

# Structure of Interchannel and Five Primary Elements Connections According to the Test of Akabane

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**Abstract:** The results of the Akabane test, conducted in 900 healthy subjects (513 women and 387 men) aged 5 to 88 years on the basis of correlation, regression and factor analysis of interchannel bonds made it possible to reveal a stable dipole structure in the form of Yin / Yang monad. At the same time, in normal, on one Yin pole of the dipole there are acupuncture channels (AC) forming the primary element of Water (KI + BL). The other, opposite, Yan pole of the dipole forms the primary element Fire, which includes 4 channels: (HT + SI + PC + TE). Between the poles of the dipole is a conditional demarcation line at the level of the first elements of the Tree, Earth and Metal. Taking into account the theoretical maximum number of open points on the channels forming the 2 poles of the dipole, a 1.6 proportion is formed close to the ratio of the "Golden Section" in 1.62, which determines the harmonious state of the organism in the norm. According to the results of the Akabane test, in each specific case it is possible to calculate the ratio of the poles of a dipole and thus assess the degree of harmony in the body and its potential capabilities. When assessing the changes in the dipole pole ratios as a function of age, it was found that in the early childhood and in extreme old age, the average dipole indices are equalized to 50/50%. Regression analysis showed a lifetime relationship in men with AC-TE-r, BL, LR-r in women with AC -TE-l, BL, LR-l.

**Keywords:** Acupuncture, Akabane Test, Yin / Yang Dipole, Biorhythms, Five Elements, Inter-Channel Communication

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## 1. Introduction

More than 300 years have passed since the description of the theory of the Five Elements [1, 2]. Since then, many articles and books have been published that summarize the experience of using this system in clinical practice [3-7].

Currently, there are 2 concepts explaining the functioning of acupuncture channels [21]. The first ancient theory created through a synthesis of medical practice and empirical observations is based on the concept of Yin - Yang and a Five Element system consisting of acupuncture channels that control the movement of Chi energy in the body. At the same time, a harmonious balance of Chi energy at the level of channels and primary elements forms a healthier body and

healthy mind.

The second modern concept is based on the theory of nervism and the results of instrumental research [22-25]. According to this theory, the distal acupuncture points below the knee and elbow have a greater reflex representation in the cerebral cortex than others. Thus, various types of exposure to them can cause pronounced reflex reactions from certain organs and systems through of somato-visceral overlapping [26, 27]. In this theory, the concept of Yin - Yang and the system of a Five Elements are no longer decisive, and the effect will depend mainly on the state of the nervous system. However, in practice, the proximal points can also have a pronounced therapeutic effect, which does not fit into this concept [28]. Therefore, this theory still needs further

refinement.

According to the ancient concept, in the case of various pathologies at the level of certain channels, energy jams arise that lead to an excess or lack of energy in the channel, which is accompanied by various symptoms. The meaning of treatment here is to eliminate barriers to the flow of energy due to the stimulation or sedation of individual points through which the flow of energy in the channel can be controlled and this process has now been thoroughly studied and confirmed in practice [29-32]. However, according to the theory of the of a Five Elements, any impact on the channel will ricochet on other channels and of a Five Elements, for example, according to the ancient “mother-son” rules and other feedbacks on the energy circulation circle.

Meanwhile, in the available literature there are no results of real instrumental and statistical studies that would confirm the structure and interrelationships in a Five Elements and at the channel level, although all the modern concepts of treatment using reflexotherapy are built on this theoretical basis.

Therefore, the purpose of these studies was to assess the actual structure of interchannel and a Five Elements bonds based of methods of mathematical analysis [11-15] and Akabane temperature test [8], which is considered in TCM to be the most powerful diagnostic tool for measurement of energetic state of the channels.

## 2. Materials and Methods

In this study included 2 groups of subjects. To investigate the interchannel relationships in the first group, the total 396 patients were examined, 278 women and 118 men aged 16 to 72 years. The majority of the study participants were members of staff at the NCERM of EMERCOM clinic in Russia (St. Petersburg), who did not have any pronounced pathologies. The average age of the female study participants was  $45.12 \pm 13.67$  years old and for male participants  $44.02 \pm 5.79$  years old. Another group consisted of 504 healthy subjects aged 5 to 88 years. Of these, there were 269 men and 235 women. This group was used to find out the mechanisms of aging of the organism at the level of bioenergetics, it had a

larger range of observations by age due to the elderly and children. They did not assess the interchannel connections, Specific age changes begin to appear in children and the elderly and this would be incorrect.

To assess the bioenergy status of the acupuncture channels (AC) was used the Akabane test [9-10]. This test measures the pain thresholds in temperature sensitivity when heat is applied to the “entrance-exit” points of each channel by applying an impulse LED non-coherent IR-light onto the skin ( $f=1\text{Hz}$ ,  $\lambda=920\text{nm}$ , with the total energy expenditure in joules. In order to assess AC we used 24 standard zones, which are traditionally examined in acupuncture to evaluate the channels (LU11, LI1, PC9, TE1, HT9, SI1, SP1, LR1, St45, GB44, Ki1, and BL67).

The analysis of the relations between AC was carried out using correlation (Pearson & Spearman coefficients) and multiple regression analysis and Factor analysis. For the analysis, we used scaled values for the arithmetic mean for all AC. The measurements were carried out from 9 to 15 hours, which should be taken into account when assessing the connections taking into account the hourly activity of the channels. One-way MANOVA by LSD post hoc tests analysed the effect of sex on the AC data. Wilcoxon Signed Ranks and the Mann-Whitney tests was used to prepare paired comparisons. Statistical decisions were made on the 5% significant level ( $p \leq 0, 05$ ). We used a software package SPSS Inc., V-15.

## 3. Results

To assess the existence of links that exist between the channels and confirm the theory of the five primary elements, a factor analysis was carried out in group 1 separately for men and women, at the level of 5 primary elements in terms of the sum of indicators channels in each primary element (Table 1), and then at the level of 12 AC (Table 2). Factor analysis allows us to see the internal structure of mutual relationships in the parameter space in the form of relatively independent blocks. Factor loadings below 0.5 were not taken into account in the formation of factors.

**Table 1.** The results of factor analysis in men and women on the relationships at the level of five primary elements.

Five-element	Females		Males	
	Component Cumulative % = 73,130.		Component Cumulative % = 74,045.	
	1	2	1	2
Metal	,816		,883	
Fire	,831		,880	
Earth	,525			,721
Wood		,981		,739
Water	-,930		-,862	-,507

In Table 1, in both men and women, only two similar factors were identified. The difference lies in the fact that in men the second element was Earth, whereas in women it entered the first factor. In this case, only the primary element of Water has the opposite (-) sign of the relationship in both cases. If the loads have different signs, then the greater the value of one parameter, the smaller the value of the other.

To assess the structure of the interrelations between the primary elements, a correlation analysis was also carried out based on the sum of observations in men and women in the first group (Table 2). It also draws attention to the fact that only the primary element of Water has a negative sign of interrelation with maximum indicators with all other primary elements. Of other features, it is noted that Metal does not

have a reliable connection with the Tree, which is rather strange, because according to the theory of Five Elements, such antagonistic connections (Metal strikes the Tree) must be present. In general, the most pronounced connections exist

between Water and Fire ( $r = -0.791^{**}$ ), which allows us to regard this axis as the fundamental one in the whole construction.

**Table 2.** Correlation relations at the level of 5 primary elements (Spearman's rho,  $n = 323$ ).

Five-elements		Metal	Fire	Earth	Wood	Water
Metal	r	1.000	.541(***)	.167(**)	-.020	-.699(***)
	p	0	.000	.003	.719	.000
Fire	r	.541(***)	1.000	.275(***)	.132(*)	-.791(***)
	p	.000	0	.000	.018	.000
Earth	r	.167(**)	.275(***)	1.000	.201(***)	-.501(***)
	p	.003	.000	0	.000	.000
Wood	r	-.020	.132(*)	.201(***)	1.000	-.337(***)
	p	.719	.018	.000	0	.000
Water	r	-.699(***)	-.791(***)	-.501(***)	-.337(***)	1.000
	p	.000	.000	.000	.000	0

Sig. (2-tailed); \* $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\* $p < 0.001$

**Table 3.** The results of factor analysis in men and women on the relationship at the level of 12 AC.

AC	Females, n=278, Cumulative % = 63,416				Males, n=118, Cumulative % = 67,359			
	Component				Component			
	1	2	3	4	1	2	3	4
LU-Lungs		.439			.701			
LI-Largeint		.747			.666			
PC-Pericard		.644			.747			
TE-Endochr	.588				.832			
HT-Heart	.549					.820		
SI-SmallInt		.485			.745			
SP-Spleen				.894			.894	
LR-Liver	.763						.821	
ST-Stomach	.740					.856		
GB-Gallbladder		-.626						.883
KI-Kidney			-.938					-.518
BL-Bladder	-.880				-.755			

At the level of 12 main AC, which form 5 primary elements in men and women, four factors are identified (Table 2). He draws attention to the fact that in men negative signs of the load have only the kidney and bladder channel, which form the primary element Water. In women, this is added to the canal of the gallbladder, which enters the primary element Tree. From the point of view of the theory of five primary elements, this is understandable, because Water helps grow the Tree. At the same time, depending on

sex, some peculiarities in the structure of the AC have been revealed, which form each of 4 factors. So at the level of 12 AC in men and women, LR and GB, ST and SP, have entered into different factors, although these pairs of channels enter into some primary elements. In women, KI and SP formed separate factors, highlighting the system of accumulation and formation of energy in the body. In men, these channels also formed 3 and 4 factor, but together in pairs with AC-LR and GB, which is more logical.

**Table 4.** The results of factor analysis in men and women on the relationship at the level of 24 branches 12 AC.

AC	Males. n=118			Females. n=278			
	Component Cumulative % = 72.55			Component Cumulative % = 64.99			
	1	2	3	1	2	3	4
LUr	.590	.602		.716			
LUI	.677			.711			
Llr	.769			.659			
LII	.774			.670			
PCr	.905			.655			
PCI	.830			.744			
TEr	.831			.711			
TEI	.769			.711			
HTr	.739			.786			
HTI	.603			.682			
Slr	.813			.726			
SII	.569			.636			
SPr			601				818
SPI		.863			.744		

AC	Males. n=118			Females. n=278			
	Component Cumulative % = 72.55			Component Cumulative % = 64.99			
	1	2	3	1	2	3	4
LRr		.659	.512				.861
LRI		.850			.733		
STr		.616			.609		
STI		.795			.757		
GBr		.839				.709	
GBI		.756			.676		
KIr			.834				.723
KII		.638	.553			.725	
BLr			.502			.692	
BLI			.851			.829	

As a result of factor analysis, on the basis of matrices after rotation, 3 factors were distinguished in the group of men, almost non-intersecting (orthogonal) except for KI-1 and LR-r. In the group of women, four factors were distinguished that do not overlap at the level of individual AC. This shows that there are related subsystems in the channel structure that are practically independent or weakly dependent from each other. The factors for men and women, except for the first, differ.

In the first factor, the same in two independent samples in men and women included AC associated with the cardiovascular and respiratory system, as well as the large and small intestine. These channels enter the primary element of Fire and Metal.

In general, this analysis revealed very interesting facts: the left and right branches of SP-r & SP-l channels in men and women fall into different factors and are associated with different channels. The same is true for LR-r & LR-l and KI-r & KI-l (in men they fall into one factor), GB-r & GB-l only in women. This division at the level of one organ can mean that the left and right branches of its canal have different physiological essences.

The second factors are very similar. They tied mainly the left branches of the channels SP-l, LR-l, KI-l, GB-l, however, the right branches of LR-r & GB-r in men also fall into this factor, which is not the case for women. But men and women equally fall into the second factor ST-r & ST-l. The right branches SP-r, LR-r, KI-r in women formed a separate factor. And GB-r, BL-r & BL-l were contacted in one more factor. These are the branches of the channels, for which the maximum asymmetry is often revealed and here they fall into different factors [11, 12]. That is, groups of channels 1 through 6 form a connected subsystem for both sexes and for their branches. And the channels from 7 to 12 form coherent subsystems, where their right / left branches behave differently.

It is not accidental that it occurs on large samples and shows that the side of the branches of the channels is the determining factor in the formation of their connections with a particular function or system in the body. Earlier it was shown [13, 14], that the left (Yang) branch reflects the energy

costs in the body, and the right (Yin) branch of each channel reflects the accumulation of energy. Hence it turns out that the revealed factors reflect not only the association of AC with certain organs and physiological systems in the body, but they are still formed on the basis of the metabolic and functional characteristics of these systems at the level of their right and left branches.

In men as a whole, factor analysis revealed 3 groups of interconnected canals: The first factor is the cardiovascular + respiratory system involving the intestine, which belong to the primary elements of Fire and Metal. The second factor: the digestive system, which refers to the first element of the Tree and Earth. The third factor is the hormonal (KI and BL) system with the function of generation and accumulation of energy (SPr and LR-r), which are based on the primary element of Water.

In women, the first factor strictly corresponded to that of men, the second factor - in comparison with the similar one in men - has some nuances, but basically it is similar in functional specificity. The third factor is the sexual hormonal background, as in men. However, this factor also includes the GB-r channel, which according to this research [15], reflects the state of the parasympathetic nervous system, which, apparently, makes women more sensitive. And finally, the fourth factor is only the right channels associated with the accumulation (KI-r) and production (LI-r and SP-r) of energy in the body mainly through carbohydrate metabolism [11, 12]. The appearance of this additional factor in women regard as a separate energy storage subsystem associated with the childbearing function.

In general, the results of analysis on a large sample from different people indicate that in the channel structure there are associated isolated subsystems that are practically independent or weakly dependent from each other.

Affiliation of 1 factor to a certain information group can also explain the results of MANCOVA multidimensional covariance analysis with the factor: Sex and covariance - Age. Table 5 shows one-dimensional results in a multidimensional analysis.

**Table 5.** Results of one-dimensional comparisons between men and women in dispersion and covariance analysis.

AC	Dispersion analysis		Covariance analysis		
	Corrected Model	GENDER	Corrected Model	GENDER	AGE
LU-r	.007	.007**	.005	.005**	.118
LU-l	.073	.073+	.018	.069+	.038*

AC	Dispersion analysis		Covariance analysis		
	Corrected Model	GENDER	Corrected Model	GENDER	AGE
LI-r	.009	.009*	.015	.009**	.258
LI-l	.058	.058+	.059	.052+	.206
PC-r	.011	.011*	.007	.013*	.068+
PC-l	.000	.000**	.000	.000**	.141
TE-r	.001	.001**	.001	.001**	.058+
TE-l	.023	.023*	.002	.029*	.008**
HT-r	.001	.001**	.002	.001**	.191
HT-l	.000	.000**	.000	.000**	.029*
SI-r	.001	.001**	.001	.001**	.082+
SI-l	.008	.008**	.005	.008**	.071+
SP-r	.493	.493	.568	.523	.378
SP-l	.578	.578	.471	.583	.286
LR-r	.207	.207	.476	.225	.964
LR-l	.857	.857	.907	.880	.672
ST-r	.579	.579	.473	.576	.264
ST-l	.016	.016*	.022	.016*	.222
GB-r	.880	.880	.089	.909	.029*
GB-l	.223	.223	.159	.205	.170
KI-r	.676	.676	.902	.650	.959
KI-l	.373	.373	.321	.342	.264
BL-r	.375	.375	.206	.363	.115
BL-l	.163	.163	.027	.184	.016*

\* -  $p < .05$ , \*\* -  $p < .01$ , + /- tendencies

Analysis of the effect of sex on the levels of channel sensitivity using the multivariate one-factor analysis of MANOVA with the difference in post-hoc test showed a significant effect of sex,  $F(24,383) = 1,745$ , \*  $p = 0,017$  (excluding the two tendencies) and ST-l ( $p = 0,016$  \*). What is the specific difference between men and women here? The answer can be obtained from the study, where it was shown that the test results for men are significantly higher than in women, although the overall profile of the distribution of the indices is the same in both groups [14]. Therefore, in the FA, the first factor gives even more information about gender.

Significant influence of age in the covariance analysis is for the channels LU-l, HT-l, GB-r, BL-l. But the maximum influence on age is TE-l ( $p = 0,008$  \*\*). This channel, based on the results of a number of studies, reflects the state of central hemodynamics and microcirculation and controls the main metabolism, through the thyroid gland [15, 16]. He draws attention to the fact that almost all influences are left-handed, although there are tendencies for the right branches of channels.

Thus, it can be assumed that in the thresholds of sensitivity, the 24 main channels reflect information on gender and age, and this information is based on the side of the branches of each channel. The age is variable, hence according to the canons of TCM, it belongs to the category Yang, which is related to the left side. Sex does not change in natural, therefore, it belongs to the Yin category, which is related to the right branches of the AC.

Since the estimation of the table correlation matrix of 24 x 24 AC is difficult for perception, was used a visual system for estimating correlation relationships based on a circular diagram. For this, two (based on the presence of + and -

correlations) circular diagrams were used, taking into account the location of each AC in the structure of the five primary elements and their relationships with other AC.

Referring to Figure 1 shows the matrix 24 of correlation interchannel connections characteristic in the norm of 68 carefully selected in the group of "healthy" individuals (men and women) from the first sample. The relationship diagram has a pronounced polar structure in which negative connections go mainly from BL, and positive connections are present between the AC of the cardiovascular system.

If the left and right diagrams are superimposed on each other, the result is one circle with two poles of interchannel positive and negative links, which completely repeats the ancient Chinese monad Yin-Yang, but at the *water* and *fire* primary elements' level.

In this way the diagrams reflect the global dipole regulation structure, which forms the basis of the 5 primary elements system functioning. This energy dipole was discovered and first described in 1995 [15, 17].

Normally the negative regulating pole (-) is in the *water* primary element system, mostly at the urinary bladder channels level. In these channels, according to TCM, there is an accumulation of energy. The positive regulating pole (+) is mostly concentrated at the *fire* primary element channel's level, and partly at the *wood* and *earth* primary element channel's level, where mainly energy consumption occurs.

Taking into account the conducted FA, the upper (Yan) pole of the monad mainly includes 1 factor with channels of the cardiovascular system. The lower pole (Yin) includes 3 and 4 factors. Between them is a kind of "boundary layer" which forms 2 factors.

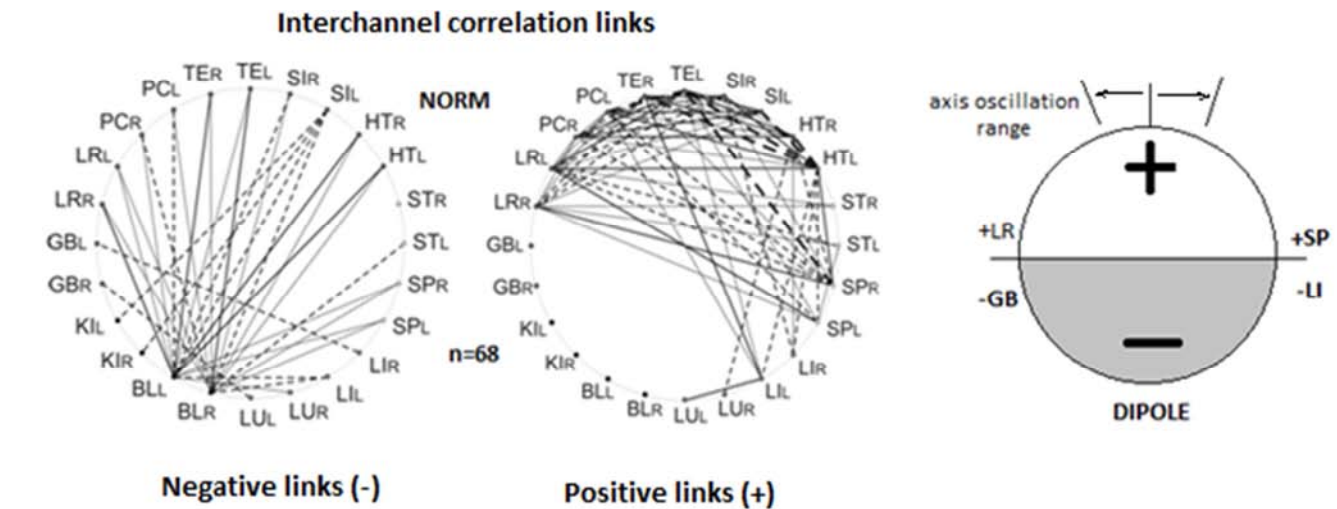


Figure 1. The matrix of interchannel connections in norm.

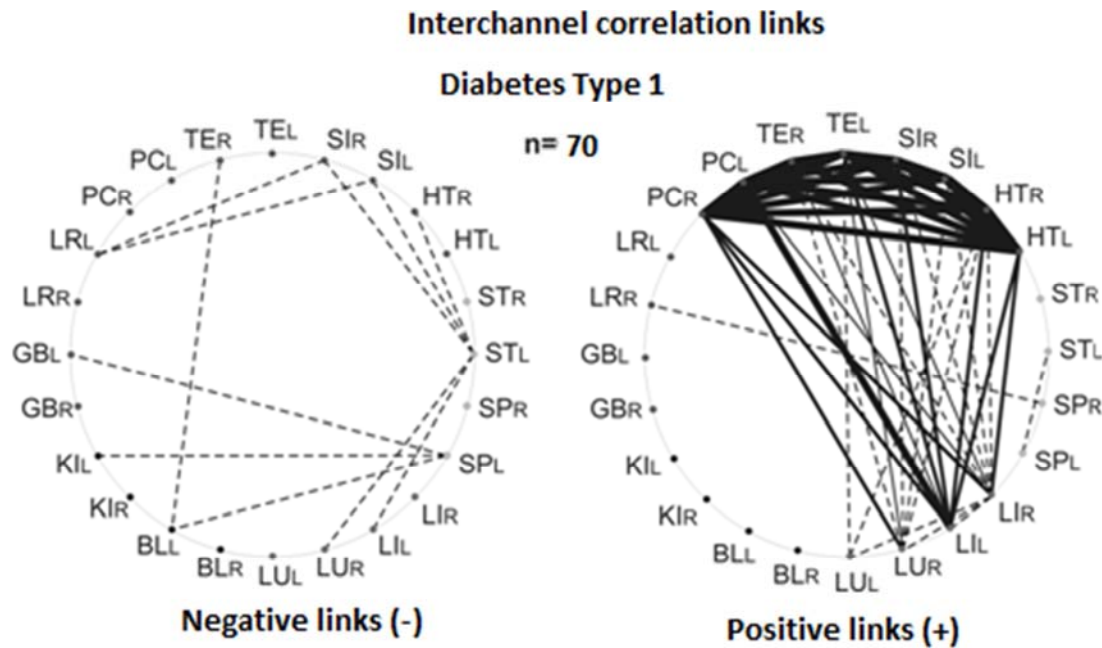
Since the activity of AC is determined by the number of open points on it, then using the acupuncture atlases of TCM [18, 19] with the localization of points on the channels, it is easy to calculate the maximum possible theoretical activity of the + Yang pole, which is equal to the sum of points on the fire channels ( $HT+SI+PC+TE = 56$  points) and the negative Yin pole ( $KI+BL = 94$  points). Their ratio is in the proportion (1.6), close to 1.62 which is the proportion of the "Golden section". With age or with illnesses, or from external influences, some of the points on the channel can "close" with a change in its activity in the test. In this case, the proportion of the cross section also changes, which leads to an increase in the Yang or Yin components with loss of harmony in the dipole.

An important role in the balancing of the dipole belongs to the channels of the "boundary layer" at the level of the primary elements, tree-earth or wood-metal. This line is the most dynamic by changes "boundary layer", at the level of which, due to the transition of its separate channels into the zone of (+) or (-) regulation, the operative control of various functions of the organism takes place.

The boundary layer belongs to the second factor and includes the AC which are mainly involved in obtaining energy from food. Yin pole of the dipole corresponds to the third factor in Men and 3-4 in Women, since the 4 factor they are allocated separately and forms the operational supply of energy in the right branches SP, LR, KI. Why can you think like that? According to TCM, energy is stored in the kidneys. This thesis is ridiculed by skeptics! "Where is this energy,

show it to us?" However, the kidney is surrounded by fat paranephrene, where the operative reserve of energy accumulates. When a person is exhausted, paranephrene disappears first and nephropsis arises. At the same time, the test results for KI-r are sharply reduced. A similar situation was noted by us in tests of athletes under extreme loads, when the total Yin potential of the dipole drops sharply. Further, when the compensation in the body is disrupted, the poles of the dipole even change places when the Yin is affected by Fire when there are small indices in the test, and the Yang channels, on the contrary, become "Cold" with high indices characteristic of Yin hypo-fuze. In Table 2, in women, except AC of the kidneys and bladder, the negative Yin influence vector also has an AC of the gallbladder, which strengthens Yin at the level of the "boundary layer". This construction of bioenergetics in women can be explained by a more pronounced effect of the nervous system on all processes in the body compared to men.

With age, the number of open points AC begins to decrease on all channels in approximately equal proportions. Therefore, regardless of age, if the body is in the optimal, harmonious state, a "Golden proportion" of 1.62 is determined between the poles of the dipole, which in percent corresponds to 38 and 62%. If this proportion is violated, then the body is characterized by certain functional disorders, for example, general over excitation, due to the predominance of Yang positive factor or vice versa, inhibition due to the increase in Yin. In addition, in the presence of pathology, new regulatory poles may appear.



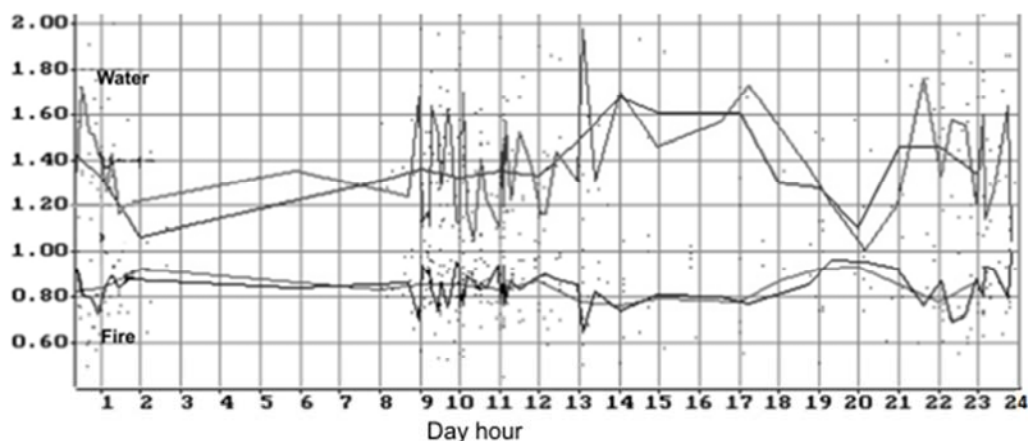
**Figure 2.** Matrix of interchannel connections in type 1 diabetes.

So in Figure 2 a typical matrix of interchannel connections is shown in patients with Type 1 diabetes. In this case, due to the depletion of the activity of the hormonal channels BL, their connections are practically not traced, and weak regulatory centers for negative correlations are noted at the level of the canal of the pancreas and stomach. Positive intensive connections exist between AC Fire element and the large intestine, which, according to our observations [12], form the main portrait of type 1 diabetes. In addition, intensive connections are present with the lung canal, which reflects the level of hypoxia in the tissues. Thus, such "energy portrait" under development of various pathologies undergoes significant changes that reflect the individual features of the impact of the disease and the mechanisms of compensation in the body. According to such patterns of

relationships at the level of five primary elements, it is possible to diagnose various diseases, similar to how a fingerprint can identify a person.

Change in dipole activity during the day.

To answer this question, a study was conducted on a healthy man, one of the co-authors of this article at the age of 45, who made 162 tests at different times of the day (on average 3 tests per day), for 2 months. The results of measurements in the form of a diagram of oscillations of the Yan / Yin dipole are shown in Figure 3, where the time of day is horizontally marked. On the vertical, the Yan /Yin oscillation amplitude is in the conventional scale in the form of 4 lines (2 lines reflect the averaged values, and 2 others - averaging over five measurements at this time of day, made on different consecutive days.



**Figure 3.** Oscillation Yan / yin dipole at different times of day.

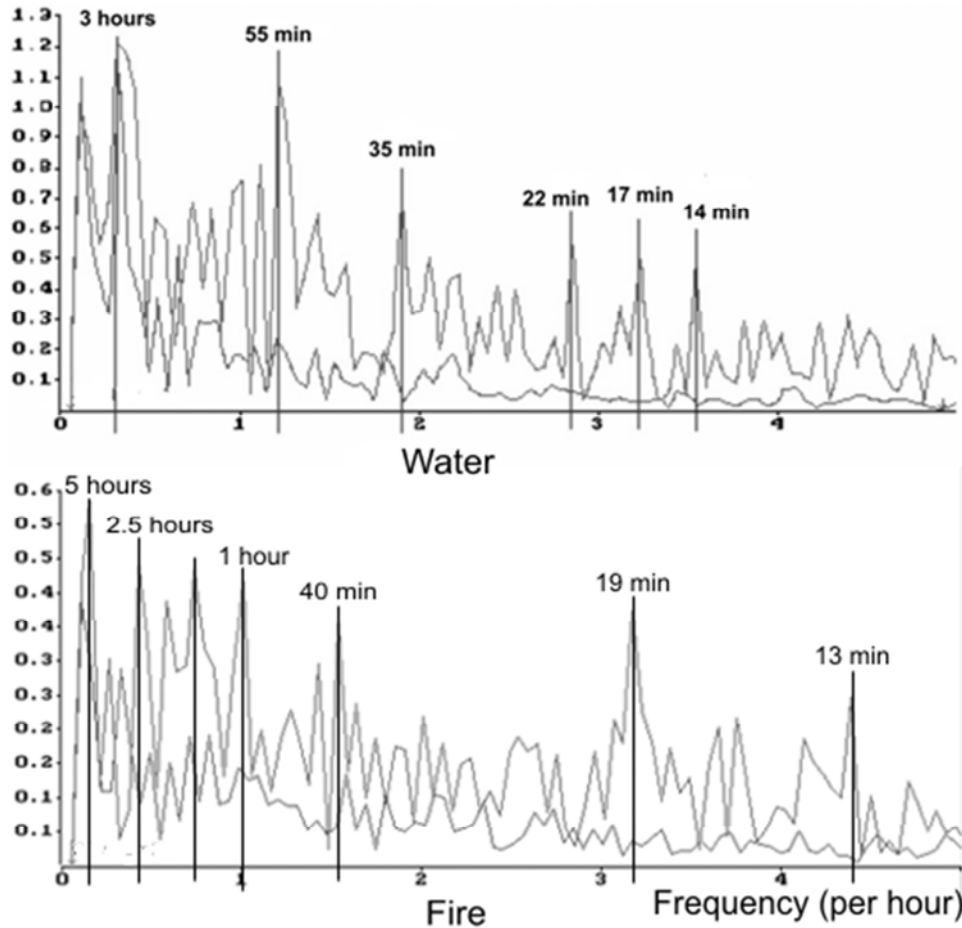
It should be noted that this subject was a typical "owl" with a night sleep from 2 to 8 am. In addition, after dinner at 18 o'clock there was an additional rest about 2 hours. Tests

were mostly conducted at intervals from 9 to 13 hours and from 21 hours to 2 nights. The graph shows that the activity of the primary element Fire in the course of the day does not



change significantly, while the primer water is quite variable. Its minimum values take place before and after sleep, and maximum values occur during wakefulness. At the same time, frequent measurements at certain hours (9-12 and 22-2 hours) allow us to fix the rhythmic pulsations of both poles

of the dipole with a period of about 20 minutes in the interval of 9-10 hours. In the time interval of 22-2 hours, the period of pulsations increased to 1 hour. In general, pulsations are tied to the time of day, because occur at the same time with the standard daily routine.



**Figure 4.** Spectrogram of oscillations of Yan / Yan poles of a dipole.

Vertically, the amplitude of the spectrum in conventional units. Horizontally, the periodicity of the oscillations, where 1-1 hour, 2-30 minutes, 3-20 minutes, 4-10 minutes. The diagram is represented by 2 graphs: with averaging (1 point for 5 observations) and without averaging.

For more accurate estimation of the oscillations of the detected structures by means of Fourier analysis, an estimate is made of the spectral characteristics. According to the graphs of the spectrum of the primary element Water (Figure 4), several resonant peaks are traced at frequencies of 3 hours, 55, 35, 22, 17 and 14 minutes. According to the graphs of the spectrum of the primary element, Fire has bursts at frequencies of 5, 2.5, 1 hour and 40, 19, 13 minutes. Thus, it can be assumed that the poles of the dipole do not pulsate synchronously, but with different periods of rhythm, probably due to a different contribution to the overall rhythm of the AC entering into these structures. So in the spectrum of the kidney channel, according to these observations, the rhythm dominates at 3 hours, and on the bladder canal - 55 minutes

Changes in dipole activity from age. To answer this question, Dipole changes from age were analyzed. separately for men and women (Figure 5) in the second group of subjects from 504 people. As the coordinates of each point

along the vertical, the individual average arithmetic indicators of the Akabane test were taken (each index was divided by the arithmetic mean of the test) and the Yin and Yan poles of the dipole were calculated. The value of the age of the test subjects was plotted horizontally.

In general, as can be seen from the graphs, only at birth and in deep old age the values of water and fire indicators are equalized. The maximum asymmetry of the indices is observed in men aged 14-19 years and in women in 32-34 years, and then the process of energy aging of the organism is already beginning. The process of equalization of energy, theoretically leading to death, in women ends on average to 84-86 years, and in men - to 76-82 years, which corresponds to statistics on which women live a little longer. Here consider only the theoretical potential and the rate of energy loss in a system that can be individually controlled with the help of this system [15, 17].



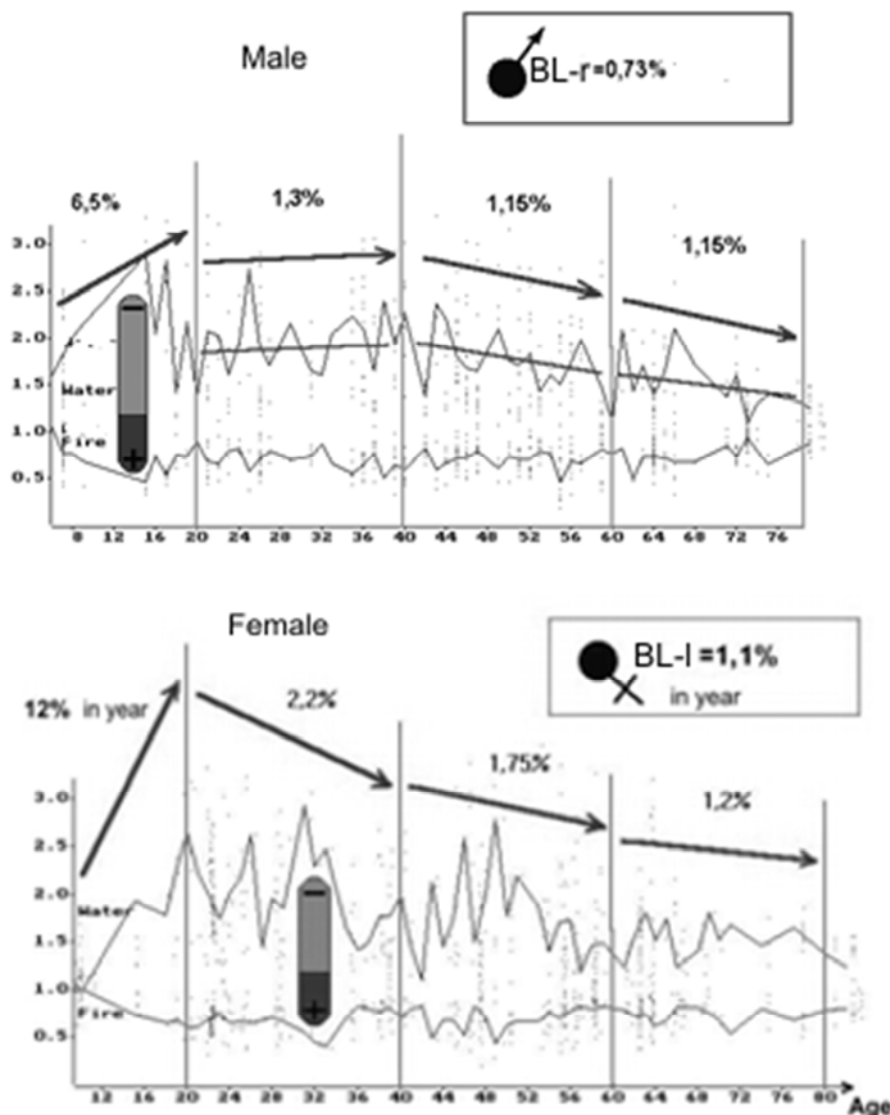


Figure 5. Graphs of energy dipole changes depending on the age of men and women.

The age of the subjects is indicated horizontally, and the activity of the poles of the dipole is vertical. The rate of aging mainly depends on the BL channel — in men from its right branch, and in women from the left branch. In each temporary over-age equal to 20 years, the average numbers of aging are shown by reducing the activity of the BL channel in percent for 1 year, and the average for the entire period of aging is also shown. In the initial segment in youth to 20 years shows the average numbers of growth of this channel.

It can be noted that especially in women there is a certain cyclicity associated with the periods of the hormonal reproductive system functioning, mainly through the BL channel. Thus, during the period from birth to 20 years in women, the growth of water channel activity occurs by about 12% per year. In the period from 20 to 32 years, the growth of water canals continues, but at a slower rate. On average, from 40 to 45 years in the female body there is a climacteric involution, which is clearly reflected in the graph in the form of the passage of water channels into relative hyperfunction. In the period of about 50 years in the female body, the "second flowering" comes, which is also reflected in the graph by an increase in the amplitude of the differences between the poles in the dipole. In the period from 52 to 62 years comes the second wave of involution, followed by a

slight rise in 72-74 years, and so on. Thus, one can note the presence of several periods of oscillation in the energy dipole with an average repeatability of about 4-6 and about 20 years. In this case, it is interesting to note that this pattern can be traced not to one person, but to all those surveyed. Consequently, within each person there is a mechanism that forms such endogenous rhythms synchronized with the passage of a certain age. The average aging rate of the body in men is slightly lower than in women, and according to our calculations, the right branch of the bladder channel, which has the most significant regulatory effect on aging processes in men, is 0.73% per year. However, in men, the rate of development of the fire-water dipole in childhood is almost half that of women.

**Table 6.** The regression model of age-related interactions on AC activity in males.

AC	b	SE	t	p
CONSTANT	40.14	3.87	10.37	0.000***
TE-r	17.55	2.92	6.00	0.000***
LR-r	4.56	1.53	2.96	0.003**
BL-r	-3.63	0.69	-5.26	0.000***
BL-l	-1.55	0.61	-2.52	0.012*

R-SQ. (Adjusted)=0.28, and the standard error (SE) of the estimate=12.94 for N=269

**Table 7.** The regression model of age-related interactions on AC activity in females.

AC	b	SE	t	p
CONSTANT	81.47	5.28	15.41	0.000***
BL-l	-5.23	0.73	-7.19	0.000***
TE-l	-11.28	4.74	-2.37	0.018*
SI-r	-6.76	2.84	-2.38	0.028*
BL-r	-3.27	0.80	-5.28	0.000***
LR-s	14.1	5.32	1.74	0.026*

R-SQ.(Adjusted)=0.24, and the standard error (SE) of the estimate=14.22 for N=235

Sig. (2-tailed); \*p<0.05, \*\* p<0.01, \*\*\*p<0.001

Using the method of stepwise linear regression, averaged models of the relationship of AC with age in men and women were obtained in the second group of subjects (Table 6-7):

In this way

man's age = 40+17.5 TEr-3.6 BLr-1.5 BLl+4.5 LRr

woman's age = 81-11.3 TEI-5.2 BLI-3.2 BLr+14 LRI-7 SIr

In a comparative analysis of the models obtained, the rather pronounced mirror symmetry of a number of channels that have the greatest connections with the aging process of the organism attracts attention. According to the models obtained, the TE has the greatest interrelation with age, but in men this is the right branch of the canal, with the sign "+", and for women - the left branch, with the "-" sign. Since the channel of the triple heater controls the state of the basal metabolism due to the connections with the thyroid hormones, as well as the circulatory system and central hemodynamics, the fact that the aging of the organism, first of all, depends on the state of the given system is quite logical. But if in men the hypofunction of the right branch of the triple heater channel is associated with the acceleration of the aging process of the organism, then the stable hypofunction of the left branch of the TE channel in women is associated with the slowing down of biological aging (= rejuvenation!).

On the second place on the importance of influence is the canal of the bladder, in both cases with the sign "-". But in men in the first place on the coefficient of influence is the right, and for women - its left branch. The canal of the bladder controls the hormonal background of the genitourinary system and, from the physiological point of view, it is quite logical that with age it is oppressed, which manifests itself in a decrease in indices. However, in men, the influence of right-angle influences on age is dominated by

the right, and in women - by the left branches of the canals. Thus, regression analysis based on measurements of hundreds of subjects showed, in general, the same model of aging in men and women, with the exception of the asymmetry of indicators at the level of the right and left and the asymmetry of the signs of influence. In a comparative analysis of the models obtained, the rather pronounced mirror symmetry of a number of channels that have the greatest connections with the aging process of the organism attracts attention. According to the models obtained, the TE has the greatest interrelation with age, but in men this is the right branch of the canal, with the sign "+", and for women - the left branch, with the "-" sign. Since the channel of the triple heater controls the state of the basal metabolism due to the connections with the thyroid hormones, as well as the circulatory system and central hemodynamics, the fact that the aging of the organism, first of all, depends on the state of the given system is quite logical. But if in men the hypofunction of the right branch of the triple heater channel is associated with the acceleration of the aging process of the organism, then the stable hypofunction of the left branch of the TR channel in women is associated with the slowing down of biological aging (= rejuvenation!).

On the second place on the importance of influence is the canal of the bladder, in both cases with the sign "-". But in men in the first place on the coefficient of influence is the right, and for women - its left branch. The canal of the bladder controls the hormonal background of the genitourinary system and, from the physiological point of view, it is quite logical that with age it is oppressed, which manifests itself in a decrease in indices. However, in men, the influence of right-angle influences on age is dominated by the right, and in women - by the left branches of the canals. Thus, regression analysis based on measurements of hundreds of subjects showed, in general, the same model of aging in men and women, with the exception of the asymmetry of indicators at the level of the right and left and the asymmetry of the signs of influence.

## 4. Discussion

In the era of convergence of ideas, the Chinese doctrine of vital energy -Chi, and Yan and Yin factors in the life of the organism deserves attention [3-7]. Despite the originality and beauty of these theories, they are still perceived with great skepticism. The material substratum of these concepts has not yet been found. At the same time, for example, from the point of view of modern physics, especially at the level of the foundations of the universe and its elementary particles, the materiality of the object is not of decisive importance in its recognition, since all matter on the microlevel loses its structure and consists ultimately of clots energy, which under certain conditions at the macro level is transformed into matter. The basic evidentiary criterion for the validity of any theory in modern physics is such concepts as beauty, harmony and the absence of contradictions with other doctrines. Thus, the eastern teachings, based on the basis of

the primacy of energy and the secondary nature of matter and structure, also have the right to life, since they do not contradict modern doctrines [20].

From the point of view of modern physiology, the energy of Chi, which is operated by oriental medicine, can be represented in the form of the functional activity of certain organs and systems of the body, which can be measured quantitatively on the basis of the Akabane test. This test essentially measures Yang the Yin force factor with its quantitative evaluation. In this case, the arbiter is the organism of the subject, who, on the threshold of pain, gives a verbal response

The structure of the two opposite but interrelated principles of Yin and Yang is dominant in the nature of living and inanimate matter. Since the two poles of any magnet tend to merge together, this aspiration can be the main driving force of life. Moreover, the greater the difference in the energy of the poles, the more pronounced is the internal motivation to seek equilibrium.

It is established that such an equilibrium, with equalization of the energies of the dipole poles, occurs not only at birth or death, but also during the experience of maximum pleasures, for example, at the time of sexual orgasm, during sleep, and especially when taking drugs [15]. And since the meaning of life, ultimately, consists in receiving pleasure from it, the presence of a dipole with a pronounced disequilibrium of poles in youth motivates our high spiritual and physical vitality during this period. At the same time, the maximum hyperfunction of fire, along with high physical activity, gives us a joyful, bright worldview, when in the gamut of sensations, rapture dominates. During this period, AC-TE and BL provides high sexual activity. In adulthood and, especially, in old age, dipole potentials gradually equalize, the fire of passions subside, our desires and physical possibilities become more modest, the moods are dominated by more sad, Yin intonations. In deep old age, physical and spiritual activity gradually fades, as the dipole changes to a static state (50/50%). In this state, a person can not and does not want to do anything and life loses its meaning.

It is also interesting to note that in extreme old age of more than 95 years, there were cases when the poles of the dipole changed places, and the channels of fire had high Yin values, and the water channels, on the contrary, became yang. Such people, usually with high dementia, with their body they seemed to pass into a new period of life, which should not be in this dimension.

Figuratively speaking, at the beginning of life a healthy organism receives its "kilogram of happiness" from the creator in the form of Chi energy, which each individual spends at his own discretion. Some, due to the stormy life, spend it quickly, but life also ends early. Others, for a long time, live an ascetic, moderate life, stretching their pleasures. Which way to choose is decided individually, but in both cases, each can be different in different ways... The characteristics of individual life activity can now be evaluated in dynamics with the help of this technology and conduct a mathematical analysis of their capabilities and

threats.

In general, the structure of the pattern of 24 interchannel correlation links that make up the Fibonacci number reflects individual features, each person's bioenergetic portrait, and like his fingerprint, can be used to diagnose a variety of diseases, as well as in assessing the functional state of the organism in the norm.

On the basis of the tests carried out, it is possible to calculate the biological age of a particular person or determine the period of his active life, which can have applied value, for example, in insurance medicine, for assessing insurance risks, or in sports medicine to increase the reserve capacity of the body.

Even in ancient Chinese books described the secrets of longevity, through periodic acupuncture at certain points. Taking into account the analysis and modeling carried out, can give a more specific recipe for longevity by maintaining, in proportion to the "golden section", the main energy dipole and branches of the channels. It can be assumed that if a man maintains for example reflexotherapy channels TE-r and LR-r in a state of relative hyperfunction, and BL-r, on the contrary in a state of hypofunction, then at the bioenergetic level, the effect of rejuvenation will be observed in the body, since this will lead to an increase in the dipole pole difference and this will be reflected in improving physical and spiritual well-being.

## 5. Conclusions

1. At the level of five primary elements in which 12 main channels enter, the structure of a higher level is determined in the form of a dipole monad with Yang / Yin poles. At the same time, in the norm of the Yan pole of the dipole, the AC of the primary element of Fire is formed, and the Yin pole of the dipole is formed by the AC of Water. The dynamic boundary between the poles of the dipole passes at the level of the first elements of the Tree, Earth and Metal. Normally, there is an equilibrium close to the proportion of the "golden section" between the poles of the dipole in 1.62 (38/62%). The pole of the dipole under the influence of endogenous biorhythms and various external factors is constantly pulsating, with periods of oscillation from a few minutes to several years. In the presence of various expressed diseases, the dipole structure is broken with the formation of new centers of influence. By the nature of these connections, one can evaluate the individual adaptive abilities of the organism and conduct targeted treatment aimed at restoring harmony in the body.

2. In the early childhood and in the deep old age between poles of a dipole the equilibrium condition 50/50% is marked. In these periods, the body is most susceptible to various diseases, because the equilibrium state of the dipole does not allow using the reserve capabilities of the body to fight diseases.

3. Regression analysis showed the relationship of life expectancy in men with AC TE-r, BL, LR-r in women with AC TE-l, BL, LR-l.

## Disclosure Statement

The authors declare that they have no competing interests.

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