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RELATIONSHIPS BETWEEN THE NEURO-ENDOCRINE PARAMETERS AND VIRTUAL CHAKRAS ENERGY AND ASYMMETRY

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Abstract

Background. Earlier, we found a close correlation between EEG and gas-discharge image (GDI) parameters. The aim of this study is to analyze the relationship of EEG parameters with the energy and asymmetry of virtual chakras, reconstructed on the basis of GDI parameters. **Material and Methods**. We observed twice 31 women and 29 men aged 26-76 years with dysfunction of neuroendocrine-immune complex. In the morning in basal conditions at first registered GDI by the method of GDV by the device "GDV Chamber" ("Biotechprogress", SPb, RF). Than we registered EEG. Results processed by method of canonical analysis, using the software package "Statistica 64". **Results.** The coefficients of canonical correlation between the EEG parameters and virtual Chakras Energy are in the interval 0,415÷0,564 and 0,358÷0,528 when registering without a filter and with a filter, respectively. Additional inclusion of HRV and endocrine parameters increases the strength of the canonical correlation to 0,768 and 0,772, respectively. The coefficients of canonical correlation between the EEG parameters and individual virtual Chakras Asymmetry are in the interval 0,284÷0,634 and 0,152÷0,458 when registering without a filter and with a filter, respectively. Integral coefficient of the canonical correlation is 0,820. **Conclusion.** The above data, taken together with the previous ones, state that between parameters of neuroendocrine-immune complex and GDV exist strong canonical correlation suggesting suitability of the latter method.
Key words: Gas Discharge Visualization, virtual Chakras, EEG, relationships.

INTRODUCTION

According to Ayurvedic medicine, Chakras are power centers, related to the endocrine glands and neural plexus as well as to some organs. Chase CR [9] provides a table according to which the **first** Chakra is associated with adrenals, pelvic nerve plexus, spine, kidneys, bladder, large intestine; **second** Chakra with testes/ovaries, inferior mesenteric ganglion, ileum, organs of reproduction; **third** Chakra with [endocrine] pancreas, celiac plexus ganglion, liver, gall bladder, stomach, duodenum, pancreas, spleen; **fourth** Chakra with thymus, celiac plexus, heart, circulation, vagus nerve; **fifth** Chakra with thyroid and parathyroid glands, inferior cervical ganglion, lungs, bronchus, larynx, pharynx, large intestine, vagus nerve; **sixth** Chakra with pituitary and pineal glands, thalamus, hypothalamus, superior cervical ganglion, left brain, lower brain, ears/nose, left eye; **seventh** Chakra with pineal gland, right brain, upper brain, right eye. Korotkov KG [12] put forward the concept that each Chakra is associated with a part of the finger. This approach is embodied in the "GDV Chakras" program, which allows us to quantify the state of ***virtual*** Chakras.

Earlier, we found a close correlation between EEG and gas-discharge image (GDI) parameters [6]. The aim of this study is to analyze the relationship of EEG parameters with the energy and asymmetry of virtual chakras, reconstructed on the basis of GDI parameters

MATERIAL AND METHODS

The object of observation were 60 volunteers: 31 women and 29 men aged 26-76 years with dysfunction of neuro-endocrine-immune complex and dysmetabolism.

In the morning we registered the GDI (Dubkova GI) by the method of GDV by the device of "GDV Chamber" ("Biotechprogress", SPb, RF). The first base parameter of GDV is **Area** of GDI in Right, Frontal and Left projections registered both with and without polyethylene **filter**. The second base parameter is a **coefficient of Shape**. The third base parameter of GDI is **Entropy**. Program estimates also **Energy** and **Asymmetry** of virtual **Chakras** [11-13]. Than EEG recorded (TA Korolyshyn) a hardware-software complex "NeuroCom Standard" (KhAI MEDICA, Kharkiv) monopolar in 16 loci (Fp1, Fp2, F3, F4, F7, F8, C3, C4, T3, T4, P3, P4, T5, T6, O1, O2) by 10-20 international system, with the reference electrodes A and Ref tassels on the ears. The duration of the epoch was 25 sec. Among the options considered the average EEG amplitude (μV), average frequency (Hz), frequency deviation (Hz), index (%) as well as absolute (μV^2/Hz) and relative (%) power spectrum density (PSD) of basic rhythms: β (35÷13 Hz), α (13÷8 Hz), θ (8÷4 Hz) and δ (4÷0,5 Hz) in all loci, according to the instructions of the device. In addition, calculated coefficient of Asymmetry (As) and Laterality Index (LI) for PSD each Rhythm using formulas:

$As, \% = 100 \bullet (Max - Min)/Min$; $LI, \% = \Sigma\,[200 \bullet (Right - Left)/(Right + Left)]/8$

We calculated also for each locus EEG Shannon's [18] Entropy (h) of normalized PSD using Popovych's formulas [10,17]:

$$hEEG = -\,[PSD\alpha \bullet \log_2 PSD\alpha + PSD\beta \bullet \log_2 PSD\beta + PSD\theta \bullet \log_2 PSD\theta + PSD\delta \bullet \log_2 PSD\delta]/\log_2 4$$

RESULTS AND DISCUSSION

Screening (Table 1) revealed the closest link between relative PSD of β-rhythm in locus T5 and virtual Chakras 1 and 6 Energy registered with filter (Figs. 1 and 2).

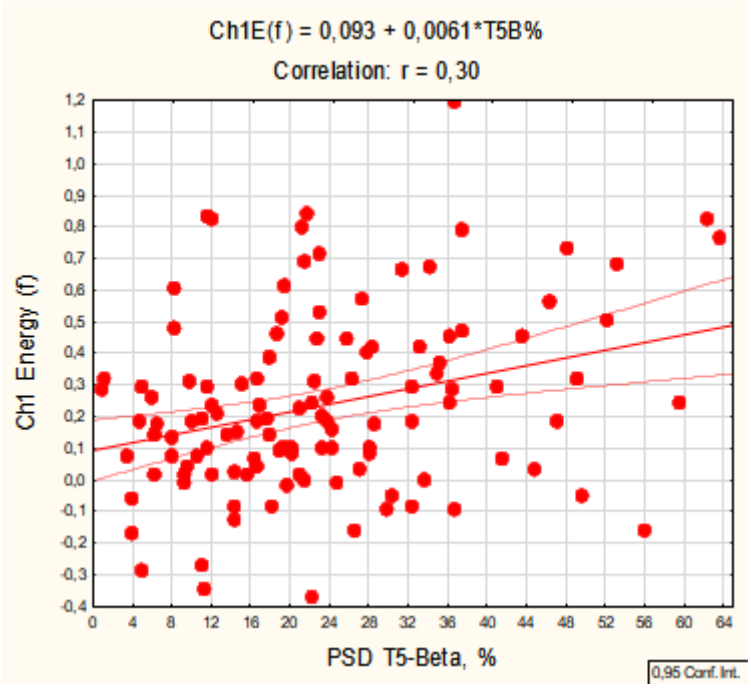


Fig. 1. Scatterplot of correlation between relative PSD of β-rhythm in locus T5 (X-line) and virtual Chakra 1 Energy (registration with filter) (Y-line)

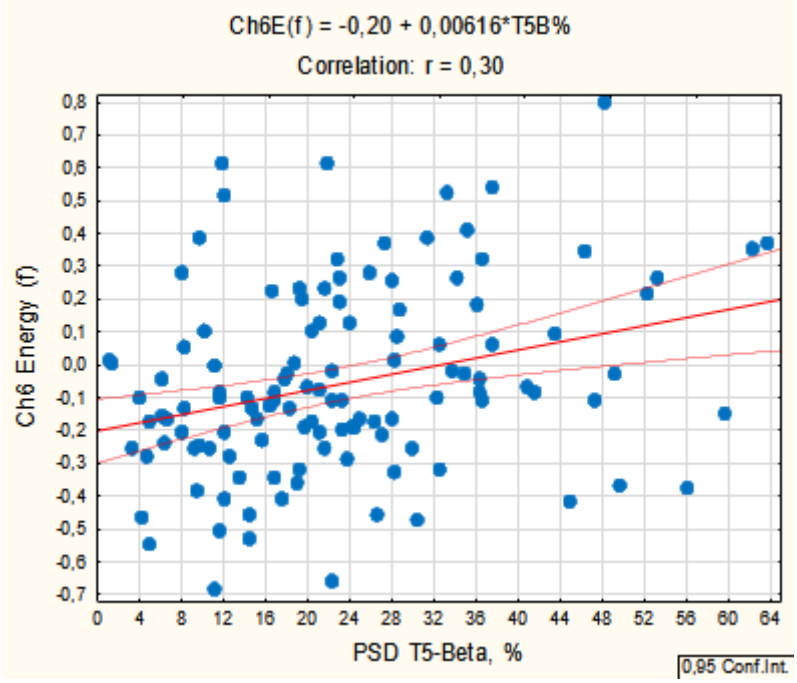


Fig. 2. Scatterplot of correlation between relative PSD of β-rhythm in locus T5 (X-line) and virtual Chakra 6 Energy (registration with filter) (Y-line)

The coefficients of canonical correlation between the EEG parameters and virtual Chakras Energy are in the interval 0,415÷0,564 and 0,358÷0,528 when registering without a filter and with a filter, respectively (Fig. 3).

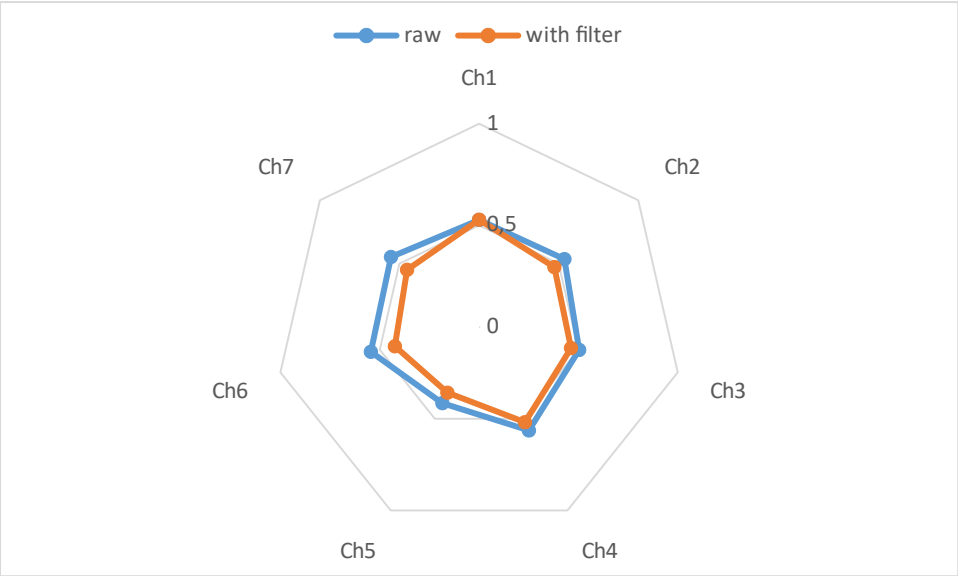


Fig. 3. Multiple correlation coefficients between EEG parameters and Energy of raw virtual Chakras and registered with filter

As we can see, the registration with the use of the filter reduces the strength of the connections of the EEG parameters with the Energy of the Chakras, mostly the sixth and seventh, except for the first Chakra. This is in perfect agreement with the classical ideas about the relationship of the former to the nervous system [9], as well as with the concept of Korotkov KG [11-13] that GDI, taken off without filter, characterizes the functional changes of organism, while taken with a filter characterizes organic changes.

Table 1. Matrix of correlations between the virtual Chakras Energy and EEG parameters

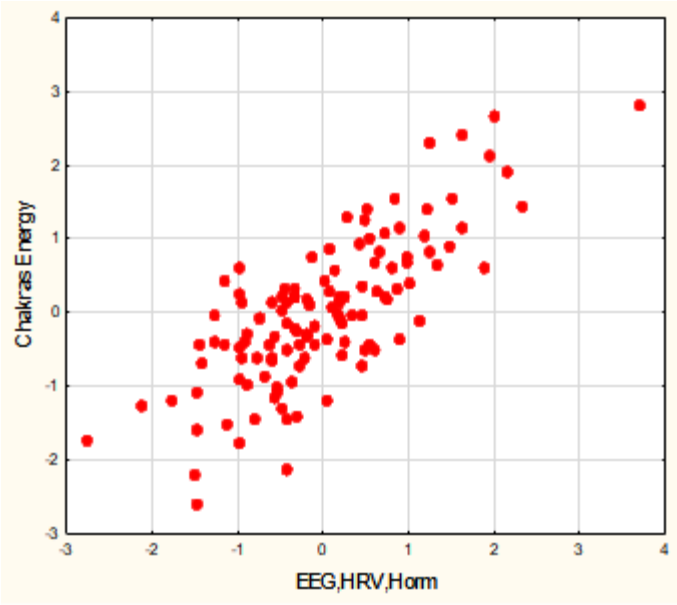
Variable	Ch1E	Ch1Ef	Ch2E	Ch2Ef	Ch3E	Ch3Ef	Ch4E	Ch4Ef	Ch5E	Ch5Ef	Ch6E	Ch6Ef	Ch7E	Ch7Ef
DF	0,16	0,27	0,11	0,16	0,11	0,24	0,13	0,14	0,10	0,18	0,14	0,22	0,15	0,22
AF	0,24	0,22	0,24	0,22	0,17	0,16	0,19	0,21	0,14	0,12	0,19	0,14	0,19	0,19
LIA	0,17	0,19	0,23	0,21	0,21	0,17	0,20	0,17	0,23	0,16	0,28	0,17	0,24	0,20
FP1H	0,20	0,16	0,26	0,18	0,25	0,18	0,26	0,15	0,09	0,11	0,17	0,14	0,28	0,15
FP2H	0,18	0,12	0,21	0,14	0,22	0,12	0,24	0,15	0,09	0,12	0,19	0,14	0,17	0,10
FP2B%	0,21	0,26	0,16	0,19	0,17	0,19	0,17	0,20	0,10	0,21	0,20	0,24	0,15	0,17
F3H	0,21	0,19	0,19	0,16	0,23	0,15	0,25	0,14	0,18	0,23	0,24	0,22	0,17	0,16
F3B%	0,19	0,22	0,15	0,16	0,12	0,18	0,13	0,18	0,14	0,19	0,23	0,23	0,14	0,17
F3T%	0,25	0,22	0,24	0,20	0,22	0,20	0,35	0,25	0,17	0,17	0,19	0,19	0,25	0,18
F3A	-0,07	-0,21	-0,08	-0,15	-0,06	-0,18	-0,13	-0,22	-0,04	-0,11	-0,01	-0,08	-0,10	-0,13
F4H	0,25	0,19	0,29	0,23	0,28	0,21	0,28	0,18	0,15	0,18	0,24	0,22	0,28	0,25
F4T%	0,19	0,14	0,25	0,19	0,19	0,17	0,31	0,24	0,09	0,08	0,12	0,12	0,27	0,18
F7T%	0,22	0,13	0,28	0,18	0,24	0,10	0,33	0,23	0,06	0,01	0,11	0,07	0,28	0,15
F8H	0,15	0,18	0,22	0,23	0,20	0,18	0,22	0,19	0,12	0,14	0,18	0,19	0,27	0,22
F8T%	0,21	0,13	0,23	0,16	0,16	0,10	0,26	0,19	0,09	0,05	0,14	0,09	0,28	0,15
T3H	0,18	0,13	0,23	0,16	0,23	0,11	0,25	0,15	0,12	0,10	0,20	0,13	0,21	0,15
T4H	0,21	0,20	0,29	0,24	0,30	0,21	0,28	0,25	0,12	0,13	0,23	0,21	0,29	0,28
T4A	0,05	-0,06	0,06	0,02	0,08	-0,03	0,03	-0,08	0,11	0,01	0,17	0,09	0,07	0,05
T4D	-0,08	-0,17	-0,12	-0,20	-0,15	-0,24	-0,12	-0,19	-0,08	-0,14	-0,14	-0,17	-0,13	-0,21
C3T%	0,15	0,14	0,20	0,12	0,14	0,13	0,27	0,23	0,11	0,11	0,14	0,15	0,23	0,12
T5B%	0,25	0,30	0,15	0,20	0,21	0,24	0,17	0,22	0,23	0,29	0,27	0,30	0,14	0,20
T6H	0,13	0,15	0,19	0,17	0,18	0,14	0,25	0,22	0,09	0,16	0,16	0,21	0,21	0,16
T6B	0,22	0,22	0,26	0,28	0,25	0,27	0,20	0,18	0,24	0,17	0,29	0,21	0,26	0,29
P3A%	-0,08	-0,16	-0,06	-0,14	-0,06	-0,14	-0,18	-0,24	-0,13	-0,15	-0,10	-0,13	-0,06	-0,12
P4A	-0,02	-0,15	-0,03	-0,13	-0,03	-0,12	-0,14	-0,23	-0,02	-0,11	-0,00	-0,10	-0,04	-0,12
O2B%	0,19	0,28	0,15	0,18	0,20	0,27	0,18	0,20	0,20	0,27	0,27	0,29	0,14	0,18
O2D	-0,21	-0,17	-0,21	-0,15	-0,24	-0,15	-0,21	-0,15	-0,07	-0,12	-0,14	-0,13	-0,17	-0,15

Further, for canonical analysis, EEG parameters were combined with HRV parameters and hormones (see previous article [6]).

Interim results are shown in Tables 2 and 3 and Figures 4 and 5.

Table 2. Factor structure of EEG,HRV&Endocrine and virtual Chakras (without filter) Energy Roots

Left set EEG, HRV&Hormones	R
Entropy T4	0,506
Entropy F8	0,436
Entropy Fp1	0,416
Entropy F4	0,408
Entropy T6	0,361
Testosterone standard, Z	0,356
F8-θ PSD, %	0,353
Entropy Fp2	0,318
Laterality α, Hz	0,305
VLF, msec^2	0,302
F4-θ PSD, %	0,301
T6-β PSD, μV^2/Hz	0,296
F7-θ PSD, %	0,295
VLF+ULF, msec^2	0,287
Entropy T3	0,285
C3-θ PSD, %	0,250
Total Power HRV, msec^2	0,233
O2-β PSD, %	0,196
T4-α PSD, μV^2/Hz	0,181
F3-θ PSD, %	0,179
Entropy F3	0,155
Frequency α, Hz	0,134
Heart Rate	0,124
Amplitude Mode HRV, %	0,108
Vegetative Balance Index	0,089
T5-β PSD, %	0,083
P3-α PSD, %	0,081
Testosterone, nM/L	-0,315
LFnu, %	-0,229
O2-δ PSD, μV^2/Hz	-0,215
Right set Chakras Energy	R
7 E	0,694
2 E	0,600
4 E	0,467
3 E	0,446
6 E	0,387
1 E	0,282
5 E	0,155

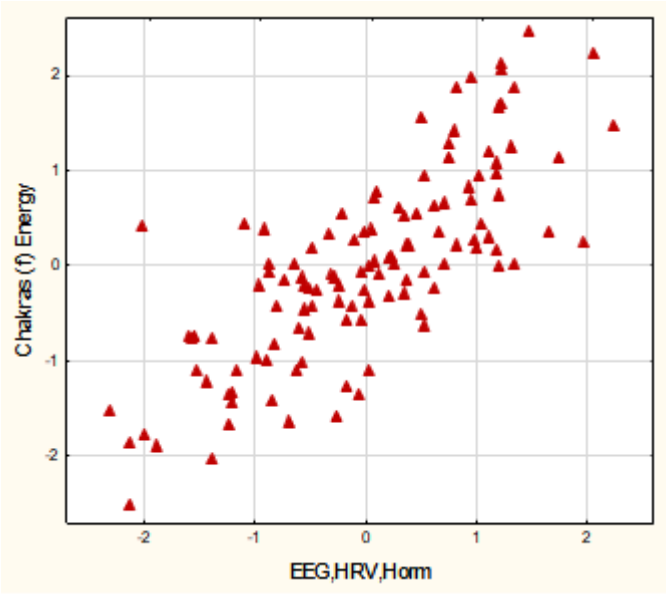


R=0,768; R^2=0,590; $\chi^2_{(245)}$=313; p=0,002; Λ Prime=0,039

Fig. 4. Scatterplot of canonical correlation between Neuro-endocrine parameters (X-line) and virtual Chakras Energy (registration without filter) (Y-line)

Table 3. Factor structure of EEG,HRV&Endocrine and virtual Chakras (with filter) Energy Roots

Left set *EEG, HRV&Hormones*	R
Entropy T4	0,416
HF/TP	0,237
Testosterone standard, Z	0,235
Frequency α, Hz	0,216
F3-θ PSD, %	0,209
T6-β PSD, $\mu V^2/Hz$	0,209
Heart Rate	0,192
F3-β PSD, %	0,168
Laterality α, Hz	0,159
Fp2-β PSD, %	0,127
Frequency δ, Hz	0,119
T5-β PSD, %	0,075
O1-β PSD, %	0,073
O2-β PSD, %	0,060
Total Power HRV, $msec^2$	0,063
VLF, $msec^2$	0,043
Testosterone, nM/L	-0,468
P4-α PSD, $\mu V^2/Hz$	-0,196
Amplitude Mode HRV, %	-0,189
T4-δ PSD, $\mu V^2/Hz$	-0,183
P3-α PSD, %	-0,159
Vegetative Balance Index	-0,145
LFnu, %	-0,143
F3-α PSD, $\mu V^2/Hz$	-0,120
Cortisol, nM/L	-0,106
Right set *Chakras Energy*	R
4 E f	0,633
7 E f	0,586
2 E f	0,530
1 E f	0,296
3 E f	0,283
6 E f	0,208
5 E f	0,007



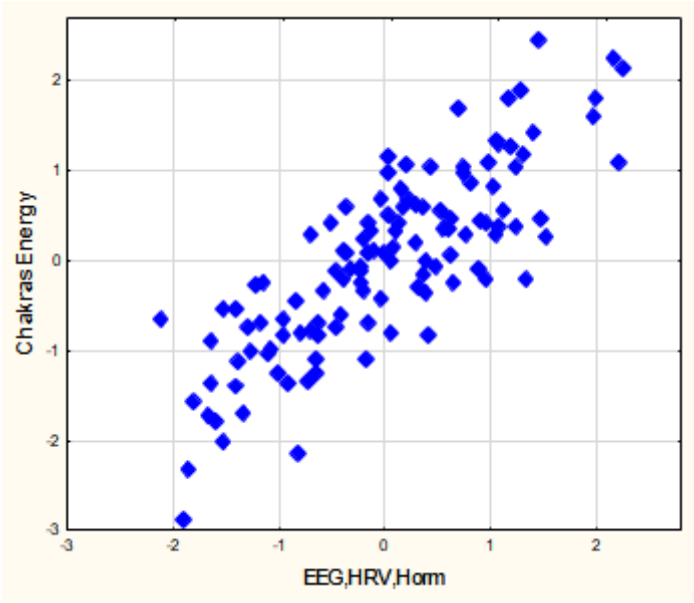
R=0,772; R^2=0,596; $\chi^2_{(210)}$=283; p=0,0006; Λ Prime=0,057

Fig. 5. Scatterplot of canonical correlation between Neuro-endocrine parameters (X-line) and virtual Chakras Energy (registration with filter) (Y-line)

In the end, it was found (Table 4) that the prominent places in the factor structure of the root of Chakra Energies are occupied by the seventh, second and fourth Chakras, which are responsible for: the pineal gland, **right** brain, upper brain, right eye; **testes/ovaries**; and heart, circulation, vagal nerve, respectively [9]. On the other hand, the factor structure of the neuro-endocrine root is represented primarily by Entropies and PSD **right**-handed (paired) loci, as well as **testosterone**.

Table 4. Factor structure of EEG,HRV&Endocrine and virtual Chakras Energy Roots

EEG, HRV&Hormones	R
Entropy T4	-0,460
Testosterone standard, Z	-0,343
F7-θ PSD, %	-0,320
Entropy F8	-0,318
F8-θ PSD, %	-0,315
T6-β PSD, $\mu V^2/Hz$	-0,298
F4-θ PSD, %	-0,283
Laterality α, Hz	-0,280
Entropy F4	-0,277
Entropy T6	-0,266
C3-θ PSD, %	-0,233
Entropy T3	-0,230
F3-β PSD, %	-0,226
Frequency α, Hz	-0,220
Heart Rate	-0,213
Entropy Fp1	-0,211
HF/TP	-0,189
Entropy Fp2	-0,172
T4-α PSD, $\mu V^2/Hz$	-0,165
Fp2-β PSD, %	-0,161
F3-θ PSD, %	-0,154
Frequency δ, Hz	-0,122
O2-β PSD, %	-0,111
O1-β PSD, %	-0,106
VLF, $msec^2$	-0,108
Total Power HRV, $msec^2$	-0,088
T5-β PSD, %	-0,078
Entropy F3	-0,055
Testosterone, nM/L	0,398
T4-δ PSD, $\mu V^2/Hz$	0,217
O2-δ PSD, $\mu V^2/Hz$	0,136
LFnu, %	0,124
P4-α PSD, $\mu V^2/Hz$	0,094
Cortisol, nM/L	0,053
Amplitude Mode HRV, %	0,017
Chakras Energy	R
7 E	-0,583
7 E f	-0,578
2 E	-0,531
2 E f	-0,522
4 E f	-0,544
4 E	-0,487
3 E	-0,333
3 E f	-0,286
6 E	-0,306
6 E f	-0,274
1 E f	-0,283
1 E	-0,259
5 E	-0,111
5 E f	-0,058



R=0,821; R^2=0,674; $\chi^2_{(490)}$=545; p=0,045; Λ Prime=0,003

Fig. 6. Scatterplot of canonical correlation between Neuro-endocrine parameters (X-line) and virtual Chakras Energy (Y-line)

Another basic characteristic of virtual Chakras is their Asymmetry. This is consistent with the position of the existence of morpho-functional asymmetry of many, if not all, paired organs or their halves, including the hemispheres of the brain [7,8,14-16].

Screening revealed a number of significant correlations, the strongest of which are shown in Figures 7 and 8.

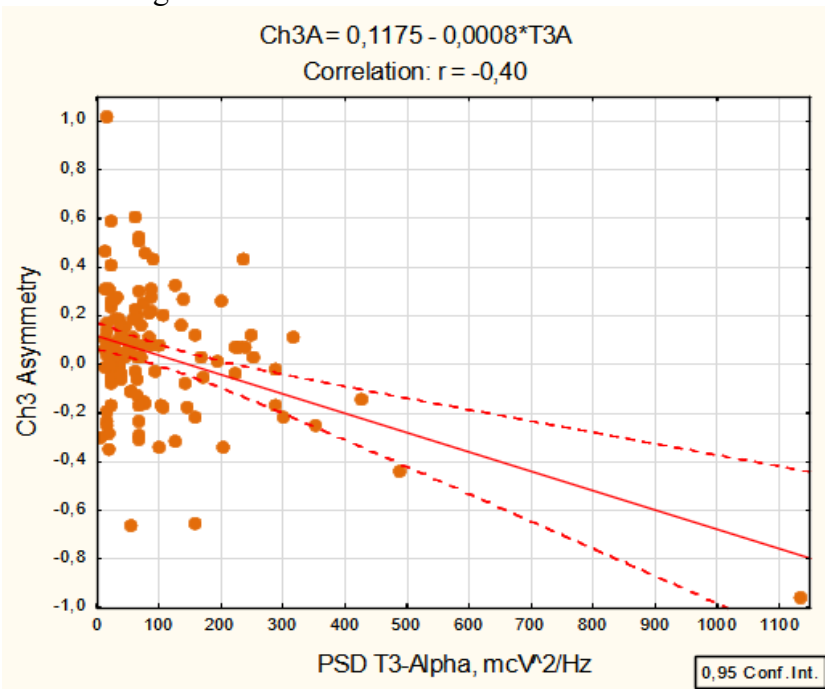


Fig. 7. Scatterplot of correlation between PSD of α-rhythm in locus T3 (X-line) and virtual Chakra 3 Asymmetry (Y-line)

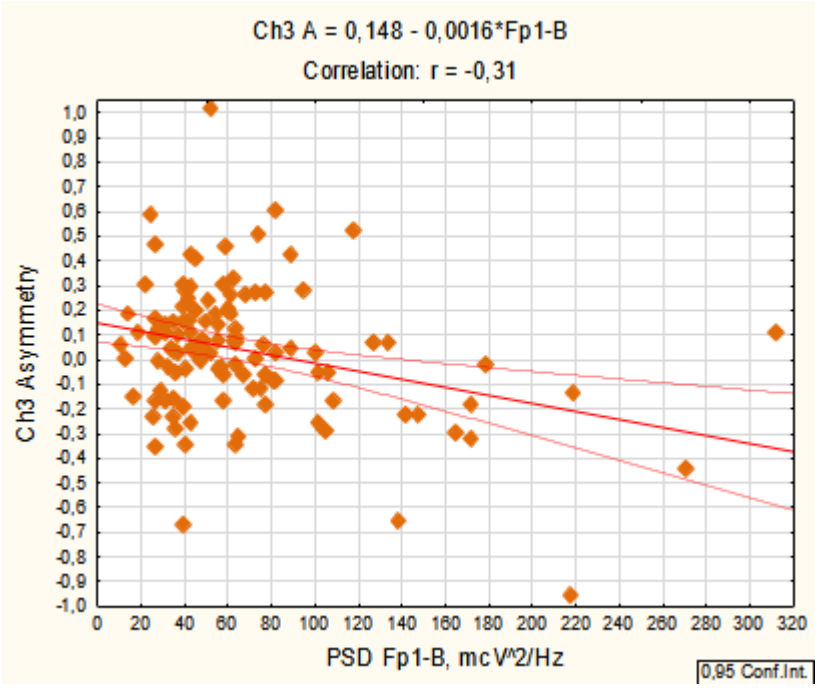


Fig. 8. Scatterplot of correlation between PSD of β-rhythm in locus Fp1 (X-line) and virtual Chakra 3 Asymmetry (Y-line)

Interestingly, the effect of the polyethylene filter on the strength of the bonds with the EEG parameters of the Asymmetry of the Chakras was much more noticeable compared to their Energy. This is especially true of the Asymmetry of the third and seventh Chakras, while the EEG connections of the sixth Chakra remain stable (Fig. 9).

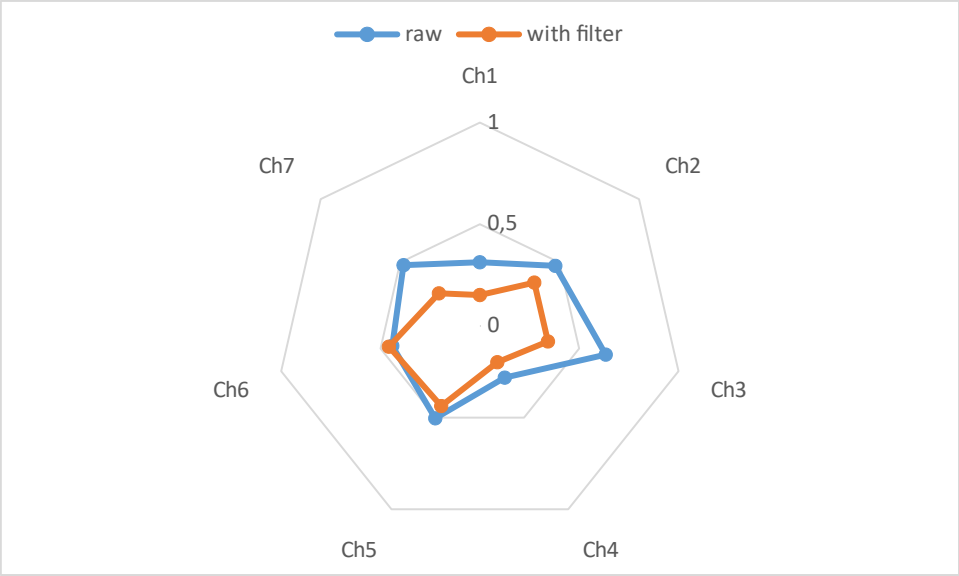
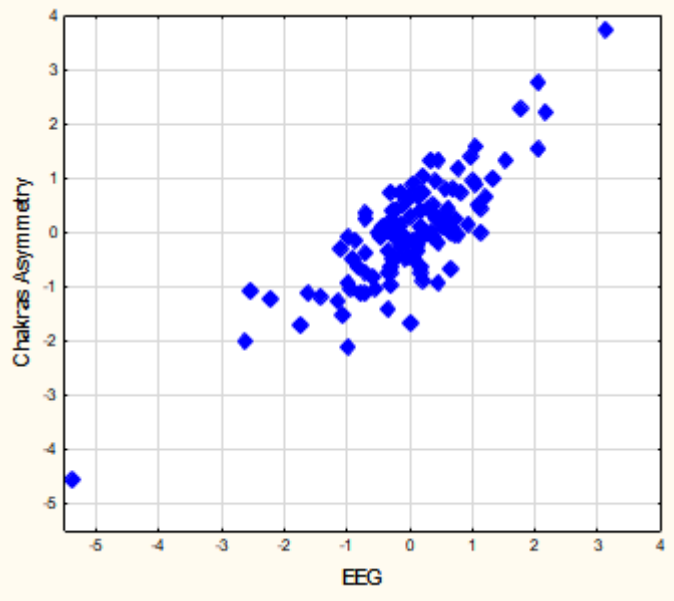


Fig. 9. Multiple correlation coefficients between EEG parameters and Asymmetry of raw virtual Chakras and registered with filter

In general, the canonical correlation between EEG parameters and the asymmetry of virtual chakras is stated as strong (Table 5 and Fig. 10).

Table 5. Factor structure of EEG and virtual Chakras Asymmetry Roots

Left set *EEG, HRV&Hormones*	R
T5-θ PSD, $\mu V^2/Hz$	-0,488
Fp1-θ PSD, $\mu V^2/Hz$	-0,471
T4-α PSD, $\mu V^2/Hz$	-0,436
Fp2-α PSD, $\mu V^2/Hz$	-0,432
F7-α PSD, $\mu V^2/Hz$	-0,430
C3-θ PSD, $\mu V^2/Hz$	-0,415
T3-α PSD, $\mu V^2/Hz$	-0,407
O1-θ PSD, $\mu V^2/Hz$	-0,404
Index β, %	-0,400
P3-θ PSD, $\mu V^2/Hz$	-0,337
F4-δ PSD, $\mu V^2/Hz$	-0,329
T5-δ PSD, $\mu V^2/Hz$	-0,314
T5-δ PSD, %	-0,245
O1-α PSD, $\mu V^2/Hz$	-0,313
F7-θ PSD, $\mu V^2/Hz$	-0,291
C4-δ PSD, $\mu V^2/Hz$	-0,289
Fp2-θ PSD, $\mu V^2/Hz$	-0,275
Fp1-β PSD, $\mu V^2/Hz$	-0,274
T5-α PSD, $\mu V^2/Hz$	-0,245
F3-α PSD, $\mu V^2/Hz$	-0,240
C4-α PSD, $\mu V^2/Hz$	-0,212
T6-β PSD, $\mu V^2/Hz$	-0,179
Frequency β, Hz	0,397
Fp2-β PSD, %	0,289
Frequency θ, Hz	0,282
F3-β PSD, %	0,278
Laterality δ, %	0,171
P3-β PSD, %	0,120
O2-β PSD, %	0,119
Frequency δ, Hz	0,091
Right set *Chakras Asymmetry*	R
3 A	0,519
5 A f	0,515
2 A	0,488
6 A f	0,421
3 A f	0,375
2 A f	0,361
7 A	0,343
7 A f	0,260
4 A	-0,162
1 A	-0,147
6 A	-0,053
5 A	-0,048
1 A f	-0,037



R=0,820; R^2=0,673; $\chi^2_{(468)}$=519; p=0,054; Λ Prime=0,004

Fig. 10. Scatterplot of canonical correlation between EEG parameters (X-line) and virtual Chakras Asymmetry(Y-line)

CONCLUSION

We have been shown that exist strong canonical correlation between parameters of GDV and principal neuroendocrine factors of adaptation [1,6], EEG [2,6] as well as parameters of leukocytogram [5], immunity [3] and phagocytosis [4].

The above data, taken together with the previous ones, state that between parameters of neuro-endocrine-immune complex and GDV exist strong canonical correlation suggesting suitability of the latter method.

However, mathematics, despite the status of the queen of sciences, is unable to solve the problem of localizing the parameters of the chakras and neuro-endocrine-immune complex on the abscissa as the cause, or on the ordinate as a consequence …

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ACCORDANCE TO ETHICS STANDARDS

Tests in volunteers are conducted in accordance with positions of Helsinki Declaration 1975, revised and complemented in 2002, and directive of National Committee on ethics of scientific researches. During realization of tests from all participants the informed consent is got and used all measures for providing of anonymity of participants.

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