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LECTURE-3 (*3-rd problem of functional vegetology*)

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FUNCTIONAL-VEGETATIVE DIAGNOSTICS AS THE BASIS OF REHABILITATION THERAPY

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Before considering the problematic issues of traditional Zhen-chiu therapy and "functional vegetology", we need to familiarize ourselves with the biophysical features of "Functional vegetative diagnostics" (FVD), which made it possible to discover unknown biophysical phenomena and realities...

Until now, the generally accepted means of integral assessment of autonomic homeostasis was autonomic history using questionnaires. At the same time, a separate assessment of the sympathetic and parasympathetic reactions of the basic divisions of the ANS remained, which contradicts the modern concepts of their functionally dependent organization. In addition, the complexity of studying the suprasegmental and segmental levels of autonomic regulation limits the information that clinicians need. It is also important to remember about the heterogeneity of sympathetic and parasympathetic reactions, the nonlinearity of the parameters of the autonomic status when the activity of one of the ANS divisions changes and their dependence on a number of regulatory factors. At the same time, it is recognized (Wayne, 2000; Nozdrachev, 2003) that the indicators of instrumental examination of the ANS characterize only individual mechanisms of autonomic regulation. Thus, tabular methods of vegetative diagnostics are subjective, while instrumental ones reflect the functional state of individual subsystems of the ANS and individual mechanisms of autonomic regulation. Therefore, to create a general picture, numerous, simultaneous and laborious studies are needed, in which individual indicators lose the signs of a systemic assessment of general autonomic homeostasis (GH).

The methodology developed by us "Functional-vegetative diagnostics without the use of external sources of current" made it possible to identify "acupuncture channels" and open the previously unknown "Functional-vegetative human system". Today it is the only diagnostics, the results of which are stable and comparable over time. It is substantiated by previously unknown biophysical phenomena, its own regulatory framework and is directly aimed at assessing functional autonomic homeostasis: the ratio of sympathetic (YN) and parasympathetic (YL) activity syndromes.

Let's start with the fact that any "electropunctural diagnostics" has the right to exist only under three conditions:

1) the presence of a testing (diagnostic) signal, the energy-informational characteristics of which do not exceed the biophysical parameters of the attention system;

2) a clear understanding of the functional specifics of the subject of attention and the area of its biophysical impact;

3) the possibility of obtaining the results of functional diagnostics, which are comparable with repeated (after 5-10-20 minutes) examination. At the same time, one should pay attention to a significant error of officially "recognized electropuncture technologies", which determine the so-called "diagnoses" of an individual organ or a separate functional system! In our case, we are talking about the dynamic stability of intersystem dependence, that is, about the integral "Functional-vegetative homeostasis", the forms and degree of its functional deviations. Any other interpretation received from representative acupuncture zones of information transfers us from the area of Eastern metaphysics to Western. In other words, the modern interpretation of the results of various "electropuncture diagnostics" is biophysically incorrect.

And the last thing. It is useless and uninteresting to argue with the developers of various "electropunctural modifications" (although it must be admitted that open biophysical realities today cannot be correctly described within the framework of classical biophysics and physiology). However, any opponent can independently test any technology with a test for the comparability of repeated results (in such cases, our experience assumes a quick cessation of verbal battles)...

The FVD methodology is described in detail in our monographs, so we will only consider its technical and biophysical features. And first of all, let us give an answer to the inevitable question: are the electrodes donors (+ DE) and acceptors (–AE) of electrons a chemical source of current?

3.1. ARE DONORA (+DE) AND ACCEPTOR (–AE) ELECTRODES OF ELECTRONS BY CHEMICAL CURRENT SOURCES (CCS)?

Functionally active (acupuncture) skin zones (FAZ) were formed in the course of evolution and became peripheral representatives of the real biophysical system, which provides the processes of energy-information exchange between the external and internal environment. But long-term attempts to develop diagnostic tools based on biophysical parameters of functionally active acupuncture zones (FAZ) did not give the desired results, although they were carried out by biophysicists, morphologists and clinicians. The main drawback of the proposed methodologies was the impossibility of obtaining analogous-repeated (after 10-16 minutes) parameters... From the point of view of modern knowledge, the basic reasons for their failures were due to a lack of understanding of the biophysical nature of the "acupuncture system", inadequate external "test signals" of EM -nature, a number of methodological and metrological errors...

In our case, the ability of biological systems to generate weak currents into an external closed circuit became the source of energy for carrying out high pressure. Thus, the directional transport of free charge carriers (electrons), the redistribution of which causes energy-informational transformations, acts as a diagnostic factor for high-frequency activity.

To create a natural source of energy, three components are needed:

- generator of biogenic energy (organism, liquid composite system);
- chemically inert electrodes electron donors (+ DE, sources of charge carriers in the functional systems of a biological object) and electron acceptors (-AE, receivers of free charge carriers);

- an artificially created external circuit with a control device, through which the electrodes + DE and –AE contacts the PHAS of the biological system (natural biogenerator). In this case, the electrodes + DE can be metals or their alloys, which form little strong (∇-H^{o} 29840 ккал/Атом 0), or moderately strong (∇-H^{o} 298 65 kcal/Atom 0) oxides, as well as titanium, carbon (graphite) , polycrystalline synthetic diamonds and conductive rubber. Oxidized alloys based on zinc, aluminum, magnesium and some other impurities are used as -AE electrodes. The contact difference of electrode potentials determines the directional transport of free energy carriers through the natural generator to the external closed loop. The systems of functional vegetative diagnostics and universal bioactivators VITA-01M and their modifications work on this principle. At the same time, the voltage in the circuit that occurs when the electrodes are in contact with the FAZ does not exceed the level of membrane biopotentials (0.03-0.6 V).

But skeptics have a fundamental question:

Are the electrodes +DE and -AE chemical current sources (CCS)? The answer is unequivocal: "No"! And his categorical nature is due to the following...

– Characterization of the biological system as an "open electromagnetic circuit" and the presence in the body of mobile charge carriers - "free electrons" (the well-known Laws of bioenergy by P.Mitchell, H.Mikhel and V.Shuvalov)...

– If the electrodes "DE + and AE–" were HIS, the characteristics of their external circuit would be constant (we have packets with different frequency, phase and amplitude characteristics)...

– One and the same pair of DE-AE electrodes determines in various biological objects a specific individual activity, distinctive in amplitude, frequency and shape...

– Biological *emf* (not exceeding 0.03-0.6V) is related to membrane potentials, does not depend on the size of DE-AE and the duration of contact with the FAZ...

– General bioelectric activity (BA) has characteristic age-related features (with a difference of 1.5-15 times). It is the largest in childhood (up to 600 μA) and among young people (up to 200-400 μA), and the smallest in the elderly (up to 10-40 μA)...

– If the electrode pair (DE-AE) in various aqueous media generated 7,800 and 27,000 μA, then its "biological contact" with the palms of young people recorded individual BA within 0.05-17.4% of the control...

– A significant difference between the body's BA and its electrical conductivity, when its values significantly decreased by 15% (with an initial current of 100 μA), by 30.2-42.9% (at 200-600 μA), by 41.3-45 2% (at 700-1000 μA) and 35.7-40.7% (at 2000-3000 μA)...

– Absence of negative histochemical consequences during prolonged (25 days or more) contact of the DE-AE electrode pair with underlying tissues, which is impossible when using galvanic current with similar characteristics...

– Dynamic individuality of BA during long-term observations under the control of functional autonomic diagnostics...

– Normalization of BA indicators with positive vegetative correction...

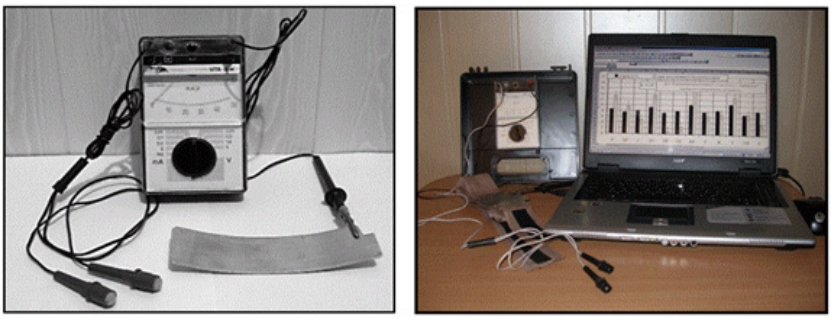
– The ability of the body to generate current under conditions of using several (even mutually intersecting) electrode pairs "DE-AE", including those with one common electrode DE+, or AE–...

– External influences (oxygen load, nitroglycerin under the tongue, massage, statistical stress, ortho- and clinostatics, physiotherapy procedures, etc.) are accompanied by a change in individual BA...

The above stated leads to the following conclusion: The DE-AE electrode pair is not a CHP. In a closed circuit (due to the contact difference of the electrode potentials), it only determines the directed transport of free charge carriers through the PHAS of the skin and a biological object...

3.2. FEATURES OF FUNCTIONAL-VEGETATIVE DIAGNOSTICS (FVD)...

Technical features of functional autonomic diagnostics. Diagnostic complexes VITA-01-M and computerized systems VITA-01-Biotest (Fig.3.2.1) are recommended for use in practical medicine of the RPK Ministry of Health of Ukraine "New medical equipment and new means of diagnostics, prevention and rehabilitation" (Protocol No. 5 of 25.12.91) and the Academic Council of the Ministry of Health of Ukraine (Minutes No. 1.08-01 of 11.01.94).



VITA-01-M system and VITA-01-BIOTEST complex

Fig. 3.2.1 Equipment for high pressure pressure according to V.Makats

The feasibility of the functional vegetative examination of children is confirmed by the Program "Two-stage system of rehabilitation of vegetative disorders in children living in the radiation (environmental) control zone of Ukraine" (carried out according to the order of the Cabinet of Ministers of Ukraine No. 01.06.1999). VITA-01-M systems are not subject to metrological standardization for the following reasons:

1) the FVD methodology does not provide for the use of external energy sources ...;

2) the voltage of a closed individual diagnostic circuit does not exceed the level of membrane potentials (0.03-0.6 V) ...;

3) not the absolute values of diagnostic indicators are subject to analysis, but the relative ratio of the total activity of the functional systems of YAN / Yin groups (sympathetic / parasympathetic activity syndromes).

Factor of attention FVD is the ability of biological systems to generate current in an external closed loop "electrode donor of electrons DE + - biological object - electrode acceptor of electrons AE–". It should be remembered that the EM factors of external sources significantly exceed the biophysical level of cell membranes and determine the predicted initial excitation (inhibition) of FAZ. For this reason alone, it is incorrect to talk about the functional probability of the results of electropuncture diagnostics. In addition, the biodynamics of each "acupuncture zone" has its own vibrational profile, which is mistakenly interpreted from a "diagnostic point of view".

Methodological features of functional vegetative diagnostics. The methodological features of FVD are due to:

a) a short (3 sec.) contact of a paired diagnostic electrode + DE with symmetric representative zones and a reduction in the number of tests from 24 to 12...;

b) wet electrode contact with acupuncture areas (levels the vegetative vascular reactions of the skin)...;

c) using a centralized "support zone" for the -AE electrode (the umbilical region equidistant from the zones of representative contact). At the same time, the attention of the FVD is focused on the bioelectric activity of symmetrical zones-accomplices (Tai-yuan, Da-ling, Shen-men, Wan-gu, Yan-chi, YAN-si, Tai-bai, Tai-chun, Tai-si, Shu -gu, Qiu-xu and Chun-YAN). Their individual DC resistance is equivalent to the average resistance of other single channel zones (J.Nakatani).

The obtained data of the FVD (mV, mkA) are converted into relative values. The total bioelectric activity of the functional systems of YAN and YIN groups and the vegetative coefficient of their interdependence (kV=ΣYAN:ΣYIN) are determined. From the point of view of vegetative homeostasis, the latter indicates the ratio of sympathetic (YAN) and parasympathetic (YIN) functional activity.

Functional and vegetative principles of FVD. From a biophysical point of view, the functional activity of individual FAZs is not a carrier of basic information. But the ratio of YAN / YIN syndromes directly indicates the predominance of systemic excitement (sympathetic orientation of functional vegetative activity), or oppression (parasympathetic orientation of functional vegetative activity). In this case, the basic information value is assigned to the vegetative coefficients, calculated based on the survey materials of 14.304 children over a long period of observation. They indicate the ratio of individual sympathetic and parasympathetic activity (Table 3.2.2), determine the "functional-vegetative diagnosis" and form the following principles of vegetative analysis:

– the total bioelectric activity of the representative zones of the YN group is comparable to the sympathetic activity, and of the YIN group - with the parasympathetic;

– the sympathetic and parasympathetic divisions of the ANS at the organ level provide biochemical control over the systemic autonomic balance (the latter is dynamically stable under normal conditions, imbalance is caused by the predominance of the activity of one of the divisions of the ANS);

– the ratio of YAN and YIN

Table 3.2.2

Areas of functional vegetative diagnosis …

VALUE of **k**	ZONE OF FUNCTIONAL ATTENTION	SYMBOL OF ZONE
to 0,75	syndrome of significant parasympathetic prevalence	**PA-s**
0,76-0,86	syndrome of significant parasympathetic prevalence;	**PA-e**
0,87-0,94	zone of functional compensation of parasympathetic activity	**FcP**
0,95-1,05	zone of functional-vegetative equilibrium	**VE**
1,06-1,13	zone of functional compensation of sympathetic activity	**FcS**
1,14-1,26	syndrome of expressed sympathetic prevalence	**SA-e**
1,26 and >	syndrome of significant sympathetic prevalence	**SA-s**

syndromes at the biophysical level characterizes the functional-vegetative balance, that is, the interdependence of functional excitement and oppression (the latter is dynamically stable under normal conditions, the violation of functional balance is due to the advantage of one of the syndromes)

– according to their functional purpose, the organs (systems) of YAN are organs of active action, and the organs (systems) of YIN are accumulations (rest)

– a dynamically stable ratio of YAN and Yin syndromes reliably correlates with a dynamically stable functional ratio of sympathetic and parasympathetic activity, that is, functional-vegetative balance;

– the advantage of YAN syndrome over YIN syndrome indicates a violation of the autonomic balance with a predominance of sympathetic activity;

– the advantage of YIN syndrome over YAN syndrome indicates a violation of the vegetative balance with a predominance of parasympathetic activity.

Systemic transformations determine the individual (sympathetic, or parasympathetic) direction of autonomic homeostasis. Therefore, vegetative analysis should be carried out according to the dynamics of kV, and not according to the average values of the variation levels (their M±m approach the functional norm zone).

The above leads to the following conclusions:

1) the sympathetic and parasympathetic divisions of the ANS at the organ level act as executors of the functional-informational program of vegetative control from the previously unknown "Functional-vegetative system" (biophysical analogue of "acupuncture channels" ...);

2) kV acts as a basic "diagnostic indicator" of FVD (systemic transformations are dynamic and reflect the process of adaptation to external and internal factors)...

3.3. AGE-AGE VEGETATIVE ACTIVITY REGULATIONS

The most important problem of any diagnostic technology is the reliability of its regulatory framework, which for each age and gender group should have its own average and regional indicators. As for the FVD, the situation is special here. The fact is that under any conditions, functional-vegetative homeostasis is automatically aimed at supporting its own dynamic stability (within the framework of "PA functional compensation - vegetative balance - functional SA compensation"). Going beyond these limits forms different levels of autonomic disorders. We focus on this, because some gender and age features of systemic activity do not in any way affect the final result! In general, the results obtained should indicate the identity of the variation series and the mean error of the arithmetic mean. But we practically did not find any noteworthy possible deviations for each of the age and sex groups [both separately in female (F) and male (M), and in mixed sex and age (MSE)].

Our normative base for FVD concerns the assessment of vegetative levels and is due to a statistically significant number of observations: 14.304 examined children within the range of kV=0.05-1.05 (levels of vegetative balance).

Consider the following diagrams of different age and gender groups.

Preschool Normative Charts (kV=0,94-1,05). Comparison of the diagrams of the fe-

male (Figure 3.3.1) and male (Figure 3.3.2) groups did not reveal significant gender and age characteristics in the normal zone (red line). But a fundamental question arises: can the normative diagram be stable when assessing the dynamic activity of functional-vegetative homeostasis in preschool children? The answer is categorical: No! The systemic relationship depends on the momentary functional needs of the biological system and, by its nature, cannot be stable. Only the level of vegetative balance remains dynamically stable: the ratio of sympathetic and parasympathetic (YAN-YIN) activity, which reflects the coefficient of vegetative balance. This is evidenced by the diagrams of normative indicators at kV=1 for individual years of life of preschool children (Figure 3.3.3) and their relation to the zone of the systemic functional norm (0-zone).

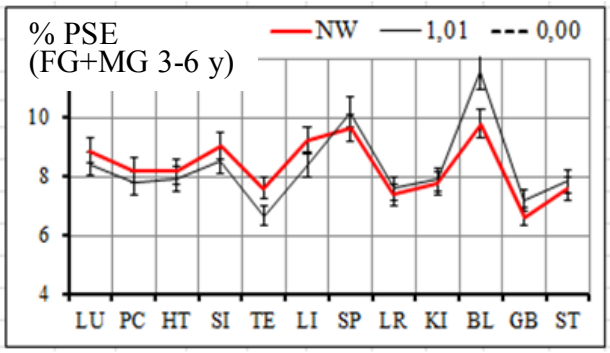


Fig.3.3.1

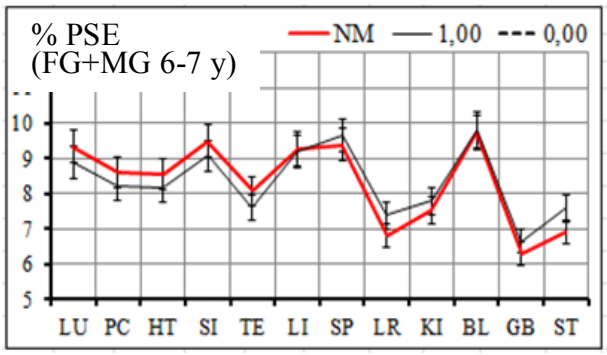
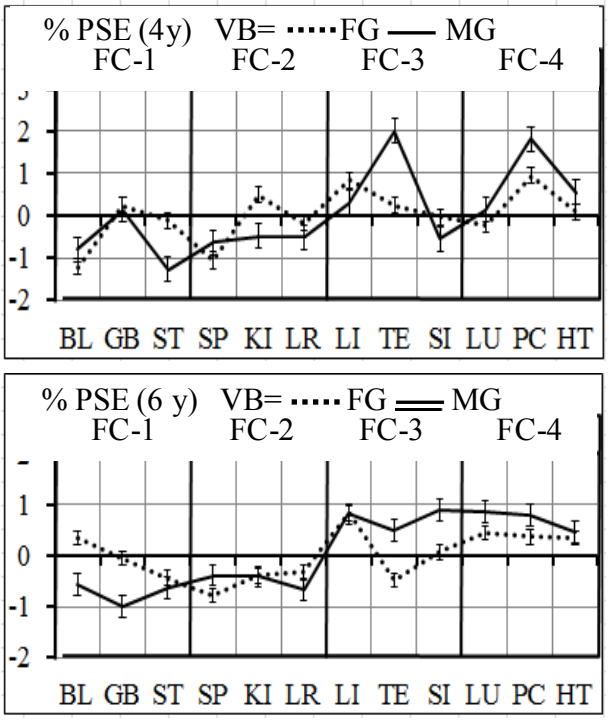


Fig. 3.3.2



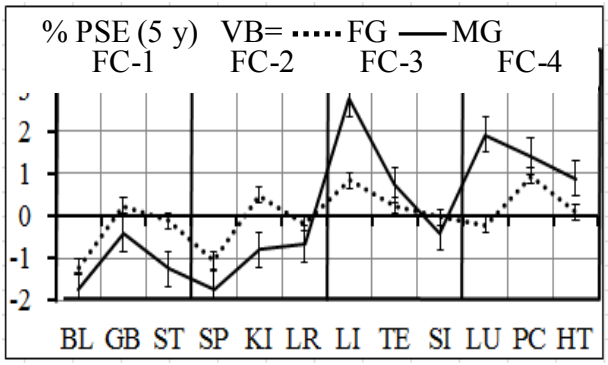


Fig. 3.3.3 The ratio of systemic dependence in female and male preschool groups with vegetative balance (kV=1).

Findings.

1. At the preschool age, the functional-vegetative diagrams for individual years of life do not differ significantly from the average statistical standards derived. The noted fluctuations within the functional norm have practically no effect on vegetative transformation and allow the use of the above average statistical standards.

2. It should be remembered that the coefficient of autonomic balance (kV) is the

only indicator that has a diagnostic value and systemic functional correction should be under its control.

Primary school age normative charts (kV=0,94-1,05)… For normative analysis, 4464 children of primary school age were selected. Of these, 2,312 children made up the female group, 2,152 children - the male group. A common feature of both groups was the state of the initial vegetative balance (kV=0.95-1.05). Let's consider the standards of FVD in children of female and male groups of primary school age (Fig. 3.3.4-5). Note: Average for mixed age group (581 children).

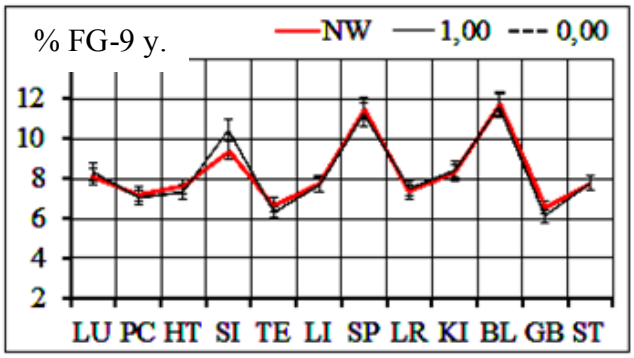


Fig.3.3.4

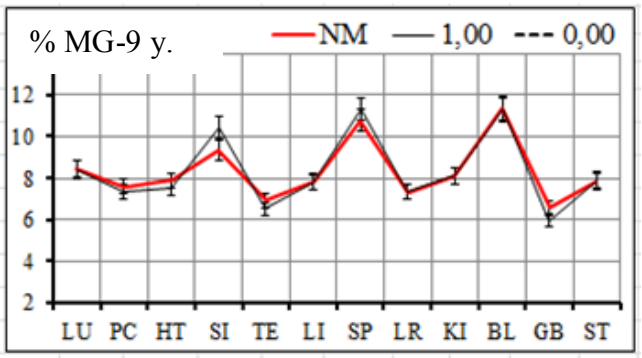
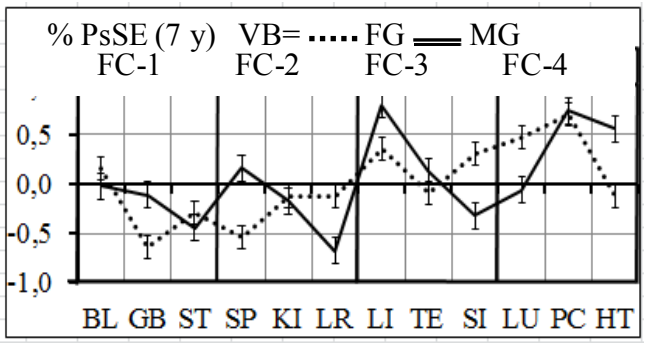
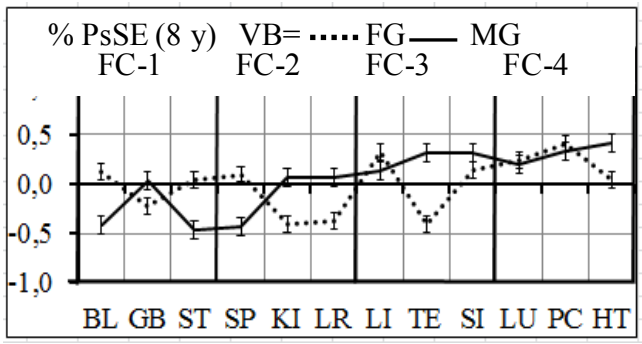


Fig.3.3.5

At primary school age, the standards for individual years of life do not differ significantly from the average statistical indicators for the age group of 7-11 years (highlighted in red). In the female (Figure 3.3.4) and male (Figure 3.3.5) normative groups, age-sex fluctuations are not reliable and do not affect the transformation of functional-vegetative levels (compared to the normal zone).

But again a fundamental question arises: can the normative diagram be stable when assessing the dynamic activity of functional-vegetative homeostasis in primary school children? The answer is categorical: No! The systemic relationship depends on the momentary functional needs of the biological system and, by its nature, cannot be stable. Only the level of autonomic balance remains dynamically stable: the ratio of sympathetic and parasympathetic (YAN-YIN) activity, which reflects the coefficient of autonomic equilibrium kV. This is evidenced by the given diagrams of normative indicators at kV= 1. For individual years of life of children of primary school age (Figure 2.3.6) and their relation to the zone of the systemic functional norm (0-zone).





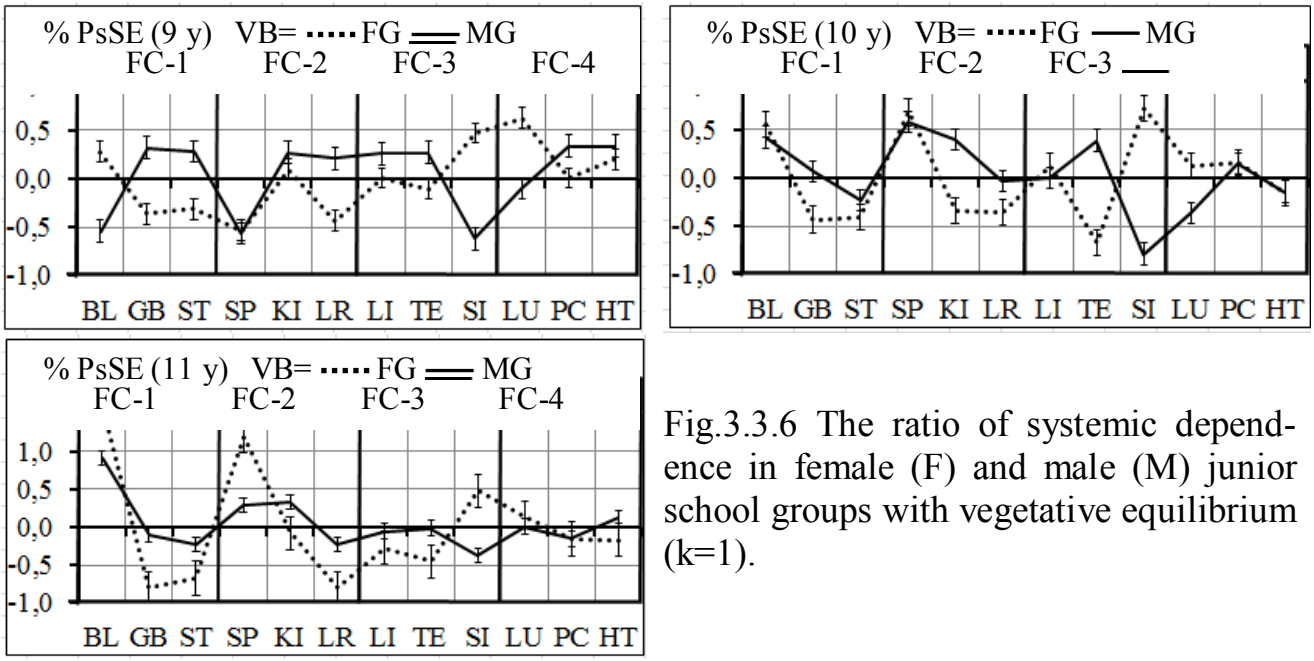


Fig.3.3.6 The ratio of systemic dependence in female (F) and male (M) junior school groups with vegetative equilibrium (k=1).

Findings. 1. At primary school age, the standards for individual years of life are similar to the average statistical data and do not affect the transformation of functional-vegetative levels in normative groups.
2. It should be remembered that the coefficient of autonomic balance (kV) is the only indicator that has a diagnostic value and systemic functional correction should be under its control.

Normative charts of adolescence 12-16 years old (k-BP=0,95-1,05)… The group of normative attention included 1740 children with an initial state of vegetative balance (kV = 0.95-1.05 at the extreme limits of the absolute norm of the "zone of vegetative balance"). Of these, 939 were in the female group and 801 in the male (the average FVD standards for children of the female and male groups of adolescent school age are shown in Fig. 3.3.7-8). A detailed analysis and comparison of the normative diagrams of the female (small 3.3.7) and male (small 2.3.8) adolescent groups testifies to their complete identity.

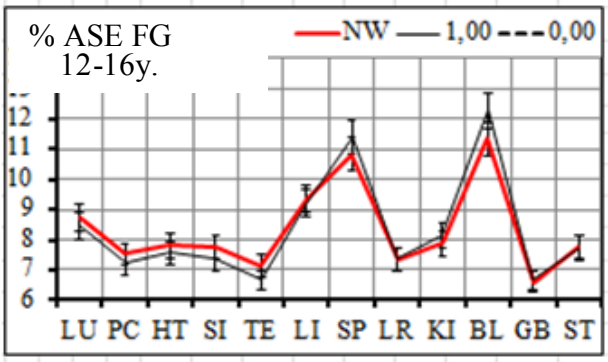


Fig. 3.3.7 Fig. 3.3.8

But again a fundamental question arises: can the normative diagram be stable when assessing the dynamic activity of functional vegetative homeostasis in adolescent schoolchildren? The answer is categorical: No! The systemic relationship depends on the momentary functional needs of the biological system and, by its nature, cannot be stable.

Only the vegetative level, reflected by the vegetative equilibrium coefficient kV, remains dynamically stable. This is evidenced by the diagrams given at kV = 1 for individual years of adolescent school age (Figure 3.3.9) and their relation to the zone of the systemic functional norm (0-zone).

Findings.

1. In adolescent school age, the standards for individual years of life do not differ significantly from the average statistical indicators for the age group of 12-16 years. The noted fluctuations are not reliable and do not affect the transformation of functional-vegetative levels in the specified normative groups of children.

2. It should be remembered that the coefficient of vegetative equilibrium (kV) is the only indicator that has a diagnostic value and systemic functional correction should be under its control.

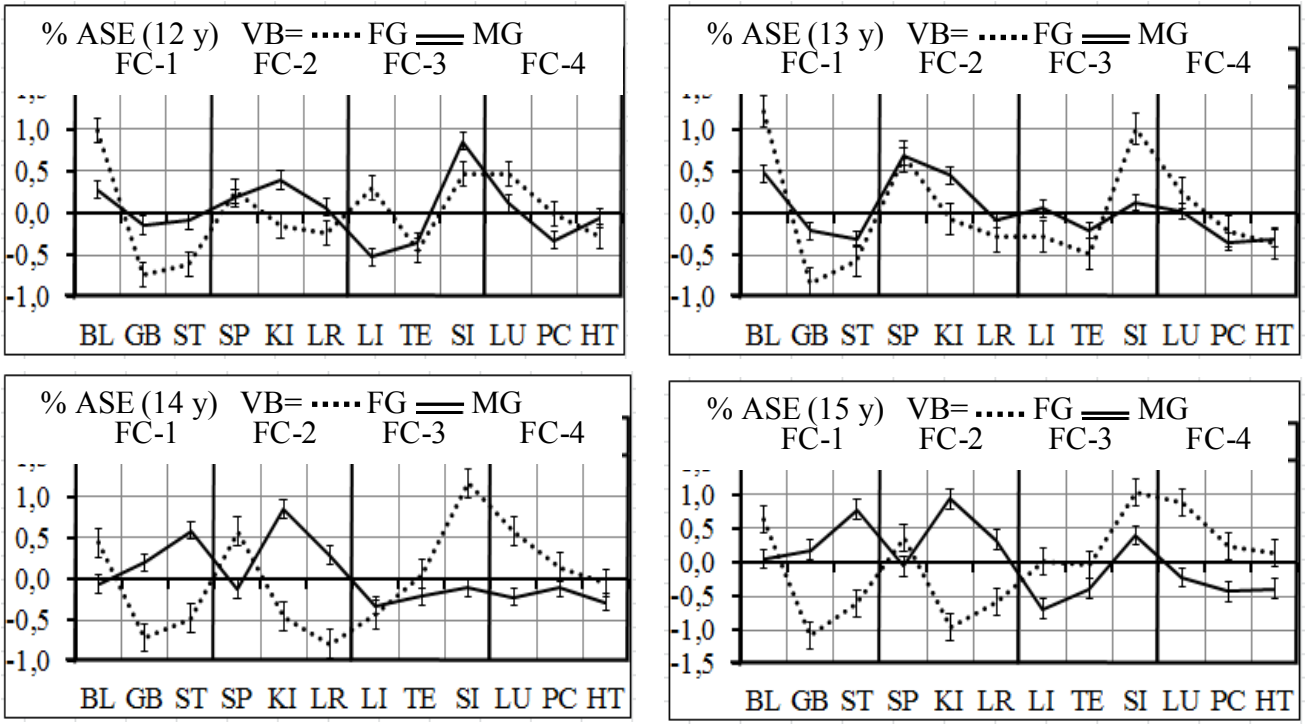


Fig. 3.3.9 Ratio of systemic dependence for individual years of life in female (----·) and male (——) teenage groups at kV=1.

Youth school age normative charts (k-BP=0,95-1,05). 1.352 female children (16-20 years old) and 37 male children (17-21 years old) were selected for the youth group for scientific and normative analysis. Their choice was determined by the initial state of the functional-vegetative balance within the range of vegetative coefficients kV=0.95-1.05, which indicated vegetative balance (state of functional health).

The average indicators of systemic functional-vegetative dependence in a mixed age group of women (16-20 years old) form the character of the histogram (Figure 3.3.10), which practically does not differ from the pre-established norm (highlighted in red). The average indicators of systemic functional-vegetative dependence in a mixed age male group (17-21 years old) form the specific character of the histogram (Figure 3.3.11), which differs significantly from the pre-established norm (highlighted in red)...

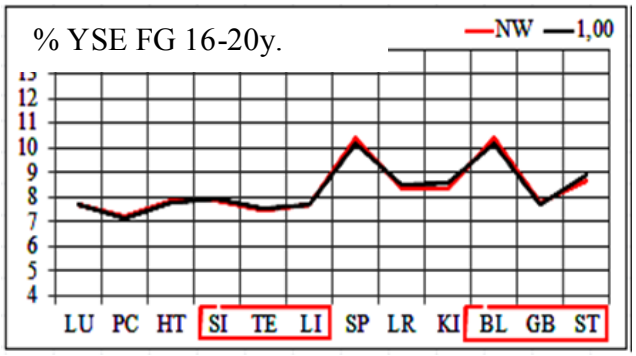


Fig. 2.3.10

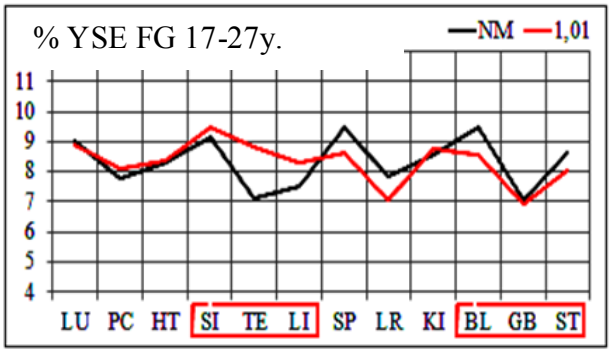


Fig. 2.3.11

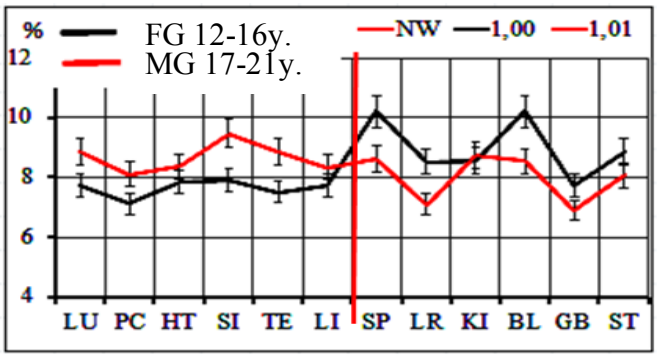
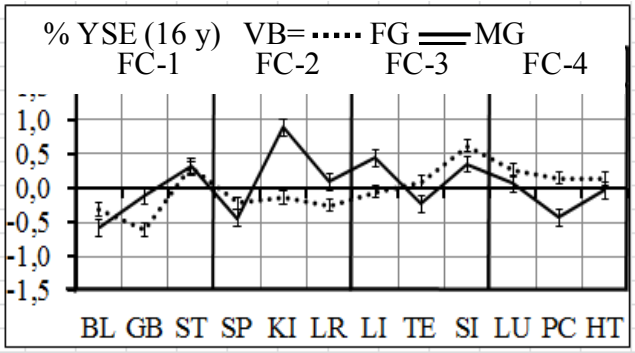
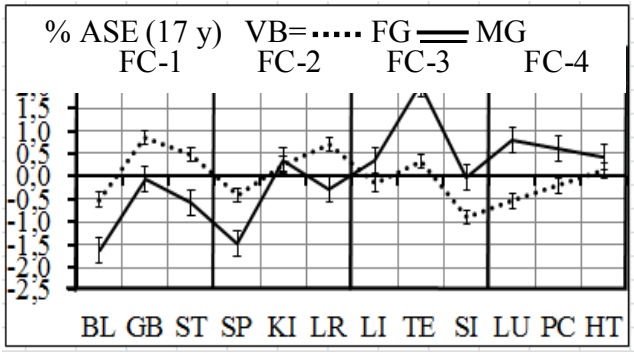


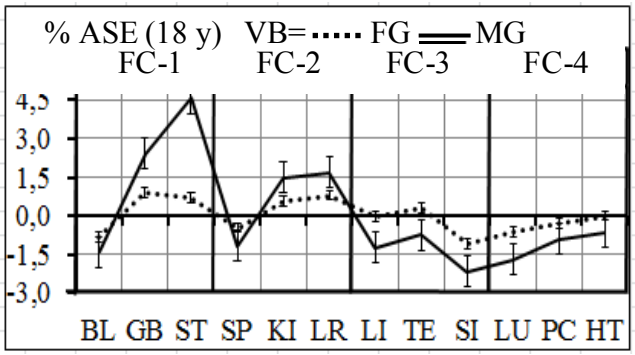
Fig. 3.3.12 Specificity of system dynamics in vegetative balance in the female and male adolescent groups ...

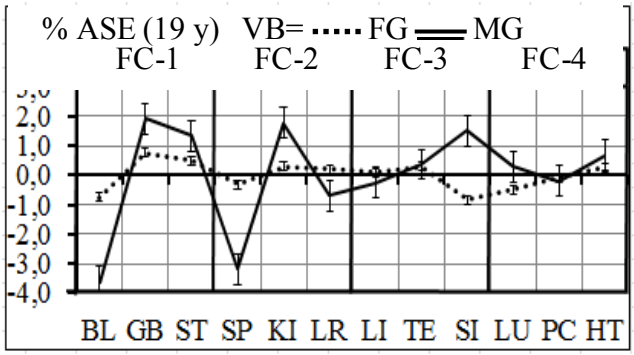
Comparison of the derived systemic functional-vegetative standards for female and male youthful groups (Fig. 3.3.12) indicates their significant difference.

At the same time attention is drawn to the right and left wings of the histograms: where systems LU,PC,HT and SI,TE,LI (left wing of the male group, highlighted in red) exceed the value of female standards, and SP,LR,KI and BL,GB,ST (the right wing of the male group, highlighted in red), on the contrary, requires fundamental attention when analyzing the results of FVD.









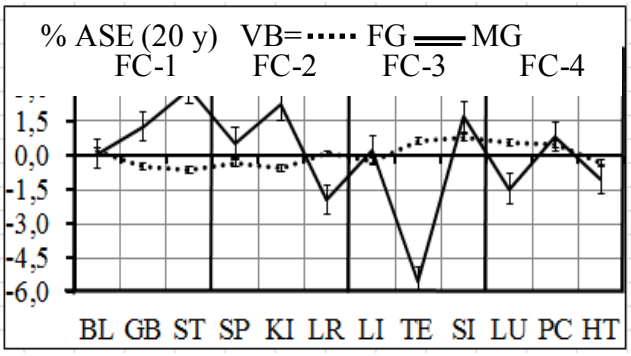


Figure: 3.3.13 The ratio of the systemic dependence of the female (·····) and male (═) youth groups with vegetative equilibrium (kV=1).

But the fundamental question remains: can the normative diagram be stable when assessing the dynamic activity of functional-vegetative homeostasis in adolescent children? The answer is categorical: No! The systemic relationship depends on the momentary functional needs of the biological system and, by its nature, cannot be stable. Only the level of autonomic balance remains dynamically stable: the ratio of sympathetic and parasympathetic (YAN-YIN) activity, which is reflected by the coefficient of autonomic balance. This is evidenced by the given diagrams of standard indicators at kV=1 for individual years of life of children of adolescent school age (Figure 3.3.13).

Findings.

1. Age-sex systemic dependence in adolescence (16-20 years) has specific functional differences. In the age-mixed male group (17-21 years), it differs from the female standards. Their analysis for individual years of life indicates the opposite dynamics of the left (excitation LU, PC, HT-SI, TE, LI) and right (oppression of SP, LR, KI-BL, GB, ST) wings of the normative average diagram. The established specificity of the normative indicators draws attention to the fundamental diagnostic value of kV, which indicates the level of functional autonomic homeostasis. The next diagnostic landmark is the activity of complex systems in relation to the area of their functional norm...

2. Let us remember that the coefficient of vegetative balance (kV) is the only indicator that has a basic diagnostic value (any systemic-functional correction must be under his control).

Normative diagrams of mature and elderly age. The group of normative observation selected a contingent with an initial state of functional-vegetative balance within the range of vegetative coefficients kV = 0.94-1.05, which indicated the state of vegetative balance (functional health) of the examined. In the female group of mature age (21-50y.) 124 people were buried, the elderly (51y and more) - 14. In the male group of mature age (22-60 y) were 73 people, elderly (61 and more years).

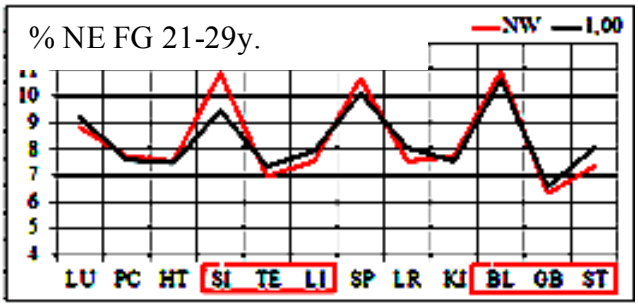


Fig. 3.3.14

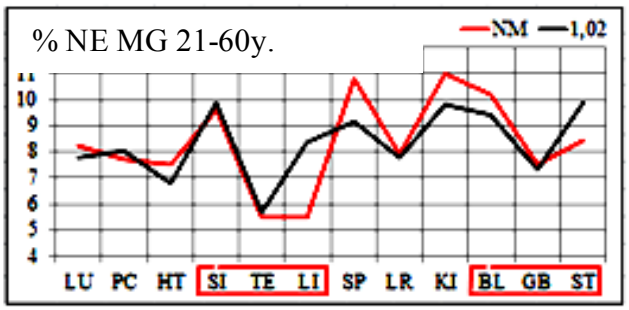


Fig. 3.3.15

Women's group (mixed age)

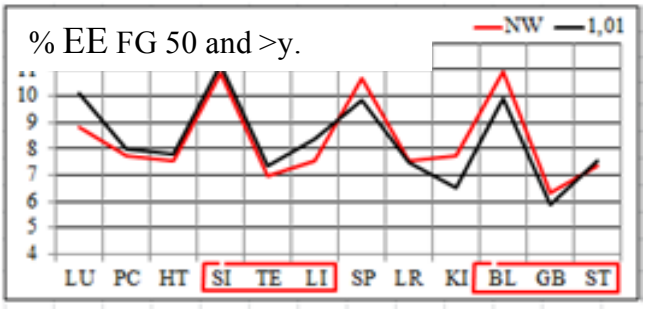


Fig. 3.3.16

Men's group (mixed age)

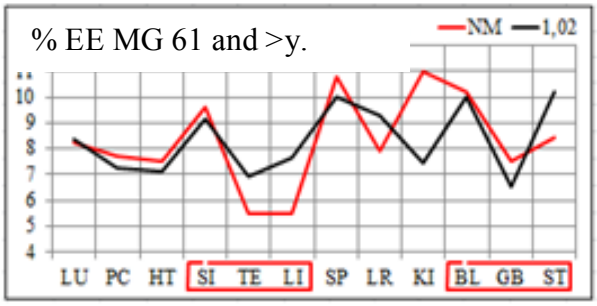


Fig. 3.3.17

The specificity of systemic interdependence in the female and male groups of mature and old age with the initial state of functional-vegetative balance has its own characteristics. Its average statistical interdependence is clearly expressed by five peaks of the predominant activity of the functional systems LU-lungs, SI-small intestine, SP-spleen-pancreas, BL-bladder, and ST-stomach.

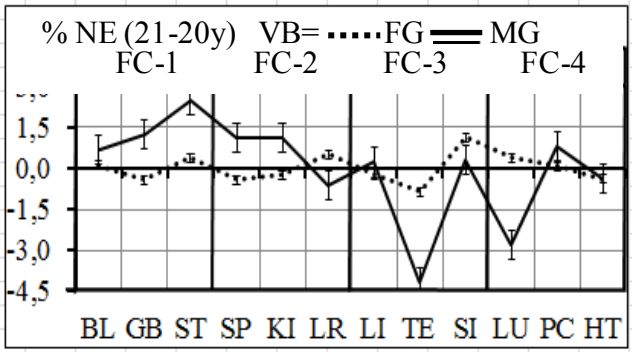
This is indicated by female and male diagrams of mature (Fig.3.3.14-15) and elderly (Fig.3.3.16-17) age (the zone of the age functional norm is highlighted by the red line).

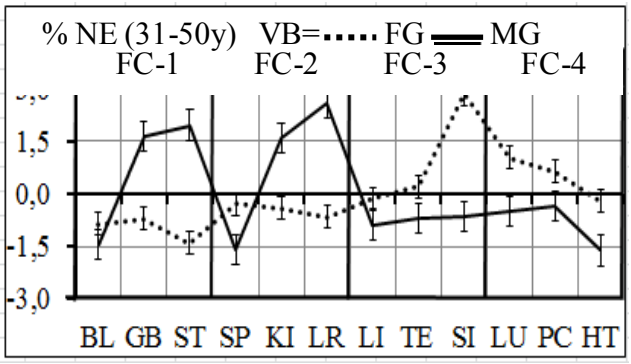
It is clear that the systemic dependence in the groups of mature and old age (even with the initial state of vegetative balance) has features. At this age, functional disorders acquire their clinically pronounced forms. Bearing in mind their diversity, let us pay attention only to the systemic ratio in the conditions of vegetative equilibrium of the indicated observation groups (Figure 3.3.18).

In general, the following becomes obvious:

– the contrast of the complex-systemic ratio is more pronounced in the male observation groups (black solid line)

– the complex-systemic ratio in the female groups is smoother and indicates the predominance of the activity of the SI channel (small intestine).





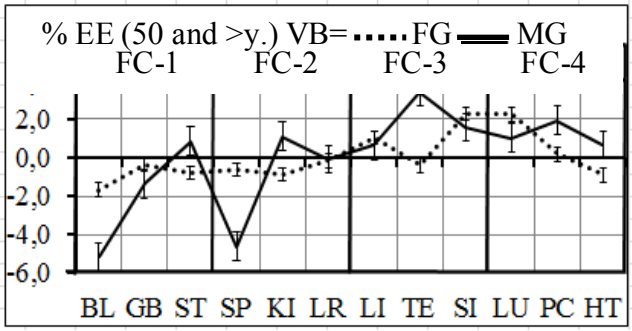


Fig.3.3.18 The ratio of systemic dependence in the female (·····) and male (——) groups of mature and old age with vegetative balance (kV=1).

Findings. The reality of unsatisfactory functional health in mature and old age does not allow us to talk about its normative characteristics. This determines the fundamental orientation towards the determination of individual levels of autonomic disorders by kV. It should be remembered that the coefficient of vegetative balance is the only indicator of diagnostic value and systemic functional correction should take place only under its control.

But there were some surprises! In the female and male groups of mixed age, a specific feature of the functional systems of the first and second complexes was found: a diametrically opposite direction of the functional activity of BL-SP and KI-GB (Figure 3.3.19). We will return to it later, but now we pay attention to the gender and age typicality of systemic transformations during vegetative equilibrium (kV=0.95-1.05)...

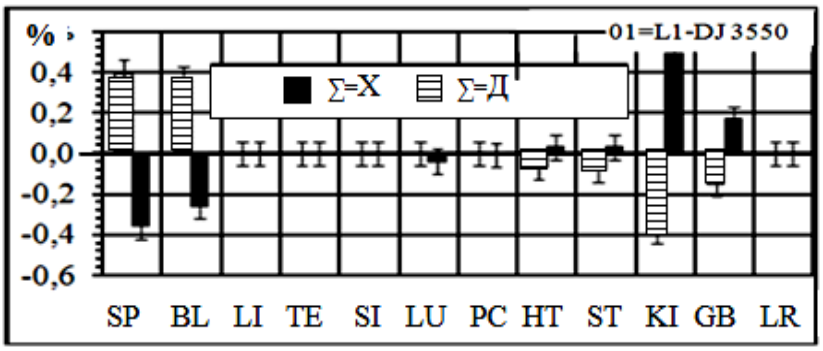


Figure: 3.3.19 Activity of SP-BL and KI-GB in female (F) and male (M) groups during vegetative equilibrium.

Concluding the section "FVD Standards", we inform the school specialists prof. V.G. Makats information available to them ...

PSE–WG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
3-6	M±	9,80	7,59	6,64	9,65	7,38	7,79	9,06	7,60	9,21	8,89	8,21	8,17
	+3σ	10,0	7,71	6,74	9,83	7,50	7,91	9,18	7,70	9,45	9,01	8,31	8,27
	–3σ	9,56	7,47	6,54	9,47	7,26	7,67	8,94	7,50	8,97	8,77	8,11	8,07
PSE–MG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
3-6	M±	9,80	7,59	6,64	9,65	7,38	7,79	9,06	7,60	9,21	8,89	8,21	8,17
	+3σ	10,0	7,71	6,74	9,83	7,50	7,91	9,18	7,70	9,45	9,01	8,31	8,27
	–3σ	9,56	7,47	6,54	9,47	7,26	7,67	8,94	7,50	8,97	8,77	8,11	8,07
	3 Σ	*0,24*	*0,12*	*0,10*	*0,18*	*0,12*	*0,12*	*0,12*	*0,10*	*0,24*	*0,12*	*0,10*	*0,10*

PsSE–WG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
7-	M±	11,7	7,78	6,58	11,5	7,34	8,28	9,43	6,69	7,74	8,10	7,21	7,62
11	+3σ	11,7	7,90	6,68	11,7	7,46	8,40	9,55	6,79	7,98	8,22	7,31	7,72
	–3σ	11,5	7,66	6,48	11,3	7,22	8,16	9,31	6,59	7,50	7,98	7,11	7,52
PsSE–MG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
7-	M±	11,3	7,83	6,60	10,7	7,33	8,06	9,35	6,91	7,86	8,47	7,61	7,88
11	+3σ	11,5	7,95	6,70	10,9	7,45	8,18	9,47	7,01	8,10	8,59	7,71	7,98
	–3σ	11,1	7,71	6,50	10,5	7,21	7,94	9,23	6,81	7,62	8,35	7,51	7,78
	3 Σ	*0,24*	*0,12*	*0,10*	*0,18*	*0,12*	*0,12*	*0,12*	*0,10*	*0,24*	*0,12*	*0,10*	*0,10*

ASE–WG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
12-	M±	11,3	7,73	6,61	10,8	7,34	7,87	9,34	7,14	7,76	8,74	7,52	7,8
14	+3σ	11,6	7,85	6,71	11,0	7,46	7,99	9,46	7,24	8,00	8,86	7,62	7,90
	–3σ	11,1	7,61	6,51	10,7	7,22	7,75	9,22	7,04	7,52	8,62	7,42	7,70
ASE–MG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
12-	M±	10,9	8,2	6,77	10,4	7,55	8,71	9,36	6,87	7,78	8,44	7,26	7,76
15	+3σ	11,2	8,32	6,87	10,5	7,67	8,83	9,48	6,97	8,02	8,56	7,36	7,86
	–3σ	10,7	8,08	6,67	10,2	7,43	8,59	9,24	6,77	7,54	8,32	7,16	7,66
	3 ∑	*0,24*	*0,12*	*0,10*	*0,18*	*0,12*	*0,12*	*0,12*	*0,10*	*0,24*	*0,12*	*0,10*	*0,10*
YSE–WG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
15-	M±	10,2	8,89	7,75	10,2	8,53	8,56	7,92	7,52	7,74	7,74	7,13	7,83
20	+3σ	10,4	9,01	7,85	10,4	8,65	8,68	8,04	7,62	7,98	7,86	7,23	7,93
	–3σ	9,96	8,77	7,65	10,0	8,41	8,44	7,8	7,42	7,5	7,62	7,03	7,73
YSE–MG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
16-	M±	8,55	8,06	6,91	8,62	7,09	8,76	9,47	8,85	8,33	8,89	8,11	8,37
21	+3σ	8,79	8,18	7,01	8,8	7,21	8,88	9,59	8,95	8,57	9,01	8,21	8,47
	–3σ	8,31	7,94	6,81	8,44	6,97	8,64	9,35	8,75	8,09	8,77	8,01	8,27
	3 ∑	*0,24*	*0,12*	*0,10*	*0,18*	*0,12*	*0,12*	*0,12*	*0,10*	*0,24*	*0,12*	*0,10*	*0,10*
NE–WG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
20-	M±	10,9	7,34	6,36	10,7	7,52	7,72	10,9	6,95	7,53	8,82	7,71	7,57
50	+3σ	11,1	7,46	6,46	10,9	7,64	7,84	11,0	7,05	7,77	8,94	7,81	7,67
	–3σ	10,7	7,22	6,26	10,5	7,4	7,6	10,8	6,85	7,29	8,7	7,61	7,47
NE–MG		BL	ST	GB	SP	LR	KI	SI	TE	LI	LU	PC	HT
20-	M±	10,2	8,46	7,51	10,8	7,92	11,0	9,62	5,51	5,52	8,25	7,7	7,54
50	+3σ	10,5	8,58	7,61	11,0	8,04	11,1	9,74	5,61	5,76	8,37	7,8	7,64
	–3σ	9,97	8,34	7,41	10,6	7,8	10,9	9,5	5,41	5,28	8,13	7,6	7,44
	3 ∑	*0,24*	*0,12*	*0,10*	*0,18*	*0,12*	*0,12*	*0,12*	*0,10*	*0,24*	*0,12*	*0,10*	*0,10*

3.4. BIOPHYSICAL FEATURES OF FVD …

The biophysical features of FVD are due to previously unknown phenomena that provide its specificity. Before considering them, let's pay attention to the reality of natural generators and sources of biogenic energy...

The reality of natural energy generators due to two basic provisions. 1) bioelectric phenomena (processes of distribution and transport of electric charges) are caused by the presence in living tissues of a large number of fixed (charged groups of biomacromolecules) and mobile (free electrons and ions) electric charges. 2) Biological systems are natural energy generators capable of transporting free charge carriers into an artificial external circuit.

To implement a biological energy source, three components are needed:

a) a biological system (a natural energy generator);

b) chemically inert electrodes, an electron donor (DE +), a source of charge carriers through the FAZ into a functional system, and an electron acceptor (AE–), their receiver from the inner part of the bioelectric circuit;

c) an external circuit with a control device in contact with the DE and AE electrodes.

Energy source for FVD is the ability of biological systems to generate weak currents in a closed loop. Thus, the directed transport of free electrons, the redistribution of which causes energy-informational transformations, acts as a diagnostic factor for high-frequency activity.

This part requires additional explanation, and we will begin with the question of the relationship of functionally active zones (FAZ) of the skin to biogenic energy generation.

1) The movement of energy carriers through a biological object (Figure 3.4.1b) is carried out from the DE + electrode to the AE– electrode, without disturbing the known direction in the external circuit from (-) to (+). If an external source of current is added to the circuit (a battery, Fig. 3.4.1a), then the movement of charges becomes dependent on its polarity and the current passes through the object in the direction "legalized by physics" from (-) to (+).

2) Between two single-channel zones, the bioelectric activity of the circuit is 73.4% higher than in contact with the FAZ of various systems.

Now let us consider the previously unknown biophysical phenomena of FAZ, the reality of which is directly related to functional autonomic diagnostics!

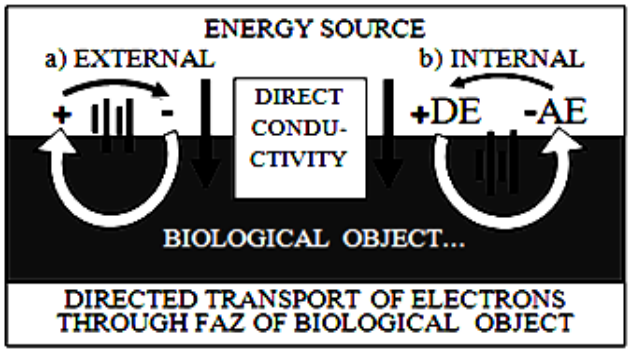
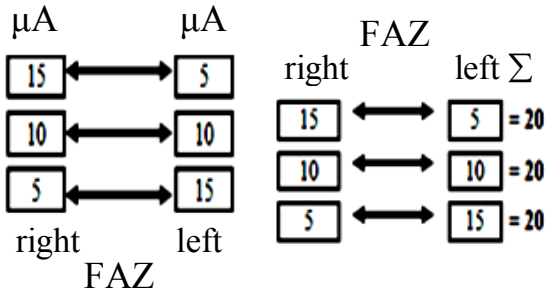


Figure 3.4.1 Directional movement charges through a biological object.

μA μA

The phenomenon of the total activity of symmetric FAZ. Let's pay attention to the essential feature of the FAZ, which ensures the stability of the FVD - "The phenomenon of total bioelectric activity". It arises in symmetrical pairs of FAZs during their simultaneous testing with a DE paired electrode with one common output to the control device. So, for example, three times (within 15-20 minutes) testing of the right and left symmetric representative zones will reveal different values of symmetric asynchrony (if the right PHAZ conventionally shows a decay wave (15-10-5 μA), then its left, on the contrary, will show ascent wave (conditionally inverse values of 5-10-15 μA). But, if two symmetric PHAS are simultaneously tested with a "paired" electrode + DE, we will receive the total results of the activity of symmetric PHAS: 20-20-20 μA. A clear pattern of the phenomenon should be noted. And although the latter does not have correct biophysical explanations, its use in the practice of FVD is significant: for the first time we obtain indicators that are stable over time and halve the number of tests (instead of 24, we control the total activity of 12 symmetric pairs of FAS). Thus,



FVD during repeated observations gives comparable results and requires attention (Table 3.4.2).

Table 3.4.2

Individual and total BA of symmetric PHAS (in μA)

СТОРОНА SIDE	ІНДИВІДУАЛЬНА І СУМАРНА АКТИВНІСТЬ СИМЕТРИЧНИХ ФАЗ INDIVIDUAL AND TOTAL ACTIVITY OF SYMMETRIC FAZ											
	BL	SP	LI	TE	SI	LU	PC	HT	ST	KI	GB	LR
СПОСТЕРЕЖЕННЯ - SUPERVISION 12.10.2005 (№1)												
ЛІВА - LEFT	1,6	4,4	15	5,0	7,0	0,3	1,0	3,9	2,6	9,0	9,5	1,8
ПРАВА-RIGHT	5,2	3,0	10	5,0	12,0	1,4	12,5	3,0	6,0	11,0	0,8	1,4
Σ	**6,8**	**7,4**	**24,5**	**10,0**	**19,0**	**1,7**	**29,5**	**7,0**	**8,6**	**20,0**	**10,1**	**3,2**
СПОСТЕРЕЖЕННЯ - SUPERVISION 12.10.2005 (№2)												
ЛІВА - LEFT	7,4	10	3,8	2,8	8,5	7,0	6,3	4,0	5,2	2,6	3,5	6,0
ПРАВА-RIGHT	4,2	6,8	6,5	3,3	4,0	7,0	10,5	7,2	2,6	2,0	7,4	3,5
Σ	**11,6**	**16,8**	**10,3**	**6,1**	**12,5**	**14,0**	**17,0**	**11,2**	**7,8**	**4,6**	**11,0**	**9,5**
СПОСТЕРЕЖЕННЯ - SUPERVISION 12.10.2005 (№3)												
ЛІВА - LEFT	1,0	0,9	6,0	0,5	0,8	0,9	0,8	2,5	3,0	3,3	0,8	2,6
ПРАВА-RIGHT	0,7	0,7	6,3	1,5	1,6	0,3	0,5	0,5	1,7	1,6	0,5	2,2
Σ	**1,7**	**1,6**	**12,0**	**2,0**	**2,4**	**1,2**	**1,3**	**3,0**	**4,7**	**5,0**	**1,3**	**4,8**

The phenomenon of systemic dependence on the activity of BL-SP channels (FC 1-2). The specificity of the influence of BL-SP channels on the directed activity of other systems was revealed: their excitation asynchronously inhibits the bioelectrical activity of other functional systems (and vice versa) and determines the value of the posture during FVD (Figure 3.4.3 using BL as an example).

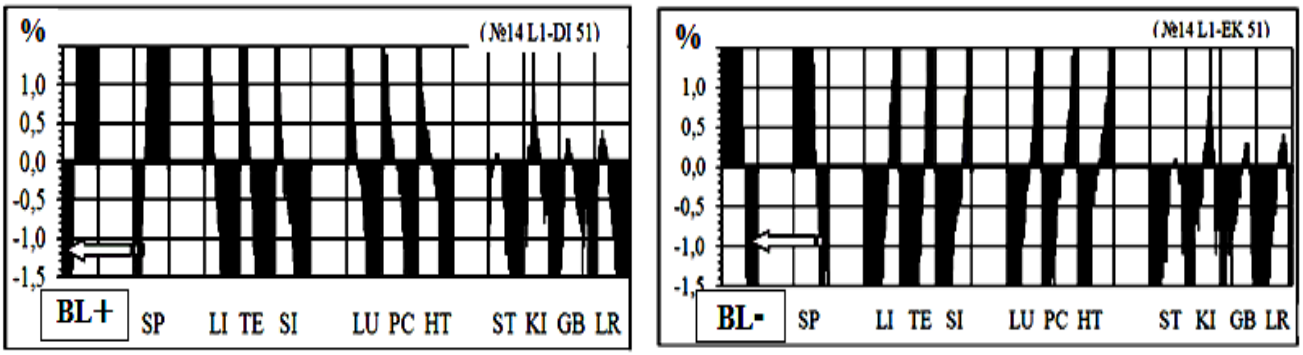


Fig. 3.4.3. Asynchronous systemic responses to arousal and suppression of BL

Posture phenomenon (value of ortho- and clinostatics for FVD)... According to our data, in 73.2% of cases, a change in position from orthostatics (standing ↑) to clinostatics (lying ➞) determines the orientation of autonomic homeostasis towards parasympathetic activity. In this case, a change in body position is accompanied by an increase in BL-SP activity (FC 1-2), which causes selective asynchronous inhibition of the functional systems of FC 3-4.

Changing the posture from clinostatics to orthostatics, on the contrary, causes the inhibition of the activity of these systems and the predominant excitation of other channels (Figure 3.4.4). The discovered phenomenon of posture became an argument in favor of carrying out FVD in the "standing" position. Bearing in mind that almost all functional diagnostics (ECG, EEG, etc.) are carried out in a clinostatic position, you must at least take into account its consequences.

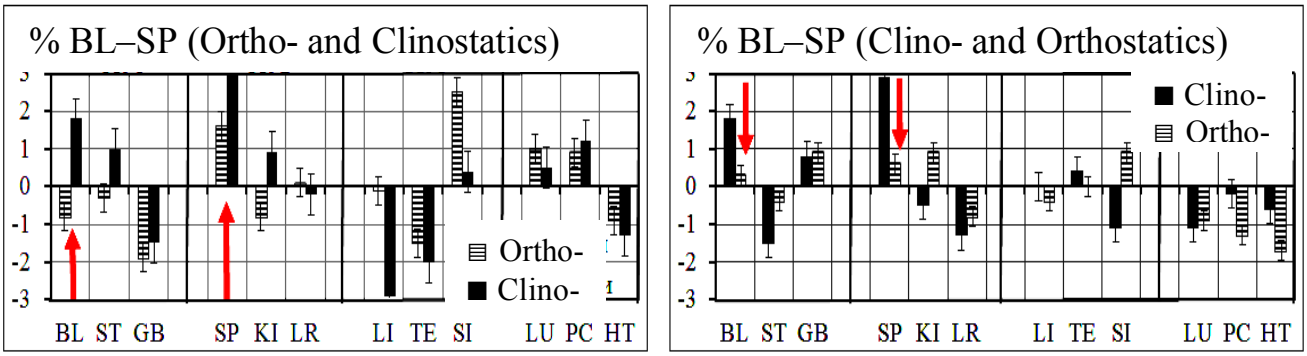


Fig. 3.4.4 BL-SP activity in "ortho- and clinostatics" (posture phenomenon). Transition from "ortho- to clinostatics" ... and from "wedge-to-orthostatics".

3.5. FUNCTIONAL-VEGETATIVE DIAGNOSTICS (PROF. V.G. MAKATS)

The introduction of the FVD methodology into practical medicine complies with the recommendations of the WHO International Meeting on Traditional Medicine (Yerevan, 19-21.09.2003), orders of the Ministry of Health of Ukraine (No. 360 of December 19, 97) and the Ministry of Health of the Russian Federation (No. 364 of December 10, 1997) on the section "folk and alternative medicine ". Therefore, it should be recalled about the international classification of representative acupuncture FAZ (Table 3.5.1).

Table 3.5.1

Traditional channel	IAN *	FN	Traditional channel	IAN *	FN
Lungs	LU	P	Urinary bladder	BL	V
Large intestine	LI	GI	Kidney	KI	R
Stomach	ST	E	Pericardium	PC	MC
Spleen – Pancreas	SP	RP	Triple energizer	TE	TR
Heart	HT	C	Gall bladder	GB	VB
Small intestine	SI	IG	Liver	LR	F

1) First, let's pay attention to the features of the FVD, which are due to its methodology:

a) a short (3 sec.) contact of a paired diagnostic electrode +DE with symmetric representative FAZ and a reduction in the number of tests from 24 to 12;

b) wet electrode contact with FAZ (neutralizes vegetative-vascular skin reactions);

c) using a centralized "reference zone" for the -AE electrode (the umbilical region equidistant from the zones of representative contact).

At the same time, the attention of the FVD is focused on the bioelectric activity of symmetrical zones-accomplices: Tai-yuan, Da-ling, Shen-men, Wan-gu, YAN-chi, YAN-si, Tai-bai, Tai-chun, Tai-si, Shu -gu, Qiu-hsui and Chun-YAN (their resistance to direct current is equivalent to the average resistance of all single-channel zones (J.Nakatani).

The FVD data obtained in mV (mkA) are converted into relative values (percentage), the total bioelectrical activity of the functional systems of YAN–YIN groups and the vegetative coefficient kV=ΣYAN : ΣYIN are determined. From the point of view of autonomic homeostasis, the latter indicates the ratio of sympathetic (YAH) and parasympathe-

tic (YIN) functional activity. Further, computer analysis and identification of graphological material is carried out.

2) Now about the topography of the representative FAZ (Figure 3.5.2) and their anatomical features (Figure 3.5.3-4). We draw attention to the minimum diameter of the FAZ (up to 1 mm) and the need for their topographic localization...

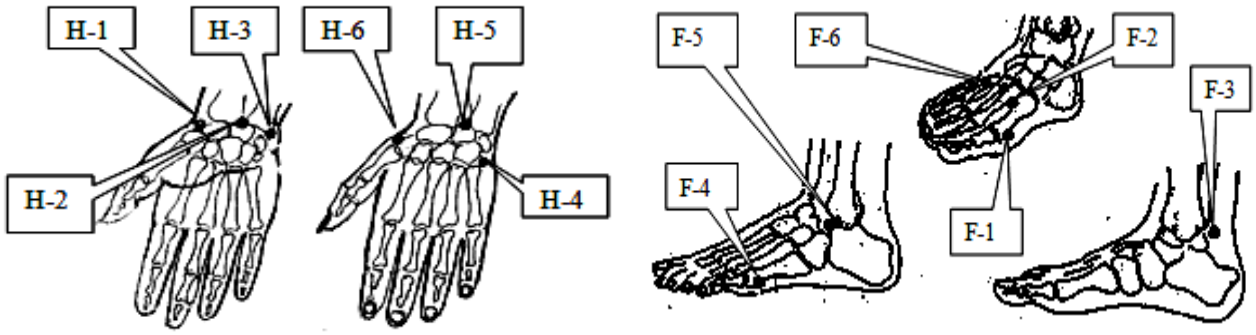
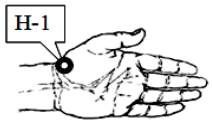


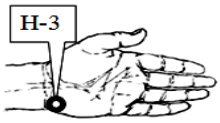
Figure: 3.5.2 Representative PHAs of the upper (H) and lower (F) limbs.

REPRESENTATIVE PHASES OF THE HAND (FIG. 3.5.3).

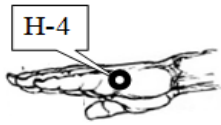


H1= LU^{-9} T *tai-yuan* ⮟ – in a depression at the end of the transverse skin fold of the wrist joint, at the radial edge of the radial artery.

H2=PC^{-7} *da-ling* ⬍⬎ – on the transverse skin fold of the wrist joint, between the tendons of the long palmar muscle and the radial wrist flexor.

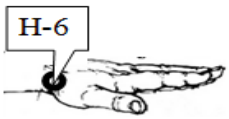


H3=HT^{-7} *shen-men* ⬍⬎ - on the transverse skin fold of the wrist joint in the depression between the pisiform and ulna bones (at the radial edge of the ulnar flexor tendon of the wrist).



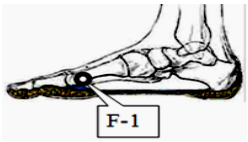
H4=SI^{-4} *wan-gu* ⬍⬎ – on the ulnar edge of the palm, between the base of the V metacarpal bone and the bones of the wrist.

H5=TE^{-4} *yang-chi* ⬍⬎ – на локтевом краю ладони, между основанием V пястной кости и костями запястья.

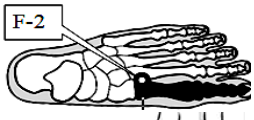


H6=LI^{-5} *yang-xi* ◇ – at the radial edge of the wrist, between the tendons of the short and long extensors of the thumb (in the center of the anatomical snuffbox).

REPRESENTATIVE PHASES OF THE LEG (FIG. 3.5.4).



F1=SP^{-3} *tai-bai* ⬍⬎ - along the medial edge of the foot, in the depression behind the head of the I metatarsal bone.

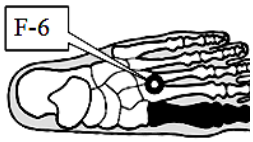


F2=LR^{-3} *tai-chong* ⬍⬎ – на тыльной поверхности стопы, в самом узком месте между I-II плюсневыми костями.

F3=KI^{-3} *tai-xi* ⬍⬎ – in the middle of the horizontal distance between the heel tendon and the medial ankle (at the level of its center).

F4=BL^{-65} *shu-gu* ▼ – along the lateral edge of the foot, in the depression, behind and below the head of the V metatarsal bone.

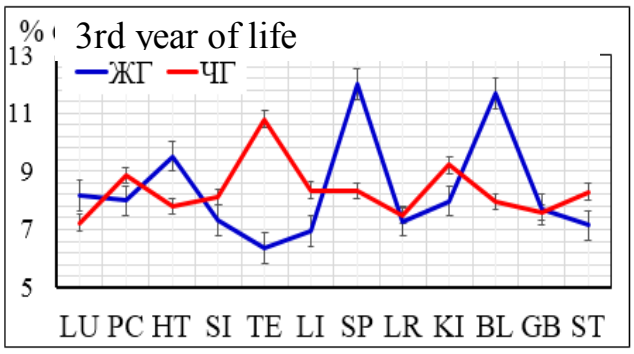
F5=GB^{-40} *qiu-xu* ⬍ – in front and below the lateral malleolus, in the depression, on the outer edge of the extensor digitorum longus tendon.

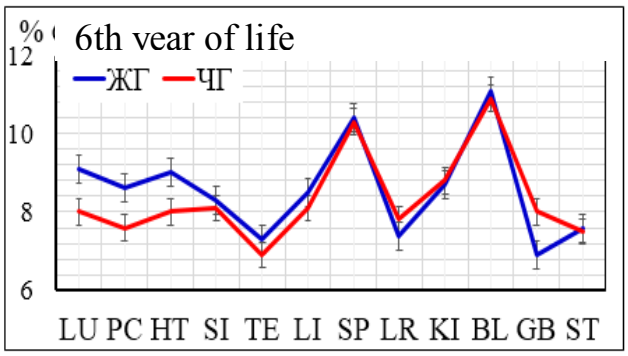


F6=ST^{-42} *chong-yang* ▼⬍ – on the most elevated part of the dorsum of the foot, between the joints of the II-III sphenoid and II-III metatarsal bones.

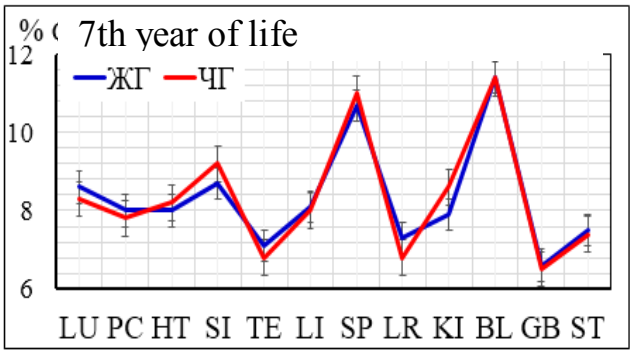
When carrying out FVD, it is necessary to bear in mind the biophysical reality of the age and sex dynamics of systemic dependence for individual years of life of age groups (Fig.3.5.5; — FG,ЖГ, — MD,ЧГ) and the leading value for kV...

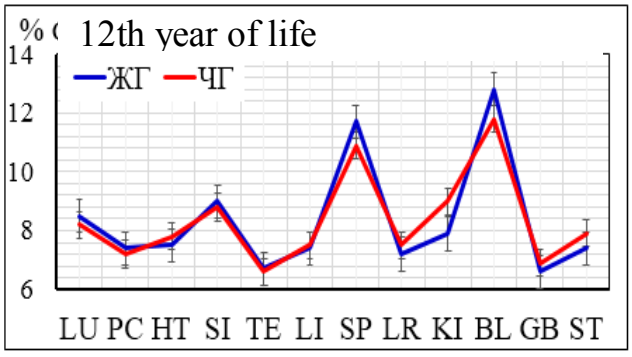
FVD FOR THE LAST YEARS OF PRESCHOOL AGE (PSE)....



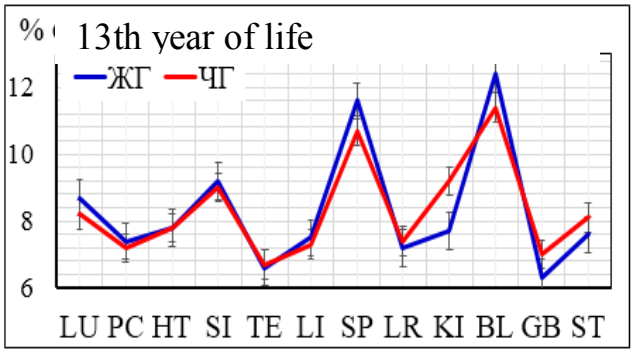


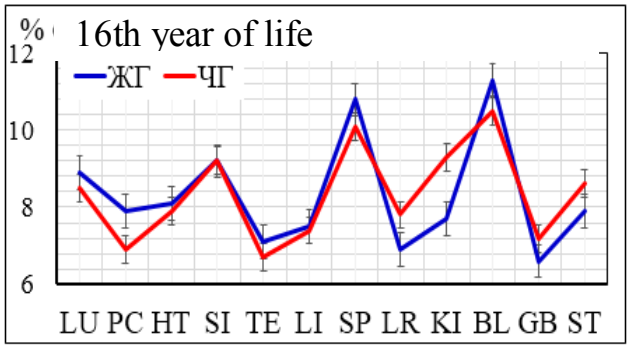
FVD FOR THE LAST YEARS OF PRIMARY SCHOOL AGE (PrSE)...





FVD IN THE LAST YEARS OF ADOLESCENT SCHOOL AGE (ASE)...





FVD TO THE EXTREME YEARS OF YOUTH SCHOOL AGE (YSE)...

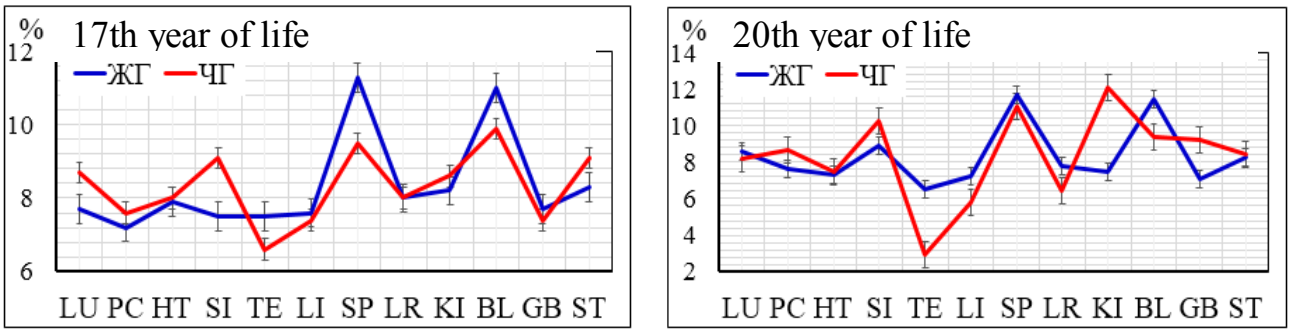


Fig.3.5.5

Variational pulsometry as a prototype of "FVD"... The existing "electropunctural prototypes of FVD" are not worth attention for the following reason: they do not give comparable results with repeated (after 5-10-15 minutes) examinations. An exception will be made for variation heart rate monitoring, which is officially considered a diagnostic test for Western vegetology (Wayne, 2000). It is based on the concept of nervousism, which links functional pathology with impaired dynamic stability of sympathetic and parasympathetic activity of the ANS. The basic indicators of variation heart rate monitoring are: Q (intersystem relationships); BI (Kerdo vegetative index); Mo (fashion); MO (blood minute volume); QVm (index of minute blood volume); BP (variation range); Amo (amplitude of a mode) and IH (index of tension of regulatory systems).

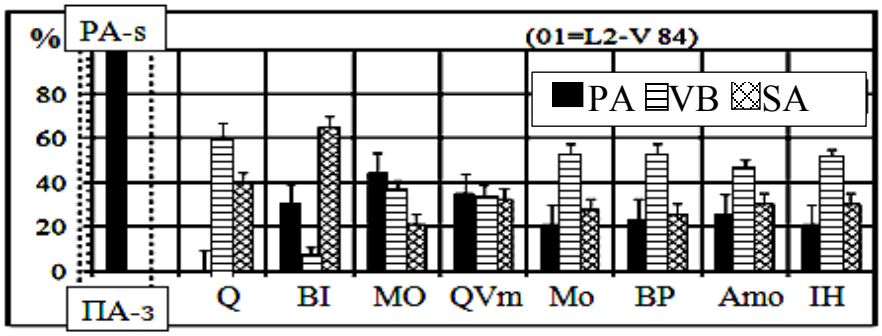
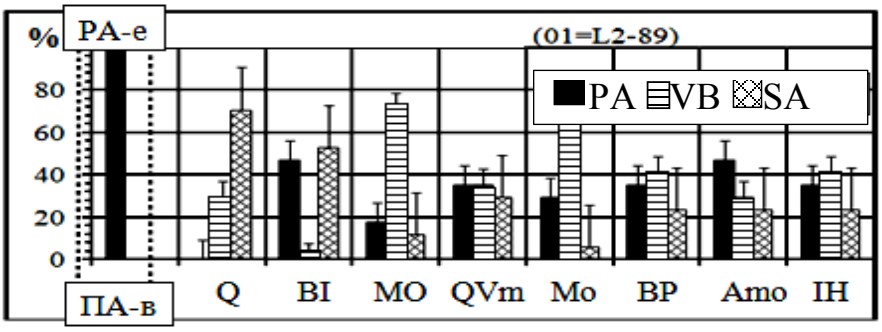


Fig.3.5.6 Autonomic incorrectness of variation heart rate monitoring in groups of significant and pronounced parasympathetic activity



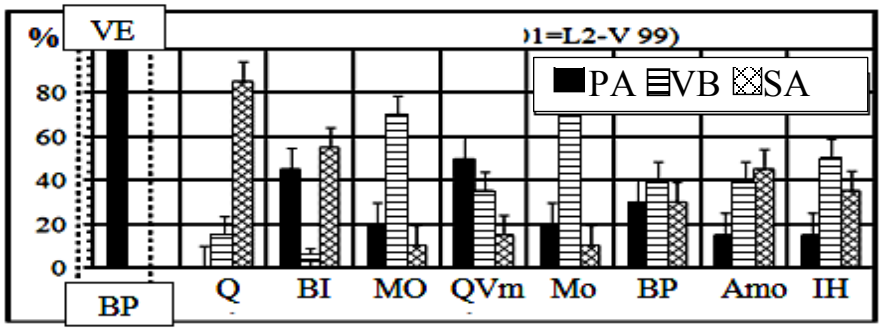


Fig.3.5.7 Vegetative incorrectness of variationnal pulmetry in vegtative balance groups...

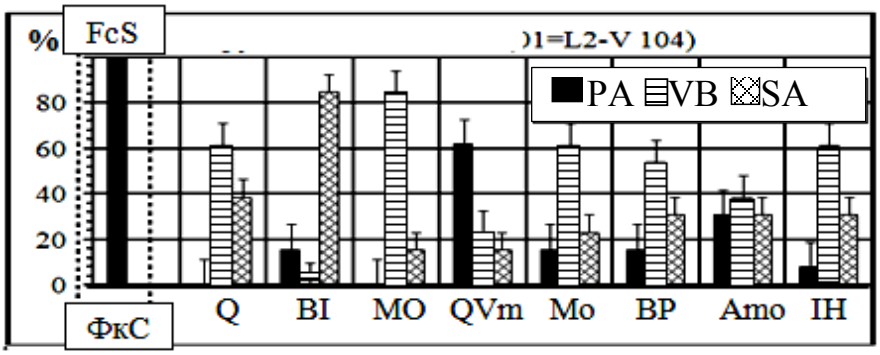


Fig.3.5.8 Vegetative incorrectness of the variational pulsometry in the groups of functional compensation of sympathetic activity...

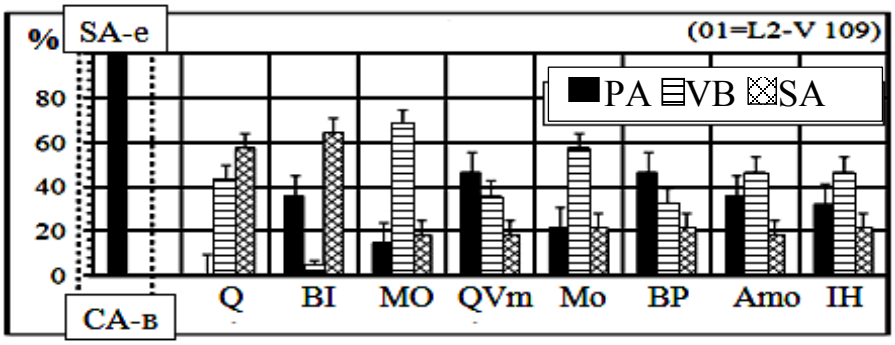


Fig.3.5.9 Vegetative incorrectness of the variational pulsometry in the groups with pronounced SA.

To assess the biophysical reality of variational heart rate monitoring, we chose the comparability of the results of mathematical calculations (these indicators were compared with each other in seven observation groups formed on the basis of the initial functional-vegetative level).

The groups were formed on the basis of FVD, the results of which were taken as 100%. The first column of the diagrams (189 observations) and reflected the initial state of significant (PA-s) and pronounced (PA-e) – and its pronounced (SA-e) and significant (SA-s) levels.

The data obtained are striking in their multi directionality, which leads to the conclusion about the diagnostic incorrectness and inappropriateness of the use of variational pulsometry (VP) for the integral assessment of functional-vegetative homeostasis. At the same time, it is alarming that even in relation to the cardiovascular system, there is no unambiguity in its indicators (Fig. 3.5.6-8).

GENERAL CONCLUSIONS TO PAY ATTENTION TO...

The above biophysical features of FVD testify to its specific originality, which made it possible to identify hypothetical acupuncture channels and levels of autonomic disorders, open autonomic laws and substantiate the appropriateness of their use. At the same time, we note that the use of traditional "acupuncture recipes" without preliminary FVD indicates professional unpreparedness...

A specific feature of FVD (according to V.G. Makats) is the following.

1) Lack of external power sources (current) during its implementation.

2) Biophysical EM-nature of "test signals", the diagnostic activity of which does not exceed the levels of membrane potentials (0.03-0.6 V).

3) The reality of technical, methodological and biophysical features.

4) The use of previously unknown phenomena of asynchrony and total activity of symmetric functionally active zones (FAZ).

5) The subject of diagnostic attention is the levels of autonomic homeostasis and their functional duration.

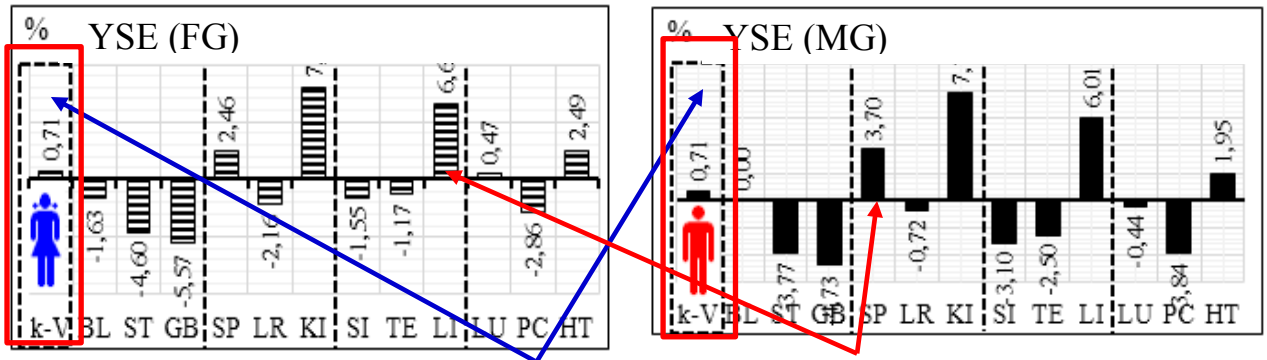
6) The possibility of obtaining stable diagnostic results during repeated examinations.

7) Availability of its own regulatory framework.

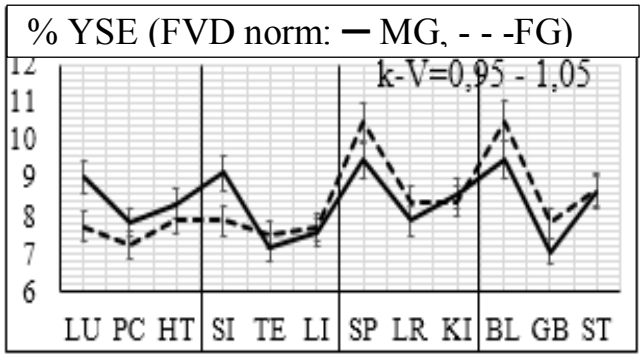
8) Lack of analogs of FVD due to the discovery of a previously unknown functional-vegetative system.

3.6. MODERN OPTIONS OF FUNCTIONAL-VEGETATIVE DIAGNOSTICS

Individual sex and age FVD. Requires attention to kV and the "0-zone of the age norm", which indicates the directional activity of individual functional systems (+, -) and its significance. Example: gender and age characteristics of the FVD of adolescent school age...

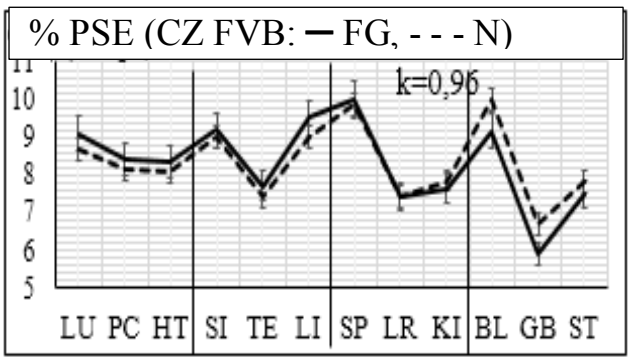


Comparative sex and age FVD *(options for individual FVD)*

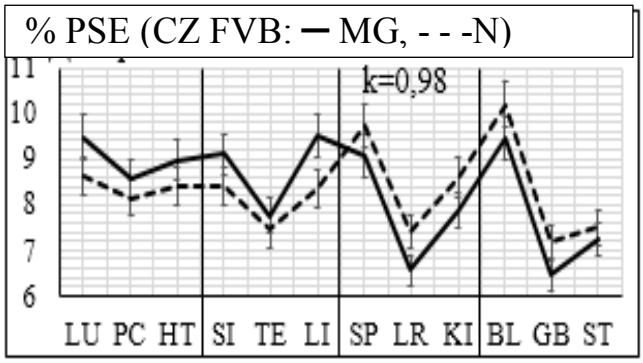


Shows age and sex (male – female groups) features of systemic (complex) activity within the vegetative permissible kV "critical zones" (K3=PA-FR-CA). Example: gender and age characteristics of the FVD of adolescent school age...

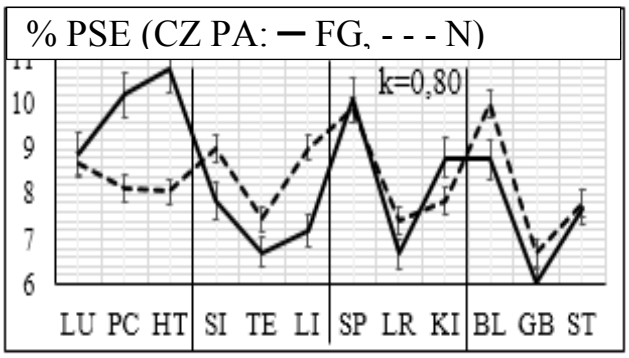
Analysis of FVD for permissible Critical Zones (CZ=PA, FVB. SA) allows to reveal the systemic-complex attitude to the age and sex zone of the functional norm. Wherein...



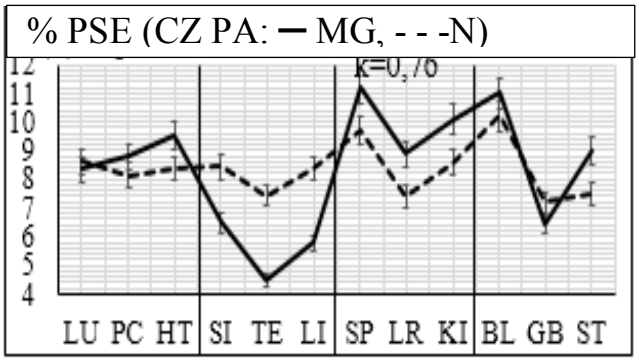
CZ vegetative balance (F-group)



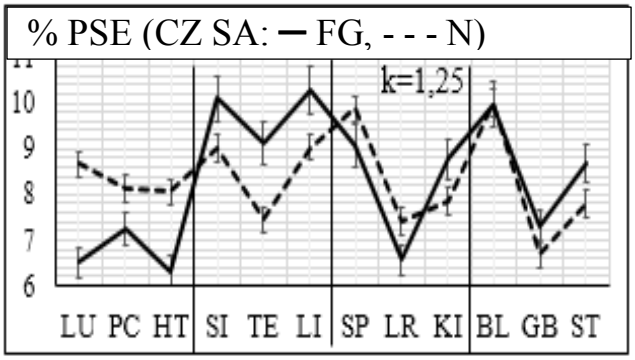
CZ vegetative balance (M-group)



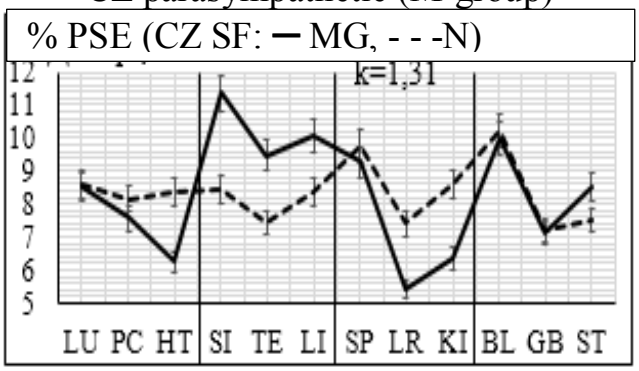
CZ parasympathetic (F-group)



CZ parasympathetic (M-group)



CZ sympathetic activity (F-group)



CZ sympathetic activity (M-group)

Examples: age and sex characteristics of the FVD in permissible zones preschool age...

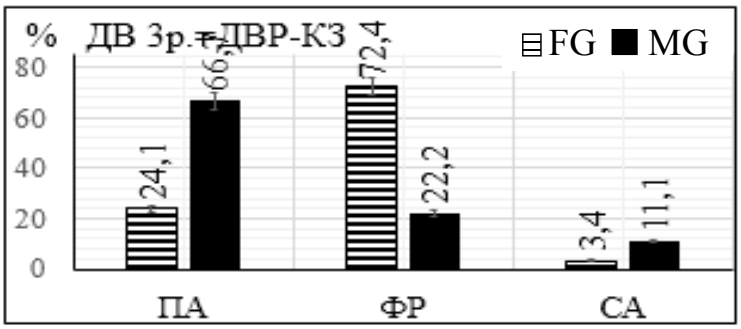
a) Recall that within the permissible functional equilibrium (CZ FVB=FcP+VB+ FcS; kV=0.87-1.13), the dynamics of systemic transformations is individually varied and determines the functional focus on vegetative balance.

b) Recall that within the permissible parasympathetic activity (CZ PA=PAs+PAe; kV=0,75-0.86), systemic transformations are identical in terms of the vegetative orientation of individual age groups and are caused by parasympathetic excitation of the second and fourth functional complexes FC-2 (SP-LR-KI), FC-4 (LU-PC-HT). Both directions of systemic transformations cause a pleasant suppression of the first and third functional complexes FC-1 (BL-GB-ST), FC-3 (SI-TE-LI)...

c) Recall that, within the limits of permissible sympathetic activity (CZ SA=SAe+ SAs; kV=1.14-1.27), systemic transformations are identical in terms of autonomic orientation of individual age groups and are caused by sympathetic excitation of the first and third functional complexes FC-1 (BL-GB-ST), FC-3 (SI-TE-LI). Both directions of systemic transformations are accompanied by inhibition of the parasympathetic orientation of the second and fourth functional complexes FC-2 (SP-LR-KI), FC-4 (LU-PC-HT)...

Analysis of FVD by system-age critical vegetative zones (CZ). Allows to identify and compare age-sex and other biophysical parameters of functional-vegetative diagnostics and peculiarities of systemic dispersion (dispersion) for individual "vegetative levels" (PAs-PAe-FcP-VB-FcS-SAe-SAs) and their representation in separate critical zones (PA – FVB –SA).

*Vegetative dispersion by CZ (*PSE *–3p.)*



Example. Vegetative variance of preschool age (PSE, 3 years of age; age and sex feature of vegetative activity) ...

3.7. FEATURES OF FVD IN THE AREA OF RADIATION (ECOLOGICAL) CONTROL.

Let's consider the state of children's functional health in different age groups. The analysis will be carried out according to the extreme age indices of vegetative dispersion and permissible "critical zones" (CZ).

Preschool age (PSE). The level of vegetative dispersion by CZ. The age-sex vegetative dispersion in CV indicates the biophysical reality of the multidirectional vegetative status. In the extreme years of the age group (3 and 6 years), it is significantly diverse (Table 3.7.1, Figure 3.7.2).

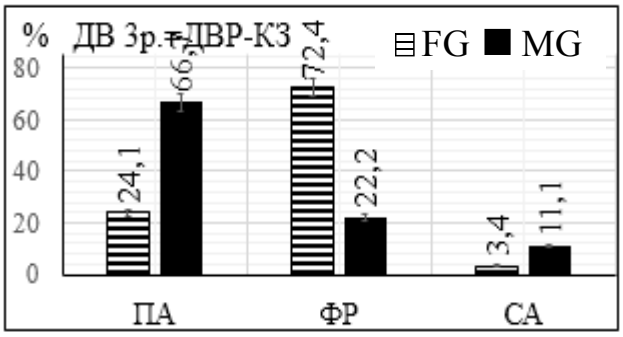
Table 3.7.1

Vegetative dispersion by critical zones (CZ) **PSE** (in %)

Years of life PSE	Critical zones of functional vegetative dispersion (in %)		
	PA (PAs + PAe)	FVB (FcP+VE+FcS)	SA (SAe + SAs)
3y	24,1/66,3	72,4/22,2	3,4/11,1
6y	47,6/27,7	42,9/50,8	9,5/21,5

*Note: */* - indicators of FG /MG; PA – zone of parasympathetic activity; FVB-zone of functional balance; SA-zone of sympathetic activity.*

Vegetative dispersion PSE (3 y.)



Vegetative dispersion PSE (6 y.)

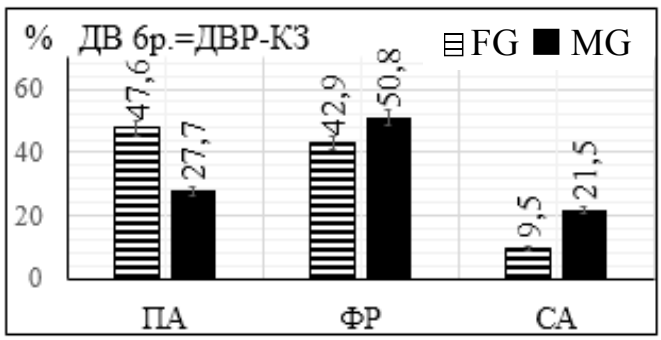


Fig.3.7.2

Significant and differently directed levels of vegetative dispersion in the CG of parasympathetic activity (PA) and permissible functional balance (VB) are alarming. At the same time, long-term autonomic disorders with a predominance of parasympathetic or sympathetic activity of the ANS form the pathogenetic mechanisms of future functional disorders...

Preschool age (PrSE). The level of vegetative dispersion by CZ. The age-sex vegetative dispersion in CG indicates the biophysical reality of the differently directed vegetative status. In the extreme years of the age group (7 and 11 years old), it differs significantly (Table 3.7.3, Figure 3.7.4). Significant levels of vegetative dispersion in the CG of parasympathetic activity (PA) and permissible functional balance (RF) are alarming. At the same time, it is known that long-term vegetative disorders with a predominance of parasympathetic or sympathetic activity of the ANS, form the pathogenic mechanisms of future functional disorders...

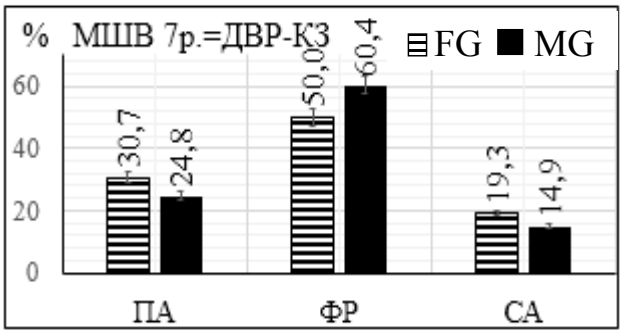
Table 3.7.3

Vegetative dispersion by critical zones (CZ) PrSE (in %)

Years of life PrSE	Critical zones of functional vegetative dispersion (in %)		
	PA (PAs + PAe)	FVB (FcP+VB+FcS)	SA (SAe + SAs)
7	30,7/24,8	50,0/60,4	19,3/4,0
11	34,3/31,8	47,9/53,6	17,8/14,6

*Note: */* - indicators of FG /MG; PA – zone of parasympathetic activity; FVB-zone of functional balance; SA-zone of sympathetic activity.*

Vegetative dispersion PrSE (7 y.)



Vegetative dispersion PrSE (11 y.)

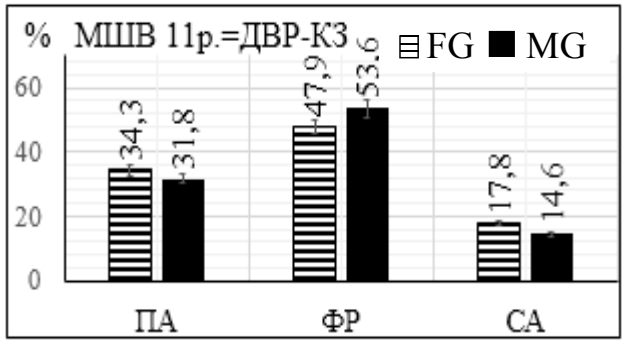


Fig.3.7.4

Adolescent Schooling Age (ASE). The level of vegetative dispersion according to CZ. The age-sex vegetative dispersion in CG indicates the biophysical reality of the differently directed vegetative status. For the last years of the age group (12 and 15 years), it is significantly diverse (Table 3.7.5, small 3.7.6). The growth of autonomic dispersion in the CV of parasympathetic activity (PA) and the low level of permissible functional balance (RF) are alarming. At the same time, it is known that long-term autonomic disorders with a predominance of parasympathetic or sympathetic activity of the ANS, form the pathogenetic mechanisms of future functional disorders...

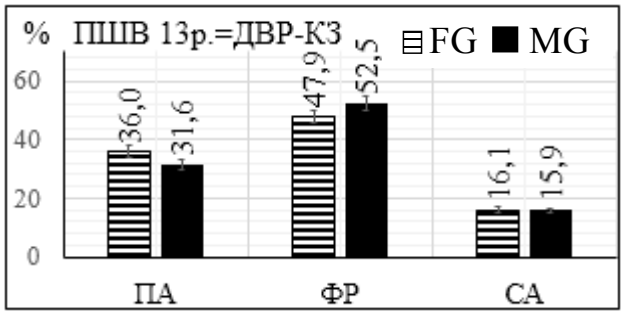
Table 3.7.5

Vegetative dispersion by critical zones (CZ) ASE (in %)

Years of life ASE	Critical zones of functional vegetative dispersion (in %)		
	PA (PAs + PAe)	FVB (FcP+VB+FcS)	SA (SAe + SAs)
1гр -12	31,8/32,8	50,9/51,0	17,3/16,2
2гр -15	33,9/31,4	49,9/53,1	16,2/15,5

*Note: */* - indicators of FG /MG; PA – zone of parasympathetic activity; FVB-zone of functional balance; SA-zone of sympathetic activity.*

Vegetative dispersion ASE (13 y.)



Vegetative dispersion ASE (15 y.)

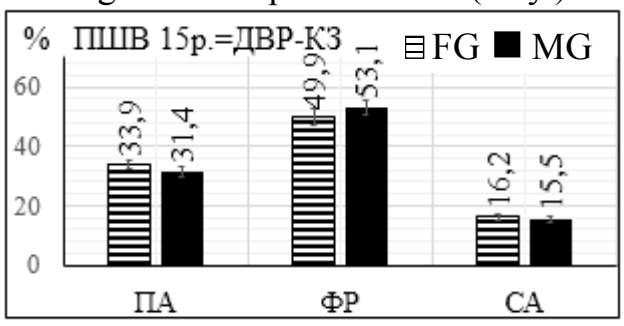


Fig.3.7.6

Youthful School Age (YSE). The level of vegetative dispersion by CZ. The age-sex vegetative dispersion in CG indicates the biophysical reality of the differently directed vegetative status. In the extreme years of the age group (16 and 20 years old, Table 3.7.7, Figure 3.7.8), a significant increase in vegetative dispersion in the CV of parasympathetic activity (PA) and its depression in the functional equilibrium zone (RF) are alarming...

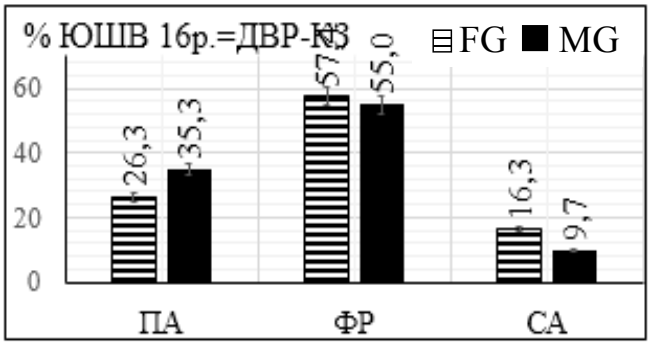
Table 3.7.7

Vegetative dispersion by critical zones (CZ) YSE (in %)

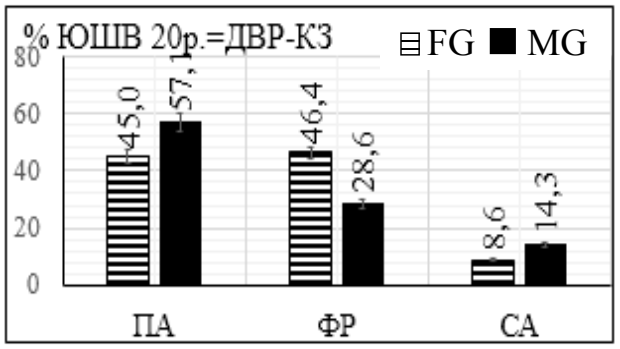
Years of life YSE	Critical zones of functional vegetative dispersion (in %)		
	PA (PAs + PAe)	FVB (FcP+VB+FcS)	SA (SAe + SAs)
16	26,3/35,3	57,6/55,0	16,3/9,7
20	45,0/57,1	46,4/28,6	8,6/14,3

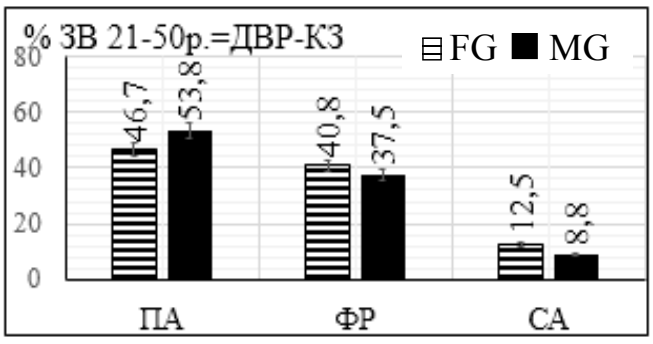
*Note: */* - indicators of FG /MG; PA – zone of parasympathetic activity; FVB-zone of functional balance; SA-zone of sympathetic activity.*

Vegetative dispersion YSE (16 y.)



Vegetative dispersion YSE (20 y.)





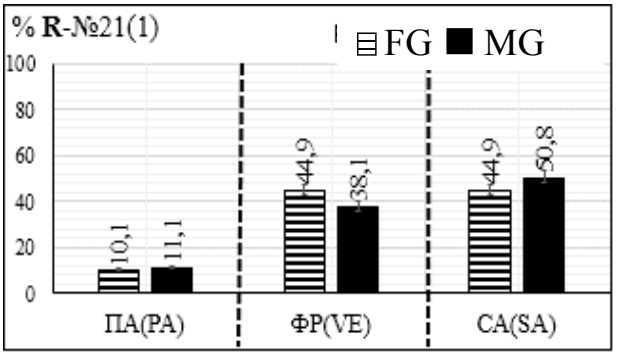
Mature age (NA, 21 years old-50 years old). Levels of vegetative dispersion by CZ. The age-sex vegetative variance in the CZ of the last years of the age group (21 and 50 years) is expectedly specific. Significant vegetative dispersion of parasympathetic activity (PA) in NA indicates the growing activity of pathogenetic mechanisms of inhibition of human vital activity.

The conclusion is made. These types of "vegetative dispersion according to CV" turned out to be typical for children of different age groups living in the regions of "radiation control" Ukraine. There was a question about the functional health of the child population of the "radiation-free" region of the Lviv region?

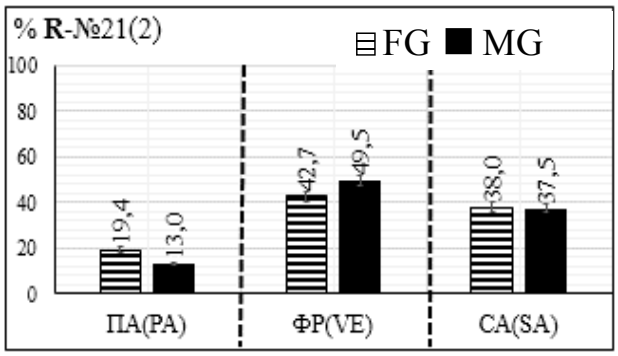
3.8. FEATURES OF FVD IN RADIATION-FREE REGIONS OF UKRAINE.

The Lviv region is not included in the radiation monitoring zone of Ukraine and is considered "Conditionally clean". For five years (2001-2004, 2006) in the female and male observation groups, the vegetative dynamics had a "sympathetic orientation" (vegetative dispersion into the zone of tension of functional protection, Fig. 3.8.1).

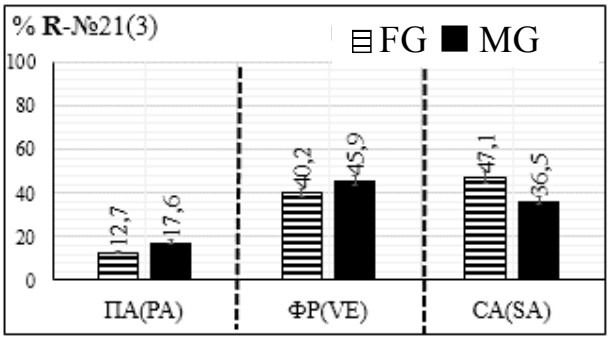
2001г. Vegetative dispersion according to KZ



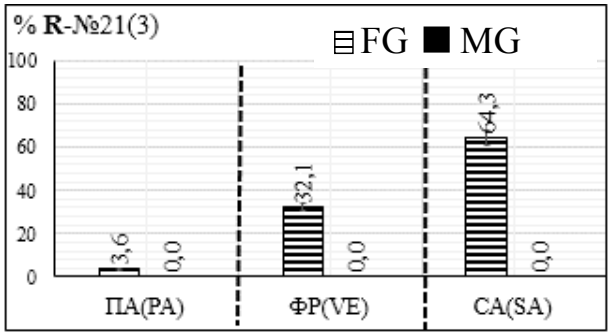
2002 г. Vegetative dispersion according to KZ



2003 г. Vegetative dispersion according to KZ



2004 г. Vegetative dispersion according to KZ



200 г. Vegetative dispersion according to KZ

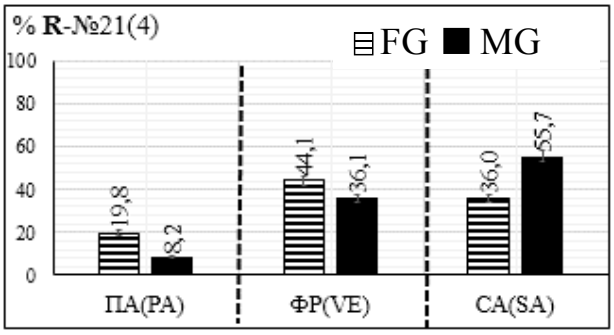


Fig.3.8.1

Преобладание "симпатической дисперсии" не идеальный вариант функционального здоровья детей. В данной ситуации оно лишь свидетельствует об отсутствии "радиационной компоненты" интегрального экологического давления. Но стоит заметить, что обследованные дети проживали в условиях интернатов и детских домов...

What should you pay special attention to!

1.FVD for traditional acupuncture zones (without the use of external current sources) gives comparable repeated results...

2. FVD is the only modern technology aimed at integral assessment of age-related disorders of autonomic homeostasis...

3. The "electropunctural diagnostics" recommended by WHO during repeated examinations do not give comparable results. Their use in medical practice is impractical...

In addition, when carrying out FVD, one should remember about its following capabilities.

– Recognition of kV acts as a scientific evidence (basic) "diagnostic indicator" of FVD (systemic transformations are extremely dynamic and reflect the constant process of adaptation to external and internal factors)...

– Carrying out an "individual analysis" of system transformations and their statistical assessment in relation to the age zone of the norm according to the cYINernetic principle "+", "-", "0"...

– Carrying out a "variation analysis" of the average group parameters of the FVD for permissible "critical zones" (CZ): PA (zone of parasympathetic activity); FVB (zone of functional balance) and SA (zone of sympathetic activity)...

– Within the permissible short-circuit of functional equilibrium (FVB=FcP+VB+FcS; kV=0.87-1.13), the dynamics of systemic transformations is individually diverse and determines a specific vegetative focus on functional-vegetative balance (=)...

– Within the permissible short-circuit of parasympathetic activity (PA=PAs+ PAe; kV =0.75-0.86), systemic transformations are identical in terms of vegetative orientation of individual age groups and are caused by parasympathetic excitation of the second and fourth functional complexes: FC-2 (SP-LR-KI) and FC-4 (LU-PC-HT). Both directions of systemic transformations are accompanied by suppression of the sympathetic orientation of the first and third functional complexes: FC-1 (BL-GB-ST) and FC-3 (SI-TE-LI) ...

– Within the limits of the permissible CV of sympathetic activity (SA = SAe+ SAs; kV =1.14-1.27), systemic transformations are identical in the vegetative orientation of individual age groups and are caused by sympathetic excitation of the first and third functional complexes: FC-1 (BL-GB-ST) and FC-3 (SI-TE-LI). Both directions of systemic transformations are accompanied by inhibition of the parasympathetic orientation of the second and fourth functional complexes: FC-2 (SP-LR-KI) and FC-4 (LU-PC-HT) ...

– Identity of systemic dependence in female and male observation groups and vegetative correspondence of kV in critically permissible zones were noted at all age levels: preschool school, PrSE -primary school, ASE -adolescent, YSE -youthful and mature (NE). The discovered biophysical comparability indicates the universality of natural mechanisms ..

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