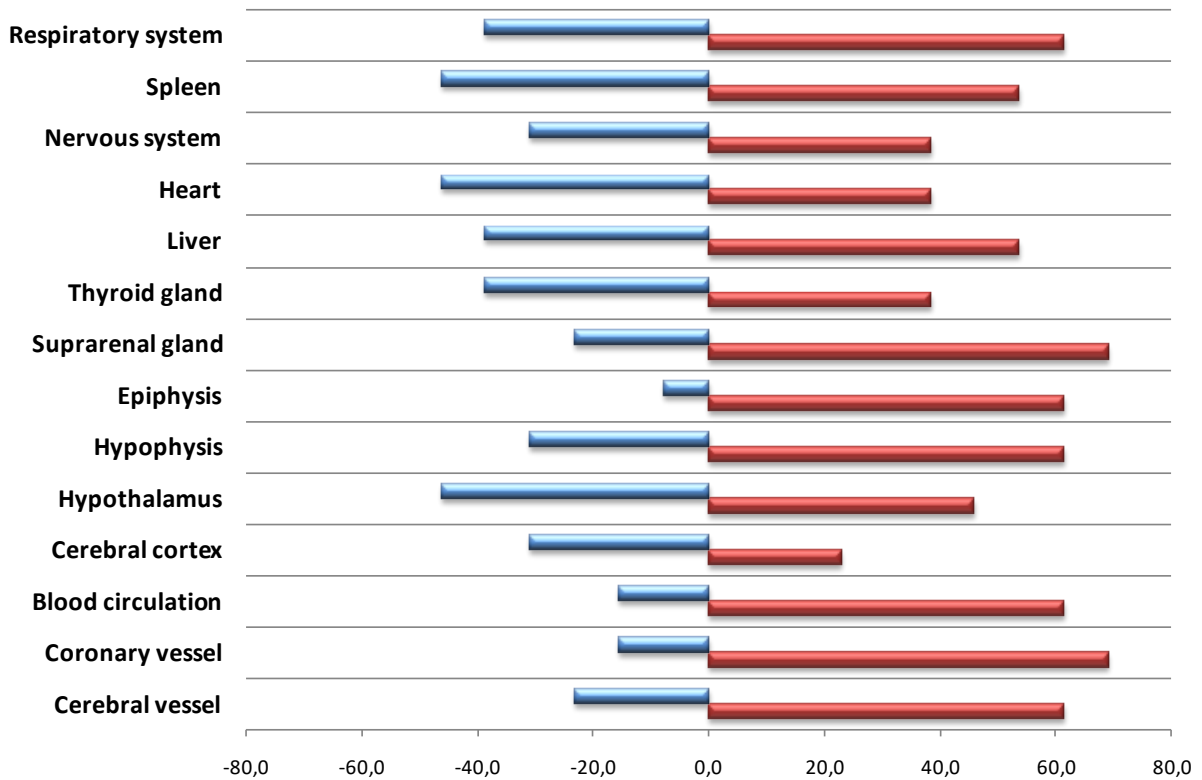


Fig. 1. Change of luminescence area in organs and systems after listening to Concert for the piano with an orchestra №2 by S.Rahmaninov

The luminescence area and entropy have proved the most informative indicators in GDV-image analysis after musictherapy. The luminescence  $P$  characterizes the total energy potential of a person. Entropy  $\varepsilon$  is a measure of chaos and is calculated, with reference to GDV-images, by the following equation:

$$\varepsilon = -\int g(f) \log[g(f)] df,$$

Where  $f$  - normalized distribution function of a GDV-image parametre,  $f \equiv [f_{\max}, f_{\min}]$ ;  $g(f)$  - a probability density of distribution [4].

The luminescence area and entropy change is in various degree sometimes unidirectional, and sometimes differently directed, which complicates individual selection of music (fig. 2).

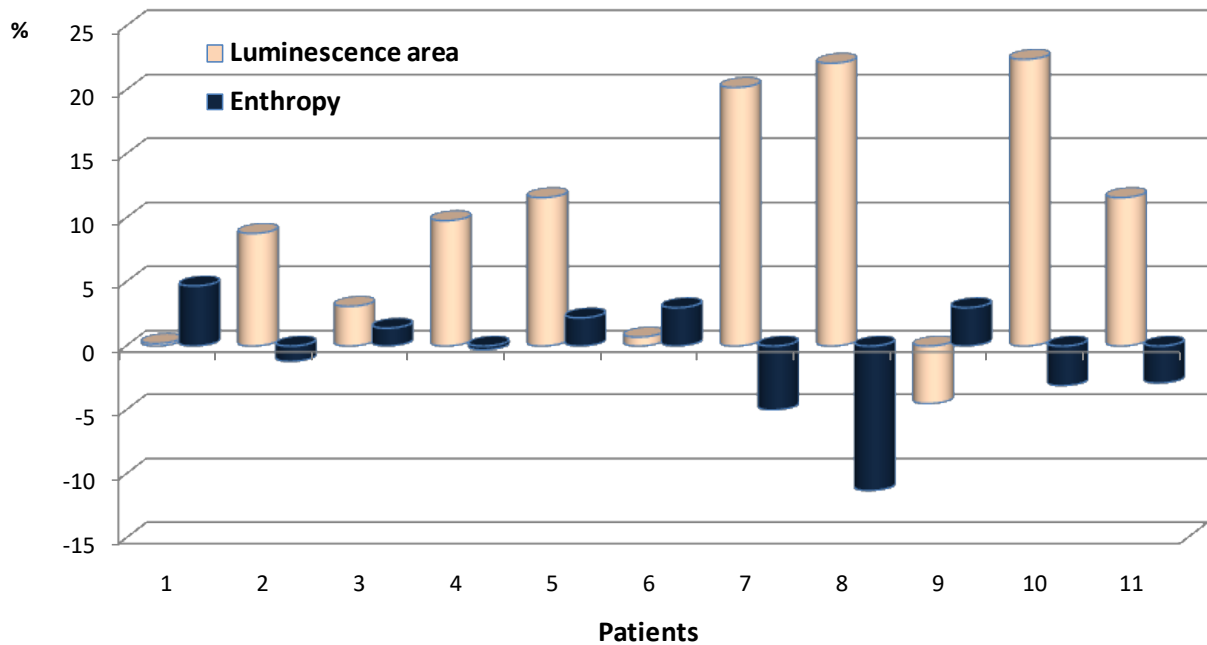


Fig. 2. Change of indicators of GDV-images after listening to Symphony №2 by S.Rahmaninov.

For a complex assessment of effect of music on an energy status of a person the vibratory coefficient which is defined on the basis of value of luminescence area and entropy (front -  $fr$ , left -  $l$  and right -  $r$ ) is offered to use:

$$k^{\sim} = F(P_{fr}, P_l, P_r, \varepsilon_{fr}, \varepsilon_l, \varepsilon_r).$$

The vibratory coefficient reflects system character of music effect on a human body and its psychoemotional status. Increasing of this coefficient on the person after listening to music is indicated by a larger degree of music corresponding to a vibratory key of the person. In this research the increasing of coefficient by 3 ... 30%, in case when music fitted a certain person was observed. Decreasing of vibratory coefficient indicates that the given music does not fit the person.

For example, in patient B at listening to organ mass by I.S.Bach the vibratory coefficient was increased by 10,7%, to Concert for the piano with an orchestra №1 by P.I.Tchaikovsky by 8,2%, Symphony №40 by V.A.Mozart by 3,1% which allows to

recommend the given music to this person. But listening to Symphony №5 by L.V. Beethoven and Symphony № 6 by P.I.Tchaikovsky led to coefficient decreasing by 5,3% (fig. 3).

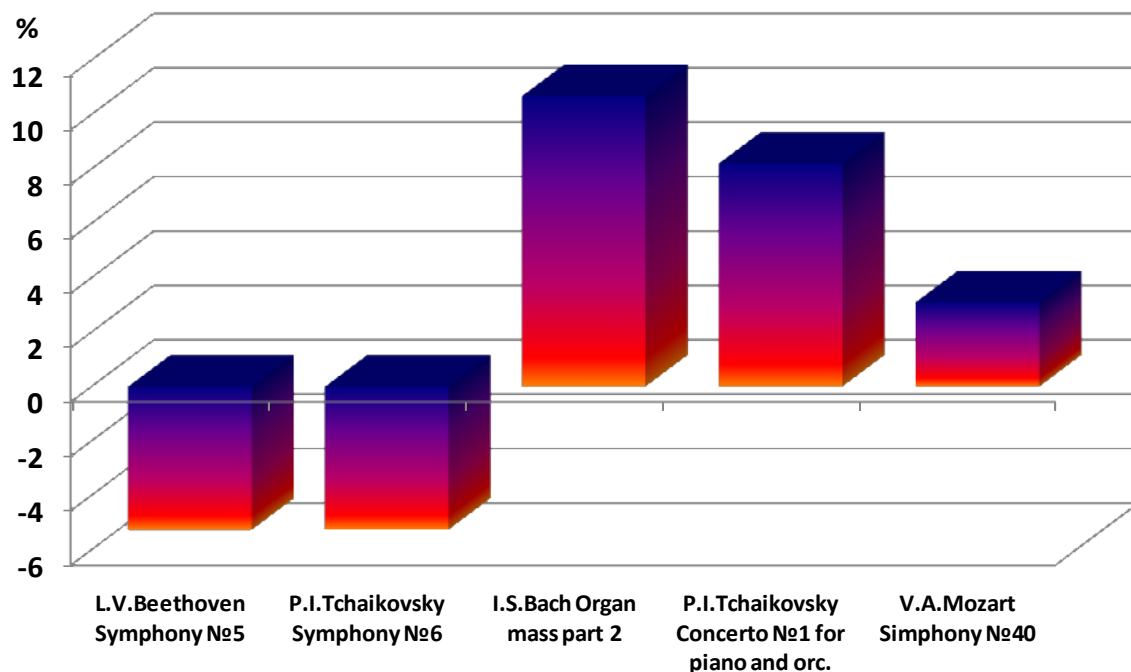


Fig. 3. Change of vibratory coefficient at listening to various music

Thus, GDV method gives the possibility to reveal patterns of influence of music on a human body and on this basis to write out «musical prescriptions».

Noted essential changes of luminescence in various people at listening to the same music, testify to necessity of individual selection of music with use of a vibratory key of the person. Probably, it will allow to help people to return the lost harmony in the soul and harmony with world around, as macrocosm and microcosm work under the eternal law of music - the harmony law. «The Thinker constantly reminded others about harmony in music. He hoped that this awareness might help establish harmony in life» [8].

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