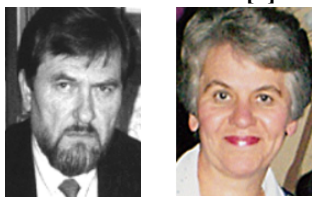


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BIOPHYSICAL BASES OF FUNCTIONAL-VEGETATIVE DIAGNOSTICS

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Summary. *Functional-vegetative diagnostics (FVD) has helped to prove the biophysical reality of acupuncture channels and their systemic interdependence. FVD technology does not require external sources of power, is oriented to assess the levels of autonomic homeostasis, has its own regulatory framework and is characterized by reliably reproducible results. On the basis of studies of representative groups of people of different ages and genders, the possibilities of an integral assessment of vegetative homeostasis and the levels of its functional disorders by the FVD method are substantiated. The obtained data showed the possibility of using FVD for the assessment of the level of health by the coefficients of vegetative homeostasis.*

Keywords: electro puncture diagnostic, functional-vegetative diagnostic, vegetative homeostasis.

Реферат. *Описана функціонально-вегетативна діагностика (ФВД), за допомогою якої доведена біофізична реальність акупунктурних каналів і їх системна взаємозалежність. Технологія ФВД не вимагає зовнішніх джерел струму, орієнтована на оцінку рівнів вегетативного гомеостазу, має власну нормативну базу і характеризується вірогідно відтвореними результатами. На основі досліджень представницьких груп людей різного віку і статі обґрунтовані можливості інтегральної оцінки вегетативного гомеостазу та рівнів його функціональних порушень методом ФВД. Отримані дані показали можливість використання ФВД для оцінки рівня здоров'я за коефіцієнтами вегетативного гомеостазу.*

Ключові слова: електропунктурна діагностика, функціонально-вегетативна діагностика, вегетативний гомеостаз.

Реферат. *Описана функционально-вегетативная диагностика (ФВД), с помощью которой доказана биофизическая реальность акупунктурных каналов и их системная взаимозависимость. Технология ФВД не требует внешних источников тока, ориентирована на оценку уровней вегетативного гомеостаза, имеет собственную нормативную базу и характеризуется достоверно воспроизводимыми результатами. На основе исследований представительных групп людей разного возраста и пола обоснованы возможности интегральной оценки вегетативного гомеостаза и уровней его функциональных нарушений методом ФВД. Полученные данные показали возможность использования ФВД для оценки уровня здоровья по коэффициентам вегетативного гомеостаза.*

Ключевые слова: электропунктурная диагностика, функционально-вегетативная диагностика, вегетативный гомеостаз.

1. Unknown biophysical phenomena of functional-autonomic diagnostics (FVD).

The researches carried out by us from 1975 to the present time led to the discovery of unknown biophysical phenomena and the development of FVD, which served as a modern interpretation of the methodological foundations of traditional Zhen-Tszyu therapy. The following features characterize FVD:

- Instead of traditional external sources of energy, the ability of biological systems to generate weak currents is used;
- its indicators directly characterize sympathetic and parasympathetic activity of the VNS and functional vegetative homeostasis;
- allows you to get stable data for repeated testing.

Diagnostic stability of FVD is due to:

- Phenomena of symmetrical asynchrony of representative functionally active zones (PHAs) - acupuncture points and summation of their bioelectric activity;
- parameters of a short (3 s) test signal not exceeding the level of membrane potentials (1-5 μ A, 0.03-0.6 V);
- reduced by half (from 24 to 12) the number of representative FAZ;
- wet contact of the diagnostic electrodes - electron donors (DE) and the reference electrode - electron acceptor (AE). As DE, acupuncture points are used - the accomplices of

Tai-yuan, Da-ling, Shen-less, Wan-gu, Yang-chi, Yang-si, Tai-bai, Tai Chun, Tai-si, Shu-gu, syu and Chung-yang. AE is located in equidistant from 12 FAZ - DE umbilical region.

Based on these principles, the VITA-01-M diagnostic complex has been developed, in which the absolute values of the indicators are subject to analysis, and the k-V coefficients reflecting the ratio of sympathetic and parasympathetic activity of the Yang and Yin channels by the formula ($k-V = \Sigma \text{Yang} / \Sigma \text{Yin}$). Indices k-V make it possible to determine 7 variants of vegetative homeostasis (VG) and indications for its correction.

- k (<0.75) - a disturbance of VG with a significant predominance of parasympathetic activity.

- k (0,76-0,86) - violation of VG with marked predominance of parasympathetic activity.

- k (0,87-0,94) - the zone of functional compensation of parasympathetic activity, the state of relative vegetative equilibrium.

- k (0,95-1,05) - zone of vegetative equilibrium.

- k (1,06-1,13) - the zone of functional compensation of sympathetic activity, the state of relative vegetative equilibrium.

- k (1,14-1,26) - disturbance of VG with marked predominance of sympathetic activity.

- k (> 1.26) - a disturbance of VG with a significant predominance of sympathetic activity.

- In the 1st, 2nd, 6th and 7th versions, the VG correction is shown.

The fundamental difference between FVD and other methods of electro puncture diagnostics lies in the fact that the directional transport of free electrons acts as a diagnostic factor, the redistribution of which determines the energy-information transformations. In HPF, the energy carriers move through the biological object from the electrode of the electron donor (DE +) to the electron acceptor of electrons (AE), without disturbing the known directivity from (-) to (+) in the external circuit. If an external current source (battery) is added to the circuit, the charge transport becomes dependent on its polarity and the current passes through the object "legalized" from (-) to (+) through the object. In the circuit between two single-channel PHAs bioelectric activity is 73.4% higher than in the circuit of the PHAS of different functional systems.

1.1. The phenomenon of asynchrony of FAZ. We identified several types of symmetric asynchrony:

- balanced, when for a period of time the bioelectric activity of two symmetrical FAZ is practically comparable;

- bilateral, when the bioelectrical activity of one of the symmetric FAZ periodically exceeds the other;

- right-sided, when the bioelectrical activity of the right symmetric FAZ is predominant;

- left-handed, when for a certain time the predominance of the bioelectrical activity of the left symmetric FAZ is observed,

- mixed, when over time we see the alternation of the previous types of symmetric asynchrony.

The phenomenon of bioelectric symmetric asynchrony is also preserved in paired functional systems. FAZ relationships.

1.2. The phenomenon of the total activity of symmetric FAZ is one of the basic principles of FVD. It occurs in symmetrical pairs of FAZ when a coupled DE electrode with one common output to the monitoring device simultaneously tests them. For example, a three-time (within 15-20 minutes) testing of the right and left symmetrical FAZ will show

different values of symmetric asynchrony. At the same time, if the right-hand FAZ conditionally shows a wave of decay (15-10-5 μA), then its left analog, on the contrary, will show a wave of rise (conditionally the inverse values are 5-10-15 mkA.) If two symmetric PHAs simultaneously test with a special DE electrode with one the total output to the measuring block, we get stably the total results: 20-20-20 μA . At the same time, it should be noted a clear pattern of the open phenomenon, and although the latter does not have a correct biophysical explanation, its use in FVD practice is essential: We use stable time indicators and halve the number of tests (instead of 24 FAZ we control the total activity of 12 symmetrical pairs).

1.3. The phenomenon of "centrifugal (centripetal)" direction of energy carriers in the system of "traditional acupuncture channels."

Given the fundamental importance of the issue, we give the conditions for its study. The selected parameters of the test signal were optimal for the graphical objectification of the expected reactions: a sinusoidal form, an alternating one, U 1B, 2,5 Hz with a sensitivity of 0,5 V/cm and a tape speed of 1 mm / s. Before each testing, the amplitude of the "test signal" was fixed on the tape of the recorder, which was taken as 100% (the conductivity of each PH phase of the LU channel after testing was calculated in% of its value).

As an example, we give the phenomenon of electrical conductivity (EP) between single-channel FAZ in the "Light" (LU) system, which biophysically supports the canonical statement about its centrifugal direction (Fig.1). It is established that the electrical conductivity in the centrifugal direction from LU-3 to LU-11 with the coincidence of the hypothetical and initiated direction of the charge carriers is much greater than the opposite position: when their transport is initiated in the centripetal direction from LU-11 to LU-3. The phenomenon indicates the reality of the "valve mechanism," that is, the natural centrifugal activity of the system.

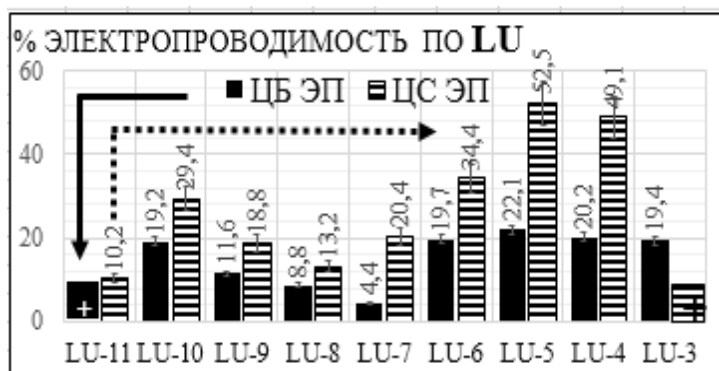


Fig.1. Centrifugal and centripetal directions of energy carriers by the example of the LU channel (ordinate - activity range in%, diagram numbers - FAZ activity in% of the "test signal").

The phenomenon of directional transport was noted also with the use of the electrode pair DE-AE. In this case, the maximum conductivity was at the position of the DE electrode on the FAZ LU-3, and the AE was sequentially on the FAZ from LU-4 to LU-11. At the same time, it should be noted that the study of channel effects has a significant perspective (our work should be regarded as a methodological aspect of the problem).

1.4. The phenomenon of systemic dependence on the activity of BL-SP channels.

Taking into account the fundamental importance of the problem, one should pay attention to the value of the ordinate axis in the illustrations shown. In our studies, the total activity of representative FAZ (in μA) was taken as 100%, from which the relative activity values

of each channel in % were determined. At the same time, the directed dynamics of functional activity was determined by the difference between its individual value and the age norm (the latter after the sign can be + or -). The range of activity in the ordinate (+2, -2) used in our examples is "selective" (for greater clarity of the dynamics of the systemic dependence of weak channels). At that, the values of more active channels, out of the range "+2, -2", in this case BL, SR, TE, LI, were cut off. In this case, the ordinate axis retains its semantic value (in %).

The developed methodology has revealed the specific effect of BL-SP channels on the directional activity of other systems. The growth of their activity is accompanied by the suppression of other channels (and vice versa), which determines the importance of orthostatic posture in the FVD (Fig. 2).

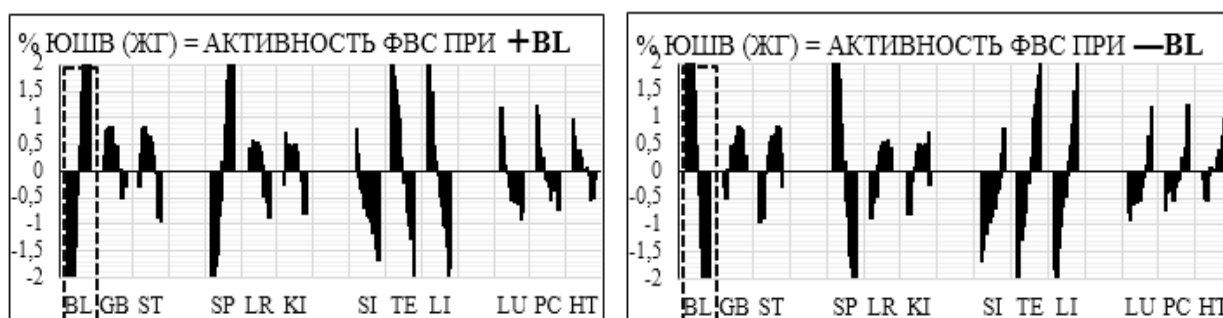


Fig.2. Systemic dependence upon excitation (+) and inhibition (-) BL by example the women's group (LH) of youthful school age (JUSH).

More clearly, the further transformation of the systemic dependence in this group is represented by the growing excitation (oppression) of the functional system GB (Fig. 3).

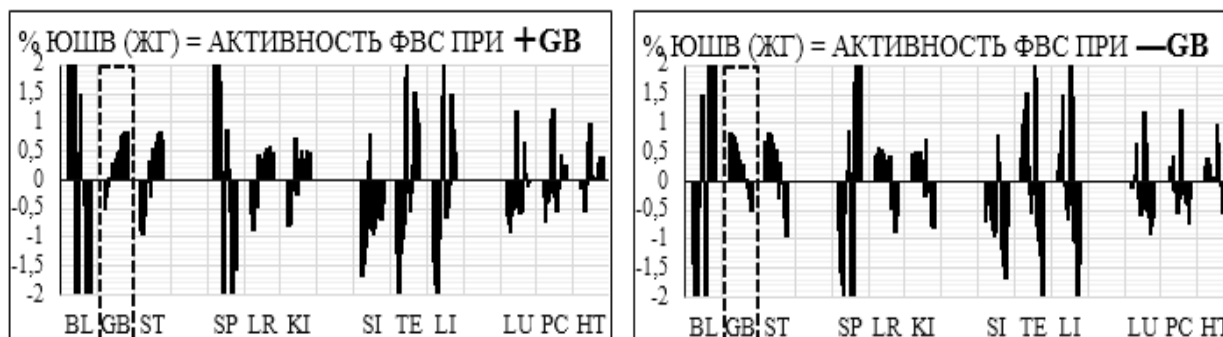


Fig.3. Systemic dependence upon excitation (+) and inhibition (-) GB by example the women's group (LH) of youthful school age (JUSH).

1.5. Phenomenon of the posture. The value of ortho- and clinostatics in FVD. In 73% of cases, the transition from the orthostatic to the clinostatic position of the body of the subject is accompanied by a change in the vegetative homeostasis towards parasympathetic activity. In this case, the activity of a pair of BL-SP channels increases, which causes the predominant oppression of other channels. Directly opposite changes are observed in the transition from clinostatics to orthostatics. The discovered "pose phenomenon" became an argument in favor of the FVD in the "standing" position. Bearing in mind that practically all functional diagnostics (ECG, EEG and a number of others) are conducted in a clinostatic position, one must take into account its consequences.

1.6. The normative base of FVD is based on examination of age groups of different sex and age: 3-6, 7-11, 12-16, 17-21, 22-29 and 31-50 years. Normative diagrams of pre-

school (3-6 years) and junior (7-11) school-age are shown in Fig.4.

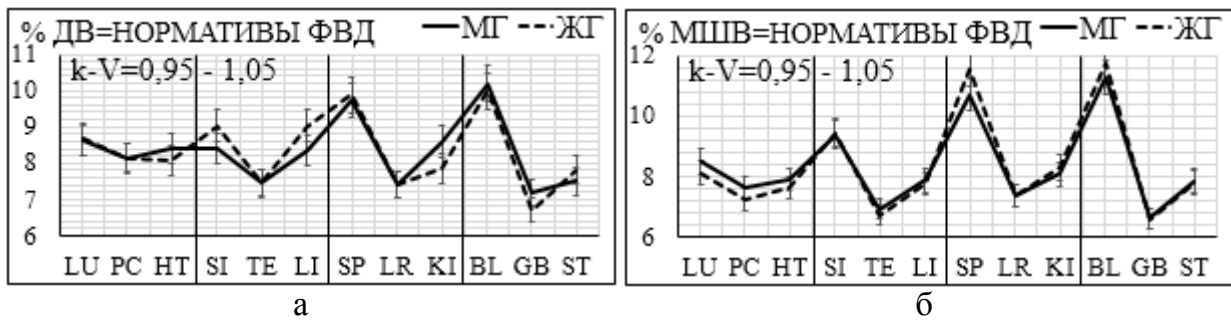


Fig.4. Normative diagrams of male (MG) and female (LH) groups of Preschool (PS) (a) and junior school age (JS) (b).

Groups of preschool and primary school age are characterized by practically identical normative variational series, they did not show any worthy attention to systemic deviations. In the preschool and early school age, the system dynamics of the normative diagrams in the male and female groups do not differ significantly and is within the limits of vegetative equilibrium ($k-V = 0.95-1.05$). It should be remembered that the coefficient of vegetative equilibrium ($k-V$) remains the only indicator having diagnostic value, and the necessary functional-vegetative correction should be under its control.

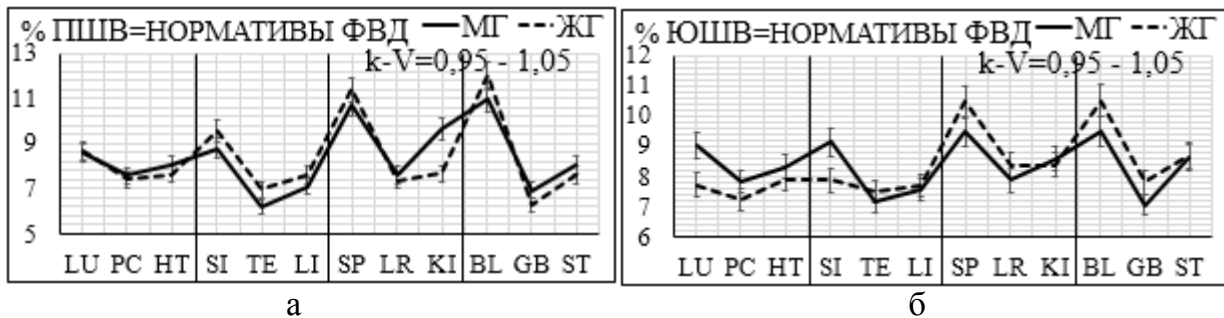


Fig. 5. Normative diagrams of the male (MG) and female (LH) adolescent (ASA) (a) and juvenile (JSA) groups (b) of school age.

In the female adolescent group, a significant decrease in the activity of the KI channel was revealed, in girls unlike the young men (fig.5 b), the activity of LU (lungs) and SI was significantly decreased.

In Fig. 6 shows the normative diagrams of persons 21-29 (a) and 31-50-year (b) age.

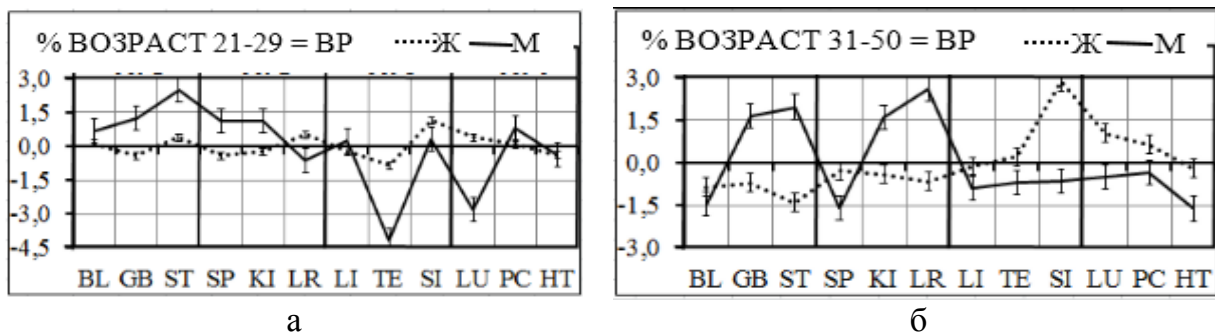


Fig. 6. Normative diagrams of women and men of age ranges 21-29 and 31-50 years old.

Attention is drawn that with age, the amplitudes of deviations of the functional state of a number of acupuncture canals and their differences between women and men increase.

These circumstances once again confirm that k-V is the only indicator that has a basic diagnostic value and systemic functional correction should be under its control.

Conclusion

FVD technology is allowed to be used in medical practice by the scientific council of the Ministry of Health of Ukraine (Minutes No.1.08-01 of 11.09.94). Diagnostic complexes VITA-01-M are recommended for practical medicine by the Problem Commission "New Medical Equipment and New Diagnostic and Rehabilitation Tools" (No.5 dd. 25.12.91) and the Academic Council of the Ministry of Health of Ukraine (No.1.08-01 of 11.01 .94). The expediency of the FVD for the examination of children is confirmed by the program "Two-stage system of rehabilitation of vegetative disorders in children living in the zone of environmental (radiation) control" performed according to the orders of the Cabinet of Ministers of Ukraine No. 1861/4 of 04.04.97 and No. 12010/87 of 01.06.99) .

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