HOLY WATER CHANGES EEG AND HRV BECAUSE OF BOTH AUTOSUGGESTION AND HIS INFORMATION (GOD GRACE, WORLD MIND, COSMIC ENERGY etc)

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SUMMARY

The aim: to identify the effects of Holy water on the parameters of HRV and EEG and clarify the role of autosuggestion and information. In 5 male volunteers performed 79 items HRV and EEG in the basal period and 25 tracks with 1,5 h after drinking 30 ml of water well, distilled, filtered, Holy (blind) and the well water indicates that it Holy (placebo). Preliminary analysis revealed no significant differences between neurotropic effects of well, distilled and filtered waters, because for further analysis they were combined in a cluster "control waters". Found 48 parameters of HRV and EEG, in which a set of clusters "control waters", "Holy water" and "placebo" significantly different from each other and from the basal level. These parameters formed 9 patterns that demonstrate the stimulating or inhibitory neurotropic effect: 1) only placebo; 2) only Holy water; 3) placebo and Holy water as 3.1) opposite and 3.2) approximately equally. **Conclusion**: neurotropic effects Holy water is like autosuggestion and information (Divine) nature.

Keywords: EEG, HRV, Holy water, placebo.

INTRODUCTION

In all ages, from all nations water was considered the source of life. By the water is always treated with reverent awe, it is always used in the rites and sacraments, she helped to heal the sick and ailing. And in our fairy tales "living water" heals and revives, because it is hidden a great power. The pagans worshiped the spirits of water. When Russia became a Christian, to replace the pagan worship came the veneration of saints sources, often Virginian, called so because of them were appear people icon of the Our Lady. In addition to the Mother of God sources in Russia has always venerated sources on the ground phenomenon icons of saints. Some sources have been plagued by the saints, others received healing power of the prayers of the priests. Water sources such revered saints, healing, she helped (and continues to help) people recover from many, many diseases. There are many examples [10].

More accessible, but not least healing is the actual Holy water. Great Blessing of Water is performed twice a year: on the eve of the Epiphany (January 18) and on the day of the Epiphany (January 19). This Blessing of Water is called the Great on very solemn ceremony, imbued with memories of Epiphany, in which the Church sees not only the prototype of the mysterious washing of sins, but also the actual nature of the consecration of the water by immersing it in the flesh of God [1].

Appearing on the light of day on January 17, the first author of this article with a symbolic name Popovych (in Ukrainian as son of priest), fellow of the Institute that bears the same symbolic name Bohomolets' (in Ukrainian as pilgrim), received finally able to do what neurophysiology, considered it his duty before God arrange an informal group to study the neurotropic effects of Holy Water (as well as prayers, but this will be discussed in the next article).

Turning to PubMed, we disappointment did not find **any** source on request: **Holy Water, EEG, HRV**. Nevertheless, the fear of the sin of pride, we are not in a hurry to declare themselves pioneers.

METHODS

The study involved 5 volunteers - healthy men aged 26, 35, 41, 52 and 60 years old, right-handed, Ukrainian, Greek Catholic faithful church. Morning in a sitting position in each volunteer EEG was recorded for 25 seconds and ECG for 7 min. ECG was recorded hardware-software complex "CardioLab+HRV" (KhAI-Medica, Kharkiv, Ukraine) in II standard lead. EEG was recorded with eyes closed hardware-software complex "NeuroCom Standard" (KhAI-Medica, Kharkiv, Ukraine) 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 [6,7]. After registration basal levels of EEG and HRV subjects consumed 30 ml of a water: well, distilled, filtered tap water as control, and Holy water (consecrated 9 months before) and water, subjected to different physical effects (in this report are not considered), not knowing what kind of (blind experiment). Instead, a separate series being offered to volunteers well water with a message that is Holy water (placebo). After 1,5 h ECG and EEG was repeated.

To analyze selected the following parameters of heart rate variability (HRV). Time: heart rate (HR), Moda (Mo), amplitude of mode (AMo), the scope of variation (MxDMn), the standard deviation of cardiointervals (SDNN, the standart deviation of all NN intervals), the mean difference characteristics (RMSSD, the square root of the mean of the sum of the squares of differences between adjacent NN intervals), pNN_{50} (the percent of interval differences of successive NN intervals greater then 50 ms), the triangular index (HRV TI). Spectral: absolute (in ms^2) and relative (% of total) power spectrum component of HRV: high-frequency (HF, range $0,4 \div 0,15$ Hz), low frequency (LF, range $0,15 \div 0,04$ Hz), very low frequency (VLF, range $0,04 \div 0,015$ Hz) and ultra low frequency (ULF, range $0,015 \div 0,003$ Hz). Calculated classical indices: Baevsky's stress index (SI=AMo/2•Mo•MxDMn), LF/HF, IC=(VLF+LF)/HF, HFnu=100•HF/(LF+HF). Among EEG parameters into account the average amplitude (μV), frequency (Hz), frequency deviation (Hz), index (%), asymmetry index (%) and relative (%) power spectral density (PSD) basic rhythms: β ($35 \div 13$ Hz), α ($13 \div 8$ Hz), θ ($8 \div 4$ Hz) and δ ($4 \div 0,5$ Hz) for all loci [6,7].

For statistical treatment applied discriminant and correlation analysis using the program "Statistica 5.5".

RESULTS

The subject of the analysis is 79 registrations basal level of EEG and HRV and their condition after drinking water 5 species in 5 volunteers. Preliminary analysis found that neurotropic effects well, distilled and filtered waters does not significantly differ from each other because they were further combined into one group (Control Waters).

Discriminant analysis (method forward stepwise [2]) found 7 parameters (variables) HRV and 21 parameter EEG (Table 1), which states a set of volunteers in the basal period and after 1,5 hours after drinking Control Waters, Holy Water and Placebo significantly different each other certifying Mahalanobis Distances (Table 2).

Table 1. Discriminant Function Analysis Summary

Step 28, N of vars in model: 28; Grouping: Basal level, Control Waters, Holy Water, Placebo
Wilks' Λ: 0,107; approx. $F_{(84)}$=2,89; p<10^{-6}

Variables currently in the model	Wilks Λ	Partial Λ	F-remove (3,72)	p-level	Tolerancy	Variables currently not in the model	Wilks Λ	Partial Λ	F to enter	p-level	Tolerancy
δ-rhythm Asymmetry	,130	,826	5,14	,003	,386	PSD **F4-β**	,106	,986	,342	,795	,181
Heart Rate	,122	,883	3,23	,027	,226	PSD **C3-β**	,106	,987	,317	,813	,039
β-rhythm Asymmetry	,112	,957	1,10	,354	,651	PSD **T3-θ**	,105	,982	,429	,733	,350
PS HFnu HRV	,127	,842	4,56	,006	,235	PSD **F7-θ**	,107	,996	,090	,965	,438
δ-rhythm Amplitude	,138	,778	6,94	,000	,130	PSD **Fp1-α**	,106	,986	,329	,805	,063
PSD **Fp2-β**	,112	,962	,96	,416	,073	PSD **F4-α**	,107	,998	,049	,985	,050
PSD **F7-β**	,124	,862	3,90	,012	,202	PSD **T3-α**	,104	,969	,776	,511	,064
PSD **Fp1-θ**	,139	,772	7,18	,000	,299	PSD **F3-δ**	,104	,967	,813	,491	,023
MxDMn HRV	,122	,877	3,41	,022	,238	PSD **Fp2-θ**	,107	,997	,084	,968	,230
PSD **F3-β**	,135	,792	6,37	,001	,103	PSD **T3-δ**	,104	,966	,856	,468	,245
PSD **P4-β**	,123	,873	3,53	,019	,075	PSD **P4-δ**	,107	,994	,151	,928	,171

Parameter						Parameter					
PSD F3-α	,121	,888	3,06	,034	,070	PSD F4-δ	,106	,984	,395	,757	,190
PSD C3-δ	,133	,805	5,88	,001	,156	Moda HRV	,103	,961	,980	,407	,022
PSD T6-θ	,132	,815	5,54	,002	,366	PS HF HRV	,104	,970	,748	,527	,166
PSD T6-α	,130	,825	5,15	,003	,110	δ-rhythm Deviat	,106	,984	,394	,757	,558
PS VLF HRV	,128	,839	4,66	,005	,405	θ-rhythm Deviat	,105	,979	,513	,674	,629
PSD O1-θ	,127	,844	4,48	,006	,313	β-rhythm Freque	,106	,992	,201	,896	,501
PSD P3-β	,121	,886	3,14	,030	,081	β-rhythm Index	,105	,976	,591	,623	,574
δ-rhythm Frequency	,124	,865	3,79	,014	,536	α-rhythm Asym	,104	,970	,736	,534	,693
PSD Fp2-δ	,123	,870	3,63	,017	,131	Stress Index HRV	,105	,981	,471	,703	,122
PSD P3-θ	,124	,867	3,72	,015	,237						
pNN$_{50}$ HRV	,125	,855	4,13	,009	,131						
PSD C4-α	,118	,906	2,52	,064	,044						
RMSSD HRV	,114	,943	1,47	,229	,157						
PSD T4-α	,114	,937	1,64	,188	,062						
α-rhythm Deviation	,113	,947	1,35	,265	,498						
θ-rhythm Amplitude	,112	,954	1,16	,331	,220						
θ-rhythm Index	,112	,960	1,01	,394	,673						

Chi-Square Tests with Successive Roots Removed

Roots Removed	λ	Canonical R	Wilks' Λ	χ^2	Degree Freedom	p-level
0	1,63	0,787	0,107	194	84	10^{-6}
1	1,24	0,744	0,282	110	54	10^{-5}
2	0,58	0,607	0,632	40	26	0,04

Table 2. Squared Mahalanobis Distances, **F-values** and p-levels

Groups	B	CW	HW	P
Basal level	0,0	8,9	20,0	33,4
Control Waters	**2,76** $<10^{-3}$	0,0	19,0	36,1
Holy Water	**1,98** 0,011	**1,54** 0,073	0,0	61,8
Placebo	**3,31** $<10^{-4}$	**2,93** $<10^{-3}$	**3,22** $<10^{-4}$	0,0

Also, noteworthy is 3 parameters HRV and 17 parameters EEG, not included in the model (Table 1).

About neurotropic effects of a water we tried for changes in the parameters relative to their basal levels, not a percentage, as the vast majority of practicing authors, but in Euklidian units d, ie taking into account the variability coefficient (Cv) of a variable in the basal period:

d=(Variable personal/Mean of Basal level – 1)/Cv.

About advantage of this approach is demonstrated by the fact that the same changes in physiological significance of percentage changes tightly variabile parameters (eg pH of blood plasma) greatly exceeds the widely variabile parameters (eg pH of urina and gastric juice).

So taking the basal level at 0, we found 9 patterns neurotropic effects of the tested waters.

The first pattern (Table 3) reflects, primarily, caused by Placebo expressed right sided lateralization δ-rhythm by drastical increase its PSD in locus Fp2. This is combined with an increase in θ-rhythm Index and PSD β-rhythm in left both lateral frontal and parietal loci, and Baevskiy's Stress Index. Neither Control Waters, or Holy Water on these parameters EEG and HRV does not make significant. Instead, they cause a decrease Moda HRV, while it prevents Placebo.

Table 3. The parameters HRV and EEG, which activated only by Placebo

Variables and Coefficients Variation	Pa-ra-	**B**asal Level	**C**ontrol **W**aters	Holy Water	Pla-cebo	F to enter	p-le-vel	Λ	F-value	p-le-vel

Variables and Coefficients Variation	Para-meter	Basal Level (79) ms	Control Waters (15)	Holy Water (5)	Placebo (5)	F to enter	p-level	Λ	F-value	p-level
δ-rhythm Asymmetry, % Cv=0,889	M	37	39	28	98	5,58	,001	,857	5,58	10^{-3}
	d	0	+0,07	-0,27	+1,85					
PSD Fp2-δ, % Cv=0,879	M	24,8	22,0	22,2	49,0	1,82	,150	,177	3,18	10^{-6}
	d	0	-0,13	-0,12	+1,11					
θ-rhythm Index, % Cv=1,796	M	22	14	21	61	1,01	,394	,107	2,89	10^{-6}
	d	0	-0,20	-0,04	+0,97					
PSD F7-β, % Cv=0,514	M	37,0	34,2	37,2	54,9	2,73	,048	,530	3,19	10^{-5}
	d	0	-0,15	+0,01	+0,94					
PSD P3-β, % Cv=0,535	M	28,3	24,1	22,3	34,7	4,22	,008	,206	3,21	10^{-6}
	d	0	-0,27	-0,41	+0,42					
Moda HRV, msec Cv=0,193	M	787	699	690	800					
	d	0	-0,58	-0,64	+0,08					
Stress Index HRV, ln un. Cv=0,174	M	5,48	5,66	5,59	6,18					
	d	0	+0,19	+0,11	+0,74					
Changes relative to **Basal Level**	D_7 m	0	-0,15 0,09	-0,19 0,10	+0,87 0,21[b]					
Changes relative to **Control Waters**	D_7 m		0	+0,04 0,06[p]	+1,03 0,16[c]					

Designed for multiple 7 parameters given pattern we are nominating as HW±P+ (Fig. 1).

Fig. 1. The pattern parameters HRV and EEG, which react only to Placebo

The other two options HRV, reflecting vagal tone, with 6 parameters EEG: θ-rhythm Amplitude and its PSD in right posterior temporal locus and PSD β-rhythm in right anterior frontal locus, α-rhythm both Asymmetry and Deviation, and δ-rhythm Deviation, on the contrary, under the influence of Placebo reduced, again in the absence of significant changes after the use of both Control Waters and Holy Water (Table 4). That is, the second pattern, nominated as HW±P-, mirror relative to the previous (Fig. 1).

Table 4. The parameters HRV and EEG, which inhibited only by Placebo

Variables and Coefficients Variation	Pa-ra-	**B**asal Level	**C**ontrol **W**aters	Holy Water	Pla-cebo	F to enter	p-le-vel	Λ	F-value	p-le-vel

	ms	(79)	(15)	(5)	(5)					
MxDMn HRV, msec Cv=0,435	M d	170 0	159 -0,14	172 +0,03	118 -0,70	2,66	,053	,450	3,14	10^{-5}
PS HF HRV, % Cv=0,519	M d	11,4 0	9,0 -0,40	8,9 -0,42	7,3 -0,69					
θ-rhythm Amplitude, μV Cv=0,331	M d	6,8 0	6,8 -0,01	7,1 +0,11	5,6 -0,54	1,12	,346	,112	2,97	10^{-6}
PSD T6-θ, % Cv=0,428	M d	7,1 0	8,2 +0,35	7,2 +0,04	5,5 -0,51	2,49	,065	,304	3,05	10^{-6}
PSD Fp2-β, % Cv=0,591	M d	30,3 0	27,4 -0,16	26,5 -0,22	23,6 -0,38	2,35	,077	,576	3,22	10^{-4}
α-rhythm Deviation, Hz Cv=0,569	M d	1,02 0	1,10 +0,14	1,00 -0,03	0,70 -0,55	1,32	,274	,117	3,03	10^{-6}
δ-rhythm Deviation, Hz Cv=0,401	M d	0,71 0	0,77 +0,20	0,70 -0,04	0,50 -0,74					
α-rhythm Asymmetry, % Cv=0,497	M d	16 0	14 -0,21	13 -0,28	10 -0,67					
Changes relative to **Basal Level**	D_8 m	0	-0,03 0,09	-0,10 0,07	-0,60 0,04[b]					
Changes relative to **Control Waters**	D_8 m		0	-0,07 0,06[p]	-0,57 0,09					

The third pattern reflects an increase under the influence of both Control Waters and Holy Water Heart Rate, β-rhythm Index and PSD α-rhythm in right central and anterior temporal loci, while after eating Placebo these parameters were not significantly different from Basal level (Table 5). If the calculated changes relative to Control Waters, it concludes inhibitory effect Placebo these 4 parameters, ie pattern is similar to the previous view: HW±P-.

Table 5. The parameters HRV and EEG, which inhibited only by Placebo

Variables and Coefficients Variation	Pa-ra-ms	**B**asal Level (79)	**C**ontrol Waters (15)	Holy Water (5)	Pla-cebo (5)	F to enter	p-le-vel	Λ	F-value	p-le-vel
Heart Rate, beats/min Cv=0,164	M d	76,6 0	85,4 +0,70	87,1 +0,84	73,4 -0,23	2,90	,039	,787	4,19	10^{-3}
PSD C4-α, % Cv=0,519	M d	37,1 0	46,3 +0,49	45,7 +0,45	41,2 +0,22	1,80	,154	,137	3,20	10^{-6}
PSD T4-α, % Cv=0,562	M d	34,4 0	42,8 +0,44	43,0 +0,45	40,0 +0,29	1,32	,273	,123	3,09	10^{-6}
β-rhythm Index, % Cv=0,244	M d	84 0	92 +0,37	91 +0,31	76 -0,40					
Changes relative to **Basal Level**	D_4 m	0	+0,50 0,07[b]	+0,51 0,11[b]	-0,03 0,17					
Changes relative to **Control Waters**	D_4 m		0	-0,09 0,06[p]	-0,66 0,12[c]					
Total Changes relative to Control Waters	D_{12} m		0	-0,04 0,04[p]	-0,56 0,08					

After combining the second and third patterns and a comparison with the first clearly visible (Fig. 2), which was viewed 19 EEG and HRV parameters not affect Holy Water as a material substance, but only faith in its healing properties!
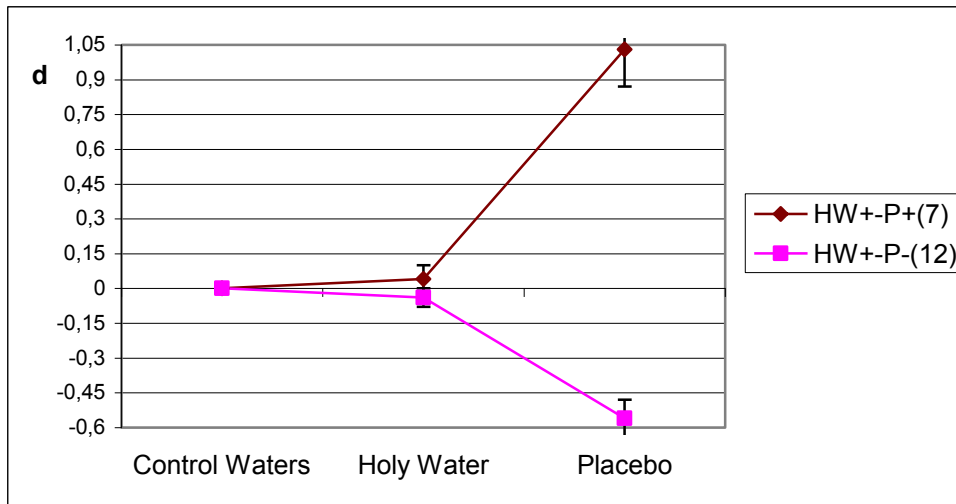
Fig. 2. The pattern parameters HRV and EEG, which react only to Placebo

However, analysis of changes in these parameters HRV and EEG leads us to the conclusion that they are not only autosuggestive nature.

In particular, one of the HRV marker of vagotone, and 6 parameters β-rhythm (Table 6) Holy Water has a stronger inhibitory effect than Control Waters, while after eating Placebo these parameters show tendency to increase. Eventually pattern looks as HW-P+ (Fig. 3), ie Holy Water and Placebo do relatively Control Waters opposite neurotropic effects (Fig. 4).

Table 6. The parameters HRV and EEG, which react opposite on Holy Water and Placebo

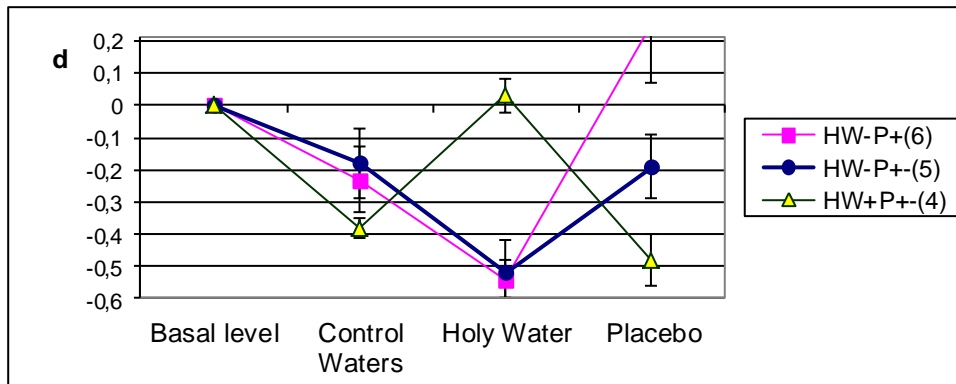| Variables and Coefficients Variation	Pa-ra-ms	**B**asal Level (79)	**C**ontrol **W**aters (15)	Holy Water (5)	Pla-cebo (5)	F to enter	p-le-vel	Λ	F-value	p-le-vel
RMSSD HRV, msec Cv=0,374	M d	21,6 0	17,0 -0,56	15,4 -0,77	20,8 -0,10	1,61	,195	,129	3,15	10^{-6}
β-rhythm Asymmetry, % Cv=0,737	M d	23 0	14 -0,55	15 -0,44	22 -0,05	3,53	,018	,711	3,99	10^{-4}
PSD F3-β, % Cv=0,522	M d	27,1 0	23,8 -0,23	18,0 -0,64	30,8 +0,26	2,34	,079	,417	3,09	10^{-5}
PSD P4-β, % Cv=0,549	M d	27,8 0	25,8 -0,13	21,9 -0,38	27,1 -0,04	1,75	,162	,394	2,99	10^{-5}
PSD F4-β, % Cv=0,557	M d	28,2 0	22,8 -0,34	19,6 -0,55	28,2 0,00					
PSD C3-β, % Cv=0,498	M d	27,3 0	23,4 -0,29	20,1 -0,53	31,2 +0,29					
β-rhythm Frequency, Hz Cv=0,200	M d	20,2 0	20,0 +0,16	18,6 -0,38	24,6 +1,10					
Changes relative to **Basal Level**	D_7 m	0	-0,28 0,09[b]	-0,53 0,05[b]	+0,21 0,16					
Changes relative to **Control Waters**	D_7 m		0	-0,25 0,08[cp]	+0,49 0,10[c]					

209

Fig. 3. The pattern parameters HRV and EEG, which react only on Holy Water or Holy Water and Placebo

Fig. 4. The pattern parameters HRV and EEG, which react only on Holy Water or Holy Water and Placebo

A similar inhibitory effect has Holy Water on the other two HRV marker of vagotone and three options EEG (Table 7), while Placebo ineffective against them, described pattern HW-P± (Fig. 3 and 4).

Table 7. The parameters HRV and EEG, which inhibited only by Holy Water

Variables and Coefficients Variation	Pa-ra-ms	Basal Level (79)	Control Waters (15)	Holy Water (5)	Pla-cebo (5)	F to enter	p-le-vel	Λ	F-value	p-le-vel
pNN$_{50}$ HRV, % Cv=1,121	M d	3,2 0	2,0 -0,32	1,2 -0,55	2,4 -0,22	3,44	,021	,147	3,23	10^{-6}
PS VLF HRV, msec^2 Cv=0,774	M d	695 0	483 -0,39	381 -0,58	450 -0,46	2,32	,081	,256	3,07	10^{-6}
PSD O1-θ, % Cv=0,620	M d	6,4 0	5,9 -0,13	3,3 -0,77	6,6 +0,05	2,15	,101	,238	3,05	10^{-6}
PSD T6-α, % Cv=0,648	M d	34,3 0	39,0 +0,21	31,8 -0,11	34,9 +0,03	2,79	,045	,277	3,08	10^{-6}
PSD T3-θ, % Cv=0,399	M d	9,7 0	8,7 -0,27	7,5 -0,57	8,4 -0,33					
Changes relative to **Basal Level**	D$_5$ m	0	-0,18 0,11	-0,52 0,11[b]	-0,19 0,10					
Changes relative to **Control Waters**	D$_5$ m		0	-0,34 0,08[cp]	-0,01 0,06					

On the other hand, Holy Water prevents reduction in control 4 parameter of δ- and θ-rhythms, while Placebo again ineffective (Table 8), described a mirror pattern HW+P± (Fig. 3 and 4).

Table 8. The parameters HRV and EEG, which activated only by Holy Water

Variables and Coefficients Variation	Pa-ra-ms	Basal Level (79)	Control Waters (15)	Holy Water (5)	Pla-cebo (5)	F to enter	p-le-vel	Λ	F-value	p-le-vel
δ-rhythm Frequency, Hz Cv=0,172	M d	1,08 0	1,00 -0,43	1,10 +0,11	1,00 -0,43	2,51	,064	,189	3,22	10^{-6}
PSD P3-θ, % Cv=0,478	M d	9,2 0	7,9 -0,29	9,5 +0,08	8,0 -0,28	1,70	,173	,166	3,14	10^{-6}
PSD T3-δ, % Cv=0,597	M d	22,7 0	16,7 -0,44	21,0 -0,12	13,9 -0,65					
PSD Fp2-θ, % Cv=0,498	M d	8,6 0	7,1 -0,36	8,7 +0,03	6,2 -0,56					
Changes relative to **Basal Level**	D_4 m	0	-0,38 0,03[b]	+0,03 0,05	-0,48 0,08[b]					
Changes relative to **Control Waters**	D_4 m		0	+0,41 0,05[cp]	-0,10 0,06					

However, the reduction in the control 4 other parameters δ-rhythm and HFnu HRV prevented both Holy Water and Placebo (Table 9), that they have a relatively Control Waters about the same stimulating neurotropic effects are indicated by HW+P+ (Fig. 5 and 6).

Table 9. The parameters HRV and EEG, which activated by both Holy Water an Placebo

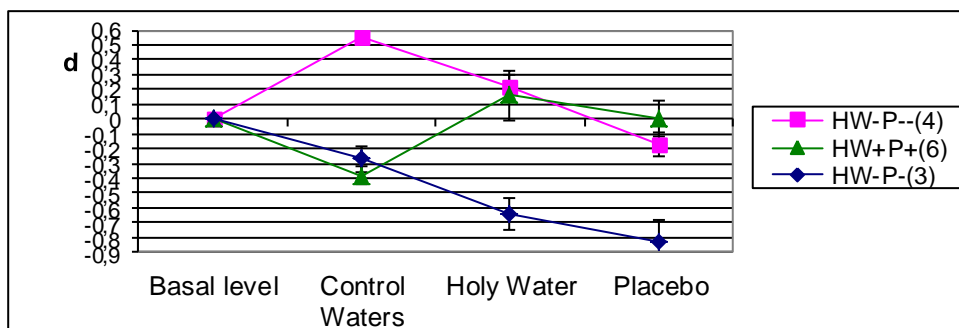| Variables and Coefficients Variation	Pa-ra-ms	Basal Level (79)	Control Waters (15)	Holy Water (5)	Pla-cebo (5)	F to enter	p-le-vel	Λ	F-value	p-le-vel
PS HFnu HRV, % Cv=0,182	M d	25 0	18 -0,52	22 -0,18	21 -0,31	2,78	,045	,654	3,72	10^{-4}
δ-rhythm Amplitude, μV Cv=0,528	M d	12,9 0	12,5 -0,07	19,2 +0,92	16,8 +0,58	1,83	,148	,619	3,36	10^{-4}
PSD C3-δ, % Cv=0,552	M d	24,1 0	18,1 -0,45	21,6 -0,19	22,6 -0,12	2,69	,051	,330	3,05	10^{-6}
PSD F3-δ, % Cv=0,666	M d	23,8 0	17,1 -0,42	28,6 +0,30	22,5 -0,08					
PSD F4-δ, % Cv=0,574	M d	24,0 0	18,5 -0,40	26,3 +0,17	24,4 +0,03					
PSD P4-δ, % Cv=0,557	M d	22,1 0	16,6 -0,44	21,1 -0,08	21,2 -0,08					
Changes relative to **Basal Level**	D_6 m	0	-0,38 0,06[b]	+0,16 0,17	0,00 0,12					
Changes relative to **Control Waters**	D_6 m		0	+0,54 0,11[c]	+0,39 0,06[c]					

Fig. 5. The pattern parameters HRV and EEG, which react both the Holy Water, and the Placebo
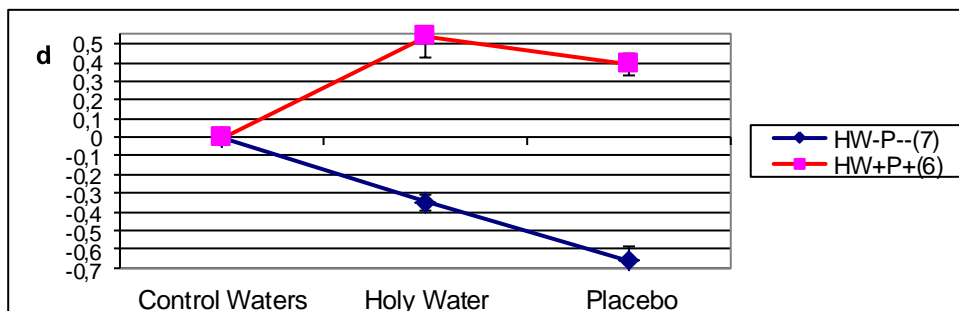

Fig. 6. The pattern parameters HRV and EEG, which react both the Holy Water, and the Placebo

Instead reduction in control θ-rhythm Deviation and its PSD in left anterior and lateral frontal loci amplified approximately equally both Holy Water and Placebo (Table 10), which describes the pattern HW-P- (Fig. 5).

Finally, a substantial increase in the control 4 parameter of α-rhythm prevented both Holy Water and Placebo (Table 10), while the inhibitory neurotropic effect relatively Control Waters of the Holy Water is weaker compared to Placebo, which is marked as HW-P-- (Fig. 5 and 6).

Table 10. The parameters HRV and EEG, which inhibited by both Holy Water and Placebo

Variables and Coefficients Variation	Pa-ra-ms	Basal Level (79)	Control Waters (15)	Holy Water (5)	Pla-cebo (5)	F to enter	p-le-vel	Λ	F-value	p-le-vel
PSD Fp1-θ, % Cv=0,432	M d	9,2 0	7,5 -0,43	6,4 -0,70	5,9 -0,84	2,63	,055	,489	3,15	10^{-5}
PSD F7-θ, % Cv=0,391	M d	8,4 0	7,5 -0,26	5,8 -0,79	4,9 -1,08					
θ-rhythm Deviation, Hz Cv=0,602	M d	1,07 0	1,00 -0,11	0,80 -0,42	0,70 -0,57					
Changes relative to **Basal Level** (V=3)	D_3 m	0	-0,27 $0,09^b$	-0,64 $0,11^b$	-0,83 $0,15^b$					
PSD F3-α, % Cv=0,518	M d	37,6 0	48,8 +0,58	42,3 +0,24	35,4 -0,11	2,83	,043	,360	3,03	10^{-6}
PSD Fp1-α, % Cv=0,538	M d	38,3 0	48,9 +0,49	38,2 -0,02	30,5 -0,39					
PSD F4-α, % Cv=0,539	M d	36,1 0	47,6 +0,59	42,9 +0,35	36,2 +0,01					
PSD T3-α, % Cv=0,514	M d	33,1 0	43,2 +0,59	38,3 +0,31	29,8 -0,19					
Changes relative to **Basal Level** (V=4)	D_4 m	0	+0,56 $0,02^b$	+0,22 $0,08^b$	-0,17 0,08					
Total Changes relative to **Control Waters** (V=7)	D_7 m		0	-0,35 $0,04^{cp}$	-0,66 $0,07^c$					

Discriminant Function Analysis Summary (Table 11) allows you to visualize all information about 104 personal records. For this 28-dimensional space discriminant variables transformed into 3-dimensional space of canonical variables (discriminant functions, Roots), each of which is a linear combination of discriminant variables. Root 1 contains 47% of discriminant features. Analysis of the factor structure matrix shows that Root 1, judging by the full structural coefficients (pooled-within-groups correlations), closely linked with δ-rhythm Asymmetry as a key parameter of the first pattern parameters EEG and HRV.

Table 11. Discriminant Function Analysis Summary. Standardized, Structural and Raw Coefficients

Canonical Variables currently in model	Standardized Coefficients for Canonical Variables			Correlations Variables - Canonical Roots			Raw Coefficients for Canonical Variables		
	Root 1	Root 2	Root 3	Root 1	Root 2	Root 3	Root 1	Root 2	Root 3
δ-rhythm Asymmetry	,830	-,080	-,247	**0,32**	0,04	0,08	,0252	-,0024	-,0075
PSD Fp2-δ	,799	,853	-,720	**0,19**	-0,01	0,11	,0375	,0401	-,0338
θ-rhythm Index	,267	-,156	-,065	**0,16**	-0,03	0,13	,0067	-,0039	-,0016
PSD F7-β	,180	,569	1,144	**0,14**	-0,01	0,12	,0088	,0278	,0558
PSD P3-β	1,315	-,715	,390	**0,10**	-0,10	0,02	,0868	-,0472	,0257
MaxDMin HRV	-,737	-,152	,672	**-0,11**	-0,05	-0,01	-,0098	-,0020	,0090
θ-rhythm Amplitude	-,115	-,544	-,306	**-0,09**	-0,01	-0,02	-,0506	-,2380	-,1341
PSD T6-θ	-,116	,927	-,247	**-0,09**	0,08	-0,13	-,0377	,3009	-,0803
α-rhythm Deviation	-,258	,334	-,081	**-0,08**	0,02	-0,09	-,4295	,5558	-,1344
PSD Fp2-β	-,535	,781	-,057	**-0,05**	-0,07	-0,04	-,0307	,0448	-,0033
Heart Rate	-,365	,655	-,733	-0,10	**0,25**	-0,03	-,0288	,0518	-,0579
PSD C4-α	1,592	-,301	-1,180	0,00	**0,18**	-0,02	,0873	-,0165	-,0647
PSD T4-α	-,491	,757	1,227	0,02	**0,17**	0,00	-,0264	,0406	,0659
RMSSD HRV	,141	-,791	-,120	0,04	**-0,23**	-0,03	,0182	-,1026	-,0156
β-rhythm Asymmetry	,060	-,328	,113	0,03	**-0,20**	0,05	,0038	-,0207	,0071
PSD F3-β	,493	-1,716	-,808	0,09	**-0,12**	-0,06	,0369	-,1283	-,0605
PSD P4-β	-1,422	-,040	-1,103	0,02	**-0,07**	-0,06	-,0943	-,0027	-,0731
PS VLF HRV	-,316	-,777	,043	-0,04	**-0,18**	-0,07	-,0006	-,0016	,0001
pNN$_{50}$ HRV	,365	1,210	-,763	0,00	**-0,15**	-0,06	,1094	,3626	-,2287
PSD O1-θ	,778	,145	-,547	0,06	**-0,11**	-0,14	,2092	,0391	-,1470
PSD T6-α	,796	-1,452	,270	0,01	**0,05**	-0,08	,0365	-,0667	,0124
δ-rhythm Amplitude	-1,036	-,507	1,559	0,03	0,07	**0,24**	-,1315	-,0644	,1980
PSD C3-δ	,704	-1,044	-,957	-0,00	-0,14	**0,08**	,0558	-,0828	-,0759
PS HFnu HRV	1,017	-,039	-,294	0,03	0,16	**0,08**	,0757	-,0029	-,0219
δ-rhythm Frequency	-,418	-,497	,131	-0,08	-0,13	**0,12**	-2,447	-2,909	,765
PSD P3-θ	-,066	-,704	,875	-0,05	-0,08	**0,08**	-,0153	-,1648	,2048
PSD Fp1-θ	-,424	-1,013	-,468	-0,09	-0,21	**-0,12**	-,1133	-,2709	-,1250
PSD F3-α	-,899	-,501	-1,615	-0,04	0,18	**-0,12**	-,0486	-,0271	-,0874
Cum. Prop.	**0,471**	**0,831**	**1,00**			**Constants**	**-2,48**	**11,48**	**10,77**

Weaker, but also positively correlated with Root 1 **other 4 parameters of the pattern** (Table 3). Instead, **5 second pattern parameters** (Table 4) correlated negatively with Root 1. So, Root 1 describes the first pattern of EEG and HRV parameters directly, and second pattern - the reverse way. Root 2 contains 36% of discriminant features characterizing **parameters third pattern** directly (Table 5) and obernenym- **fourth** (Table 6) and **fifth** (Table 7) patterns - the reverse way. On the Root 3 account the remaining 17% discriminant information regarding the remaining 7 parameters (Table 9, 8 and 10 respectively).

Calculating individual unstandardized canonical scores for roots as the sum of products of individual discriminant variables on raw coefficients for canonical variables plus constant for discriminant function makes it possible to visualize the localization of each individual, but rather, each experiment in the information space of three roots (Fig. 7). As you can see, states HRV and EEG in the basal period (B) and after drinking Control Waters (W), Holy Water (HW) and Placebo (P) clearly delineated each other, which is documented by calculating Mahalanobis Distances (Table 2).
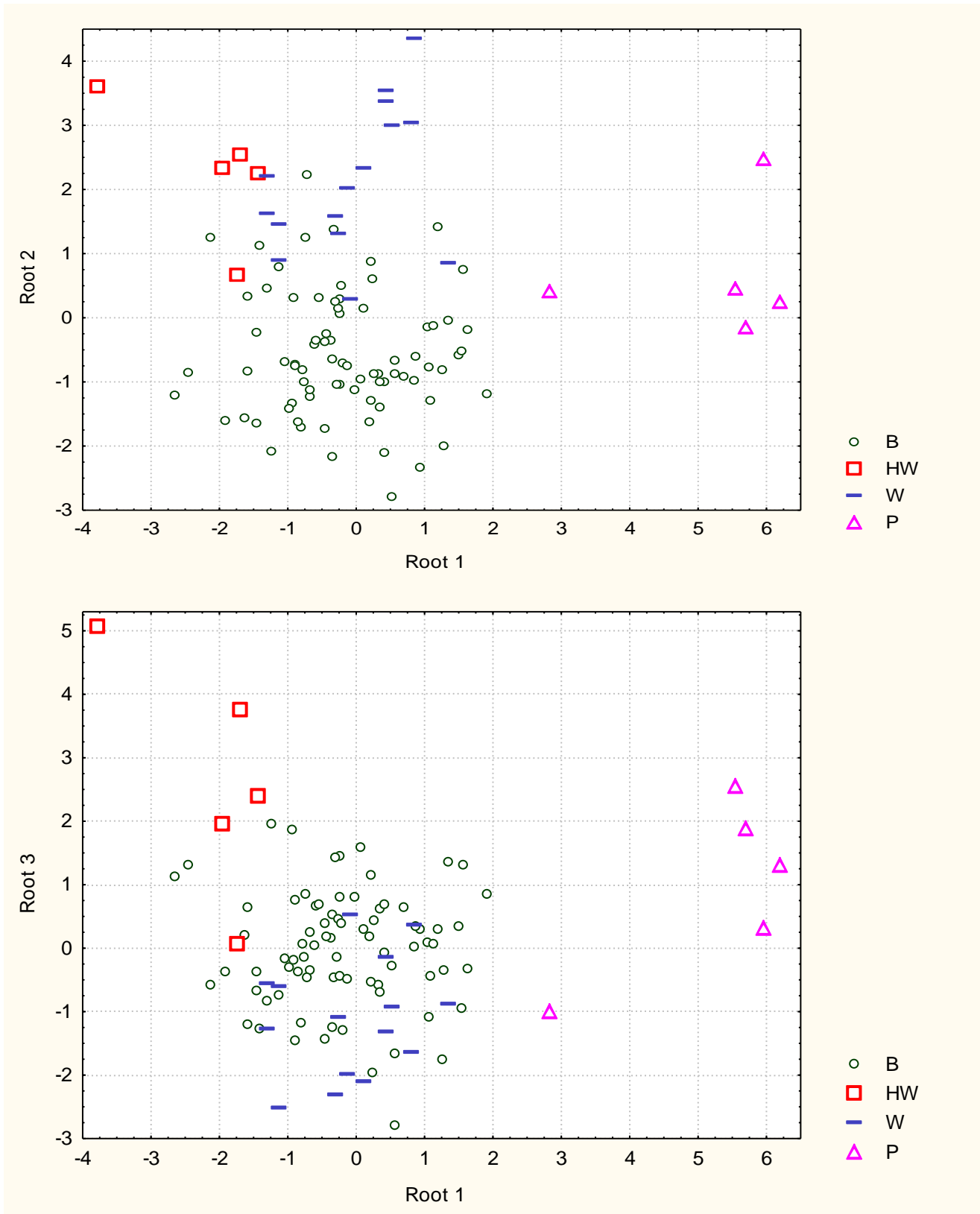
Fig. 7. Individual unstandardized canonical scores for Roots 1, 2 and 3

Convenient for visual perception is to examine Means of Canonical Variables (Table 12, Fig. 8).

214

Table 12. Means of Canonical Variables

Groups	Root 1	Root 2	Root 3
Basal level	-0,18±0,11	-0,59±0,11	-0,02±0,10
Control Waters	-0,08±0,22	+2,17±0,30	-1,09±0,24
Holy Water	-2,12±0,42	+2,28±0,47	+2,65±0,85
Placebo	+5,24±0,62	+0,69±0,46	+1,01±0,62

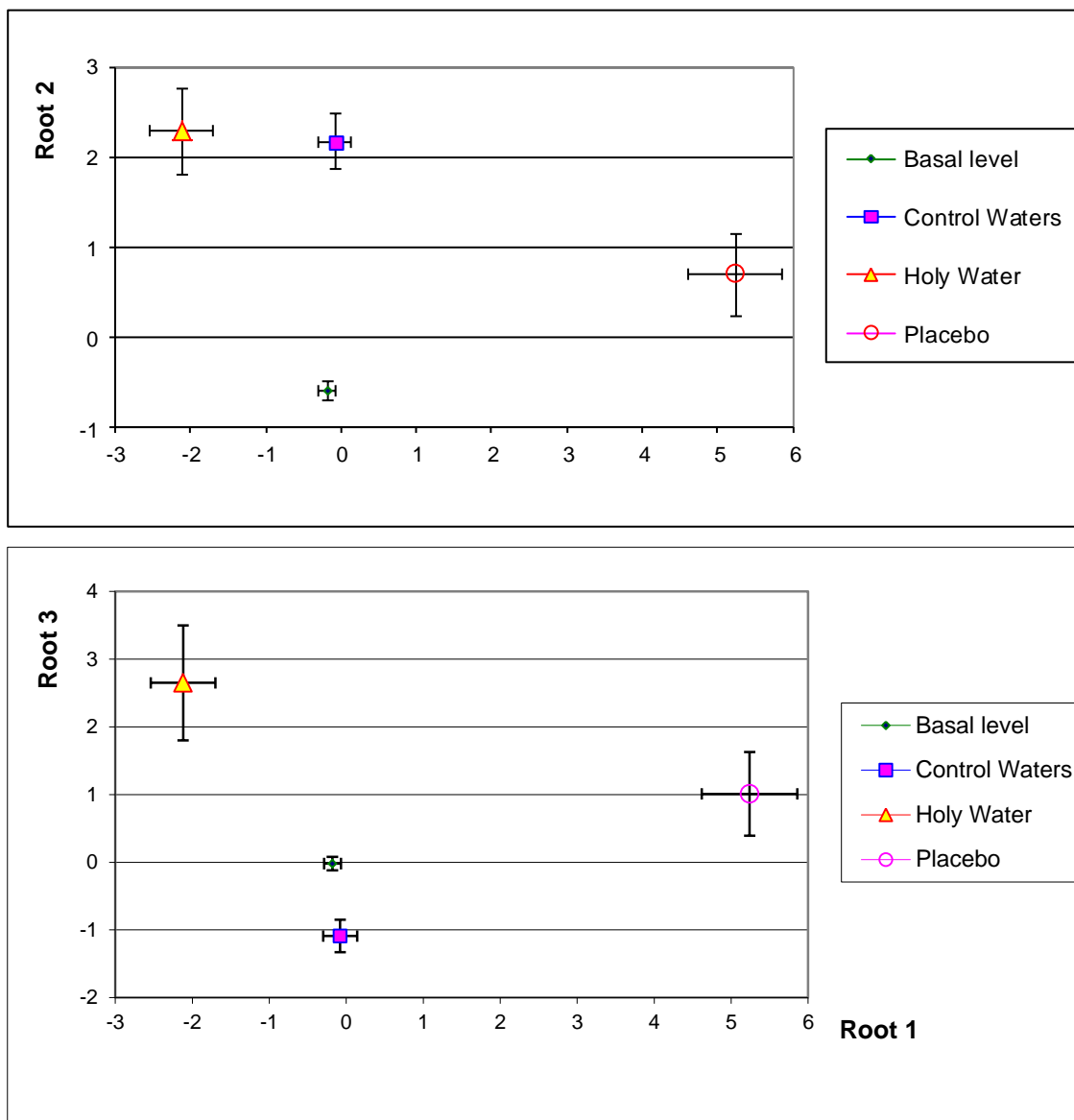**Fig. 8. Means of Canonical Variables for Groups**

Calculation of Classification Functions for Groups (Table 13) allows retrospectively identified by discriminant variable initial state entities to within 98,7% (1 error in 79 records), condition after use Control Waters - 80% (3 errors in 15 records), both Holy Water and Placebo also 80% (1 error in 5 records). Total classification accuracy is 94,2% (Table 14).

Table 13. Classification Functions for Groups

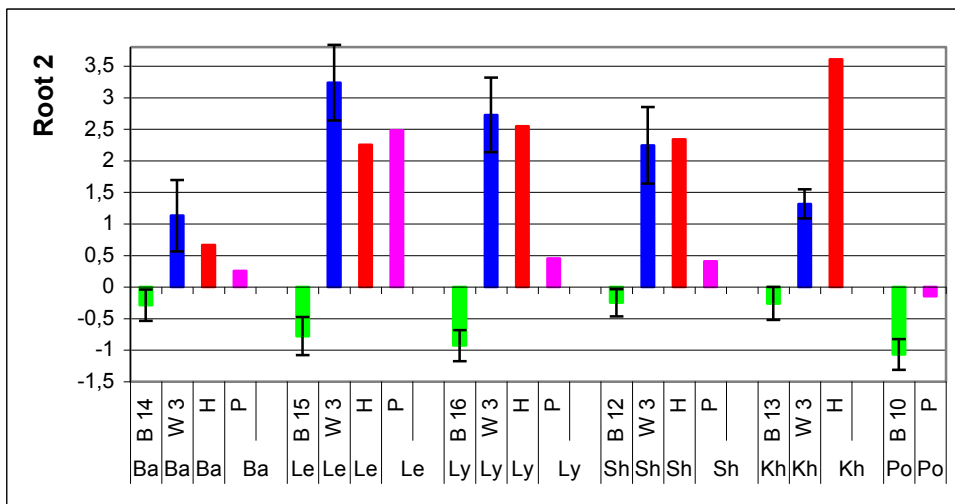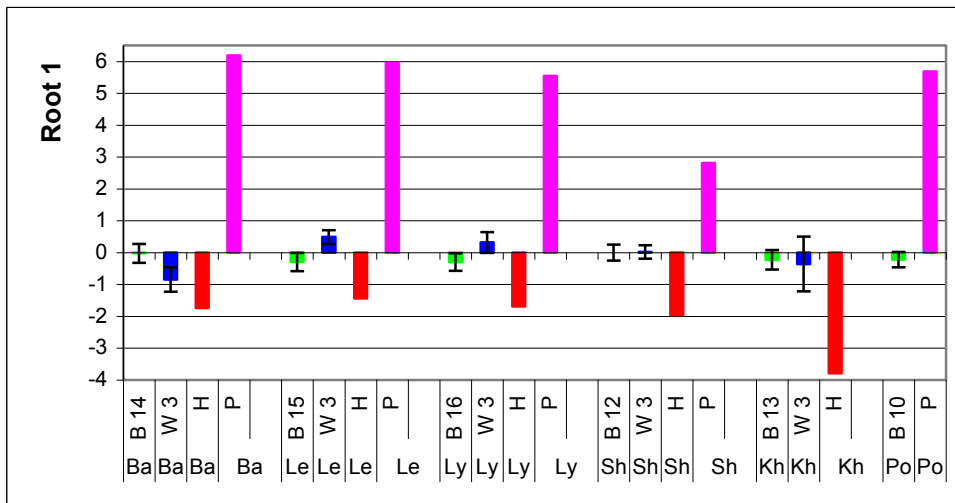| Variables in model	Basal	CW	HW	Placebo
δ-rhythm Asymmetry	,067	,071	-,009	,193
Heart Rate	1,468	1,667	1,517	1,318
β-rhythm Asymmetry	,128	,065	,080	,130
PS HFnu HRV	,839	,863	,625	1,223
δ-rhythm Amplitude	,230	-,171	,831	-,359
PSD Fp2-β	1,075	1,197	1,254	,963
PSD F7-β	-1,239	-1,222	-1,027	-1,097
PSD Fp1-θ	7,224	6,607	6,330	6,131
MxDMn HRV	-,110	-,126	-,072	-,156
PSD F3-β	2,832	2,552	2,230	2,805
PSD P4-β	2,028	2,088	2,007	1,437
PSD F3-α	1,595	1,610	1,378	1,206
PSD C3-δ	3,860	3,721	3,310	3,977
PSD T6-θ	-,817	,084	-,094	-,719
PSD T6-α	1,146	,955	,917	1,272
PS VLF HRV	,033	,029	,030	,028
PSD O1-θ	1,902	2,188	1,215	2,934
PSD P3-β	1,771	1,624	1,536	2,208
δ-rhythm Frequency	85,50	76,50	83,93	69,29
PSD Fp2-δ	,961	1,111	,913	1,181
PSD P3-θ	2,952	2,282	3,056	2,870
pNN$_{50}$ HRV	-5,132	-3,888	-4,914	-4,311
PSD C4-α	3,600	3,633	3,210	3,984
RMSSD HRV	4,944	4,683	4,572	4,895
PSD T4-α	-,246	-,208	,099	-,268
α-rhythm Deviation	7,488	9,099	9,560	5,733
θ-rhythm Amplitude	2,524	2,014	1,579	1,805
θ-rhythm Index	,078	,069	,049	,107
Constants	**-504,5**	**-489,3**	**-448,8**	**-509,0**

Table 14. Posterior Probabilities. Incorrect classifications are marked with *

Proto-col	Observed Classification	B n=79	W n=15	HW n=5	P n=5
1	Basal level	1,00	,00	,00	,00
2	Basal level	1,00	,00	,00	,00
3	Basal level	1,00	,00	,00	,00
4	Basal level	1,00	,00	,00	,00
5	Basal level	1,00	,00	,00	,00
6	Basal level	1,00	,00	,00	,00
7	Basal level	,66	,34	,00	,00
8	Basal level	,54	,46	,00	,00
9	Basal level	,99	,01	,00	,00
10	Basal level	,99	,01	,00	,00
11	Basal level	1,00	,00	,00	,00
12	Basal level	1,00	,00	,00	,00
13	Basal level	1,00	,00	,00	,00
14	Basal level	1,00	,00	,00	,00
15	Basal level	1,00	,00	,00	,00
16	Basal level	1,00	,00	,00	,00
17	Basal level	,99	,01	,00	,00
18	Basal level	,82	,18	,00	,00
19	Basal level	1,00	,00	,00	,00
20	Basal level	,91	,09	,00	,00
* 21	Water well	,79	,20	,00	,00
22	Basal level	1,00	,00	,00	,00
23	Water well	,00	1,00	,00	,00
* 24	Basal level	,11	,89	,00	,00

216

25	Water well	,00	1,00	,00	,00
26	Basal level	,80	,20	,00	,00
27	Water well	,37	,63	,00	,00
28	Basal level	,97	,03	,00	,00
29	Water well	,01	,99	,00	,00
30	Basal level	1,00	,00	,00	,00
31	Water distillated	,05	,95	,00	,00
32	Basal level	,99	,01	,00	,00
33	Water distillated	,01	,99	,00	,00
34	Basal level	,99	,01	,00	,00
35	Water distillated	,08	,92	,00	,00
36	Basal level	,51	,48	,00	,00
* 37	Water distillated	,71	,29	,00	,00
38	Basal level	,64	,36	,00	,00
39	Water distillated	,04	,96	,00	,00
40	Basal level	,96	,04	,00	,00
* 41	Water filtrated	,98	,02	,00	,00
42	Basal level	,99	,01	,00	,00
43	Water filtrated	,01	,99	,00	,00
44	Basal level	1,00	,00	,00	,00
45	Water filtrated	,00	1,00	,00	,00
46	Basal level	,91	,09	,00	,00
47	Water filtrated	,10	,90	,00	,00
48	Basal level	,98	,02	,00	,00
49	Water filtrated	,41	,59	,00	,00
50	Basal level	,63	,36	,01	,00
* 51	Holy Water	,94	,06	,00	,00
52	Basal level	1,00	,00	,00	,00
53	Holy Water	,01	,00	,99	,00
54	Basal level	1,00	,00	,00	,00
55	Holy Water	,00	,00	1,00	,00
56	Basal level	,85	,12	,02	,00
57	Holy Water	,00	,00	1,00	,00
58	Basal level	,99	,01	,00	,00
59	Holy Water	,01	,01	,99	,00
60	Basal level	1,00	,00	,00	,00
61	Basal level	,98	,02	,00	,00
62	Basal level	,99	,01	,00	,00
63	Basal level	,99	,01	,00	,00
64	Basal level	1,00	,00	,00	,00
65	Basal level	,99	,01	,00	,00
66	Placebo	,00	,00	,00	1,00
67	Basal level	1,00	,00	,00	,00
68	Placebo	,00	,00	,00	1,00
69	Basal level	1,00	,00	,00	,00
70	Placebo	,00	,00	,00	1,00
71	Basal level	1,00	,00	,00	,00
* 72	Placebo	,80	,12	,00	,08
73	Basal level	,99	,01	,00	,00
74	Placebo	,00	,00	,00	1,00
75	Basal level	,99	,01	,00	,00
76	Basal level	,99	,01	,00	,00
77	Basal level	1,00	,00	,00	,00
78	Basal level	,97	,03	,00	,00
79	Basal level	,99	,01	,00	,00
80	Basal level	1,00	,00	,00	,00
81	Basal level	1,00	,00	,00	,00
82	Basal level	,99	,00	,01	,00
83	Basal level	1,00	,00	,00	,00
84	Basal level	1,00	,00	,00	,00
85	Basal level	,99	,01	,00	,00
86	Basal level	1,00	,00	,00	,00
87	Basal level	1,00	,00	,00	,00
88	Basal level	,99	,01	,00	,00
89	Basal level	1,00	,00	,00	,00
90	Basal level	1,00	,00	,00	,00
91	Basal level	,97	,03	,00	,00
92	Basal level	1,00	,00	,00	,00
93	Basal level	1,00	,00	,00	,00

94	Basal level	1,00	,00	,00	,00
95	Basal level	1,00	,00	,00	,00
96	Basal level	1,00	,00	,00	,00
97	Basal level	1,00	,00	,00	,00
98	Basal level	1,00	,00	,00	,00
99	Basal level	1,00	,00	,00	,00
100	Basal level	1,00	,00	,00	,00
101	Basal level	1,00	,00	,00	,00
102	Basal level	1,00	,00	,00	,00
103	Basal level	1,00	,00	,00	,00
104	Basal level	1,00	,00	,00	,00

In conclusion we result personal values three Roots, containing information on brain bioelectrical activity in the basal period (B, green bars) and after drinking Control Waters (W, blue column), Holy Water (H, red bars) and Placebo (P, purple bars).
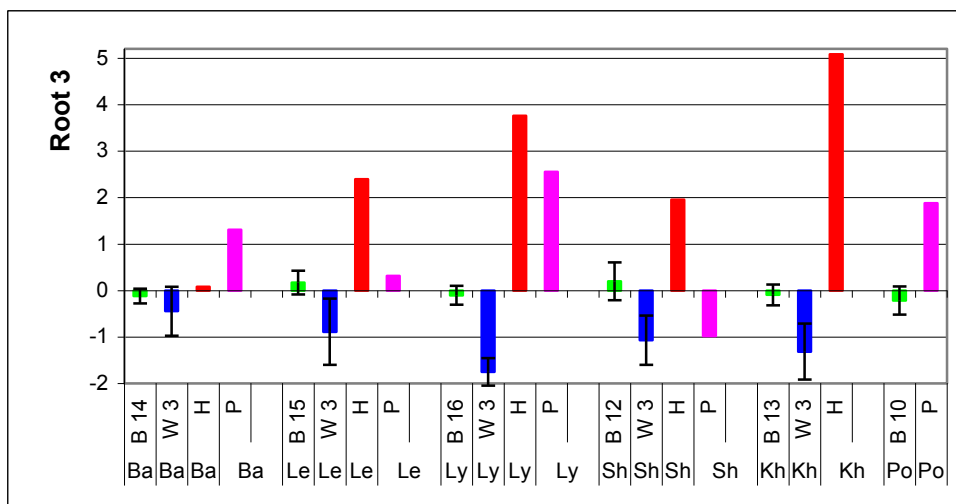
Fig. 8. Canonical Variables for 5 volunteers (after B and W indicated number of records)

Rushes eyes (Fig. 9) that the parameters of EEG and HRV, knowledge of which is condensed in Root 1, after drinking Control Waters completely or almost the same basal and under the influence of Holy Water significantly lower in all volunteers. Instead, use Placebo is even starker, but opposite changes made in all 5 cases (in this series Kh because of employment was replaced by the first author Po). Root 2 displays information about the significant increase basal levels of a number of options to control that prevent a Holy Water (3 cases) and Placebo (5 cases). Root 3 shows in terms of control level of parameters EEG and HRV decrease, while the Holy Water and Placebo, as a rule, these changes reverses (7 cases) or prevent (in 2 cases).

DISCUSSION

As expected, after drinking Control Waters majority EEG and HRV parameters were not significantly changed. However, some parameters decreased (Tables 4,6,7,8 and 9), while others rose (Tables 5 and 10). We assume that these changes are not caused Control Waters, and is a manifestation of the trend caused by the biorhythms. In support of this assumption indicates lower levels of vagal markers (Moda, RMSSD, pNN_{50}, HF, HFnu and VLF) HRV and increased Heart Rate, reflecting a spontaneous sympathotonic shift autonomic balance between the first morning (8.00 - 8.40) and second (at 9.30 - 10.10) records.

Related EEG parameter changes are a consequence or cause changes in the parameters HRV, as evidenced by correlations (critic level |r|=0,20) between: 1) HR and PSD α-rhythm in loci T4 (r=0,63) and C4 (r=0,58), а також Index β-rhythm (r=-0,23); 2) RMSSD and PSD β-rhythm in locus F4 (r=0,21); 3) HFnu and PSD α-rhythm in loci F4 (r=-0,44), F3 (r=-0,35), T3 (r=-0,30), Fp1 (r=-0,26), and δ-rhythm in loci F3 (r=0,33), F4 (r=0,31), P4 (r=0,31), T3 (r=0,31). This is consistent with the results our previous studies [6,7].

It follows that neurotropic effects Placebo and Holy Water legitimately evaluate changes EEG and HRV parameters regarding how Basal Level, and Control Waters. That is, no change after drinking Placebo and Holy Water of settings that after drinking Control Waters rising/falling, suggests inhibiting/stimulatimg effects Placebo and Holy Water on these parameters EEG and HRV.

It is well known that the Placebo and the power of belief can cure about 1/3 majority of physical and mental diseases [3].

It has been said in the Gospel of Mark: "28 ... she said of **himself**:" When but touch His garment, he will recover. "29 ... and body felt she was healed of that plague! 34 And He said to her, "Your **faith**, o daughter, saved you ..."

Since we presented data suggest that only **Faith** in salubrity Holy Water causes significant changes in EEG and HRV parameters after drinking well water called as Holy!!! It seems that **Faith** healing effect is realized through its neurotropic effects, shown in Tables 3-5, by autosuggestion mechanism.

But why use water Holiness which the volunteers did not know a number of EEG and HRV parameters influence manner opposite to that Placebo (Table 6), and changed the settings without subordinates action Placebo (Table 7 and 8) or acted like Placebo (Table 9 and 10)?

Saint Demetrius Kherson teaches that our Lord Jesus Christ during Ascension leaving us His Living and Life-asserting Word, gave believers the right strength of Faith and Prayer let down to earth blessings Heavenly Father sent the Comforter, the Spirit of truth, who is in the Church of Christ for ever so that the Church, despite existing in the human heart a seed of sin and impurity, was always at his consecration and inexhaustible source of life. Holy Church, keeping the commandment of God, prayer and the sacraments sanctifying always not only the person, but all that person enjoys in the world to plenty of omniconcecrating Grace of the Holy Spirit put limit the spread of sewage sinful and prevent deaths augmenting the sins of men. This in itself explains what it means and what a blessing of water power, exercised by the Church. This means the return of the water element of the original purity and holiness, her descent, the power of prayer and the Word of God, God's blessing and grace and life-giving Holy Spirit, giving her the strength to sanctify our souls and bodies of all who use it. That is the reason why in water hallowed mystery of the Church, open strange properties that we have not seen in conventional waters [cit. from: 1].

If the first line the Gospel of John translated with religious language for scientific, that is to replace the term "word" on "information" and "God" to "World Mind", then receive: "Was primary information and information from the World and the World of Reason was Mind was information. It was in World Mind primary... All through information emerged ... Information your body has become"

So all we need to make provision listed neurotropic effects of Holy Water caused of information available to it (God's Grace, the World Mind, cosmic energy etc.) !!!

On the informative nature of neurotropic effects of Holy Water the results of 7 autoexperiments conducted on IL Popovych during a period from January 21 to February 1, 2013. It is shown that 9 parameters of HRV and 26 parameters of EEG, recorded synchronously within 7 minutes immediately after the swallow Holy Water, significantly (Squared Mahalanobis Distance: 268; F=35,4; $p<10^{-6}$) differ from the initial settings [5].

Earlier IL Popovych in 7 autoexperiments found that immediately after the Prayer **silently** "Our Father ..." and "Hail Mary ..." changes in parameter of EEG arise, as similar and different from those after the swallow Holy Water [4]. Thus as Holy Water, and Prayer increased harmony index parameters of EEG, calculated from extended matrix factor loading [8,9].

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