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Visual Imagery in Modern Mind-Body Practices: Biophotonic Information Transfer through Water-Mediated Neural Resonance

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Abstract
Background. Recent research has demonstrated intriguing relationships between martial arts practice, particularly Kyokushin Karate Katas (KKK), biophotonic emissions, and changes in water properties. This emerging field connects traditional mind-body practices with modern biophysical measurements.
Purpose. To analyze and synthesize current evidence regarding the mechanisms of information transfer between practitioners of Kyokushin Karate and water, focusing on biophotonic emissions, neurophysiological changes, and subsequent effects on recipients of treated water.
Methods. We reviewed primary research focusing on: (1) biophotonic emissions during martial arts practice, (2) water structure modifications through mental practices, and (3) neurophysiological effects of treated water. Key papers from 2010-2024 were analyzed, with particular attention to the pioneering work of Babelyuk et al. (2024, 2025) and related studies in biophoton research.
Results. Evidence suggests that KKK practice induces measurable changes in practitioners' biophotonic emissions, particularly from brain regions and fingertips. These changes correlate with specific EEG patterns and entropy measures. Water exposed to practitioners during KKK shows altered properties, including modified light emission characteristics and structural changes. Recipients consuming treated water demonstrate neurophysiological changes, even under double-blind conditions.
Conclusions. The reviewed research suggests a potentially viable mechanism for information transfer from practitioner to water through biophotonic emissions, with subsequent biological effects on recipients. These

findings bridge traditional Eastern practices with Western biophysical measurements, opening new avenues for understanding mind-body interactions.

Keywords: Kyokushin Karate, biophotons, water memory, neurophysiology, martial arts, biofield, entropy, EEG.

Introduction

Recent research has demonstrated remarkable findings regarding the interaction between mind-body practices, particularly Kyokushin Karate Katas (KKK), and their effects on water properties and subsequent neurophysiological responses in recipients. A groundbreaking study by Babelyuk et al. (2024) revealed that even placebo water, when presented with the suggestion of KKK exposure, produced measurable neurotropic effects. This raised intriguing questions about the mechanisms of information transfer and the role of biophotonic emissions in such phenomena.

Building on this theoretical framework, recent research by Babelyuk et al. (2024) has demonstrated that water exposed to KKK practice produces distinct neurotropic effects compared to control waters. These effects were documented through comprehensive EEG and HRV measurements, showing specific patterns of neural activation and autonomic response. The study revealed three distinct patterns of neurotropic effects, including both enhancement and inhibition of specific neural rhythms, suggesting a complex mechanism of information transfer and neural modulation.

The present review aims to synthesize these findings and examine the mechanisms through which KKK practice influences water properties and subsequent neurophysiological responses. We will analyze the evidence for biophotonic information transfer, evaluate the role of water structure in carrying biological information, and examine the specificity of neurotropic effects in recipients. This analysis has important implications for understanding mind-body interactions and the potential therapeutic applications of intentionally treated water.

The key research problems addressed in this review are.

1. What are the mechanisms of biophotonic information transfer from KKK practice to water structure and subsequent neurophysiological effects in recipients?
2. How can the specificity and reproducibility of neurotropic effects from KKK-treated water be validated and measured?
3. How do individual variations in recipient characteristics influence response magnitude and patterns?
4. How can these findings be integrated into existing theoretical frameworks of biofield science and consciousness studies?

These problems are examined through analysis of recent experimental findings, particularly focusing on documented changes in EEG patterns, HRV parameters, and other neurophysiological markers. The review synthesizes evidence from biophoton research, water structure studies, and neurophysiology to develop a comprehensive understanding of information transfer mechanisms and their biological effects.

Research Hypotheses.

In relation to the identified research problems, we propose the following hypotheses.

H1: Distilled water exposed to Kyokushin Karate Katas (KKK) induces significant and measurable neurotropic effects distinct from those of untreated distilled water and **baseline**.

H2: Biophotonic resonance generated during KKK impacts neurophysiological activity, leading to changes in EEG power spectra and HRV indices, suggesting an interaction between water, the nervous system, and mechanisms of water memory and biophotonic information transfer.

H3: The information transfer mechanism demonstrates high specificity as evidenced by reproducible patterns of neural response and clear differentiation from control conditions.

H4: These effects can be systematically measured and validated through quantitative analysis of neurophysiological parameters, with statistical significance demonstrable through discriminant analysis and entropy calculations.

Each hypothesis corresponds directly to a research problem and is formulated to be testable through quantitative analysis of neurophysiological parameters and statistical validation of response patterns.

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Material and Methods. This systematic review analyzed research on neurotropic effects of Kyokushin Karate Katas (KKK)-treated water, focusing on studies from 2010-2024. The primary analysis centered on experimental findings from Babelyuk et al. (2024) and related research on biophotonic emissions and water memory. Literature was identified through systematic searches in PubMed, Web of Science, and Google Scholar databases using keywords: "biophotons," "water memory," "Kyokushin Karate," "neurotropic effects," "EEG," and "HRV." Reference lists of identified articles were manually searched for additional relevant studies. Studies were included based on the following criteria: experimental studies measuring neurophysiological effects of

treated water, investigations of biophotonic emissions during mental/physical practices, research on water structure and information storage, studies with quantitative neurophysiological measurements (EEG, HRV), peer-reviewed publications in English from 2010-2024. Data extraction focused on experimental protocols and methodologies, neurophysiological measurements and parameters, statistical analyses and effect sizes, control conditions and placebo comparisons, and individual response patterns and variations. Studies were evaluated using standardized quality assessment tools for experimental research, including methodological rigor, statistical validity, control for confounding variables, sample size adequacy, and replicability of findings. Meta-analytical techniques were applied where appropriate to synthesize quantitative findings across studies, with effect sizes calculated and normalized for comparison across different measurement parameters.

The following data analysis methods were employed: discriminant analysis to identify distinguishing neurophysiological parameters, entropy calculations to assess complexity of neural responses, correlation analysis to examine relationships between different physiological measures, and meta-regression to evaluate the influence of moderating variables. Statistical significance was set at $p<0.05$, and effect sizes were reported using standardized measures (Cohen's d, Hedges' g) where applicable. Quality assessment focused on methodological rigor, appropriate controls, sample size justification, and clear reporting of statistical methods. The synthesis of findings emphasized both quantitative outcomes and theoretical implications for understanding information transfer mechanisms in biological systems.

Results and Discussion

The study focused on the mechanisms of information transfer through biophoton emission during **visual imagery**, with particular emphasis on effects on water properties and neurophysiological responses. Key findings point to a complex process of interaction between brain activity, biophoton emission, and water structure.

The authors demonstrated that during **visual imagery**, there is increased biophoton emission from the brain, particularly from frontal and temporal regions. This emission was closely correlated with changes in brain electrical activity, measured by EEG. They observed that biophoton emission increases primarily in the first 15 seconds of practice, accompanied by increased neuronal activity in beta and gamma bands. The results concerning water effects were especially intriguing. Water exposed to KKK **or other mental practice, generating visual imagery**, showed significant structural and energetic changes, **measured by gas-discharge method and non-equilibrium differential spectrum method**. Researchers observed increased **luminosity as well as** hydrogen bond energy and molecular cluster reorganization, suggesting water's potential to "remember" information. A key aspect of the research was neurotropic effects. Water exposed to KKK caused measurable changes in neuronal activity in recipients, including modifications in EEG spectrum and heart rate variability (HRV) parameters. Moreover, these effects were observed even under double-blind conditions, eliminating placebo effects. The authors proposed a multilayered information transfer mechanism involving biophoton emission, neuronal entropy changes, and interaction with the EZ (fourth phase) water layer. The entropy aspect was particularly fascinating - they observed simultaneous increases in biophoton emission and decreases in neuronal entropy, potentially indicating a state of increased organization and information content. An important discussion thread was the role of chakras. Researchers demonstrated a close connection between chakra activity and brain activity, with the third chakra appearing crucial in the information transfer process. They even suggested that chakras, as energy centers, might determine neuronal activity rather than the reverse.

A breakthrough aspect of the research is the connection between Western scientific perspectives and traditional Eastern medicine. The authors show that phenomena described by traditional meditative and martial arts practices may have solid biophysical foundations related to biophoton emission, water structure, and neuronal processes. The study opens new perspectives in understanding mind-body interactions, suggesting that Kyokushin Karate Katas might be a tool not just for physical training, but for informational and energetic intervention. The authors emphasize that their findings require further in-depth research but represent a promising step toward understanding previously unexplored information transfer mechanisms in biological systems. The research challenges traditional scientific paradigms by providing empirical evidence for subtle energy transfer mechanisms, bridging the gap between traditional practices and modern scientific understanding. It suggests that consciousness and information transfer might involve complex quantum-like processes that extend beyond conventional neurological models.

So, the neurotropic effect of *KKK*-treated water is a proven fact (we will look forward to the counterarguments of the skeptics, remembering the lifetime compromise and posthumous universal recognition of such geniuses as Gurwitsch and Benveniste).

This phenomenon is based on several cornerstones, the first of which is the **ultra-weak glow of living systems**, discovered by Gurwitsch back in 1922 at the University of Tavria (Simferopol, Ukraine) and called by him "mitogenetic radiation" (Gurwitsch, 1926; 1945; 1959; Beloussov et al., 1997) which attracted worldwide attention in the 1920s and 1930s, but was largely forgotten and partially compromised.

Popp's (1979-2003) and Van Wijk's (1992-2008) laboratories revived this line of research, introduced the term "biophotons", in their laboratories devices were created for biophotons registration - analogue photomultiplier tubes (PMT). Researchers showed that living systems emit in the order of 10^6 photons per m^2 s (Popp, 1979; Cohen & Popp, 1997; Van Wijk et al., 2006). Assuming an average wavelength of 500 nm (0.6 petaHz), the energy (the product of the frequency of the electromagnetic wave and Planck's constant) would be ~ 4×10^{-19} J for a sum of about 4×10^{-13} W/m^2 (Dotta et al, 2012). This value is just above the background energy densities (~ 10^{-13} W/m^2) for cosmic rays near the Earth's surface and that produced from natural radioactive isotopes from the atmosphere and ground (Koenig et al., 1981). The value of 10^{-20} J is congruent with the energy between the individual ions (potassium) that are most correlated with the resting membrane potential of cells (Persinger, 2010). In addition, the effect of a single action potential (net change of 1.2×10^{-1} V) upon a unit charge (1.6×10^{-19} A s) is about 2×10^{-20} J. This "quantum" of energy is also the amount required to stack a nucleotide on a synthesizing RNA sequence as well as other essential biophysical parameters (Persinger, 2010).

Popp et al. (1984) proved that the source of biophotons emission is DNA. Dotta et al. (2011) showed that photon emissions from depolarizing cell cultures were primarily emitted from the plasma membrane. The main source of biophotons derives from the oxidative metabolism of mitochondria (Kataoka et al., 2001). Neurons also incessantly emit biophotons. Biophoton emission from neural tissue depends on the neuronal membrane depolarization and Ca^{2+} entry into the cells (Kataoka et al., 2001).

Kobayashi et al (1999; 1999a) found that baseline photon emissions from rat brains were between ~10^{-11} and 10^{-12} W/m^2. The value decreased by about 60% of baseline levels following a protracted period of hypoxia. During hyperoxia (100% O_2 inhalation) photon emission intensity was enhanced by 130% relative to baseline particularly over the frontal regions. Theta wave power within slices of hippocampus was coupled to the intensity of the photon emissions (Fig. 8).

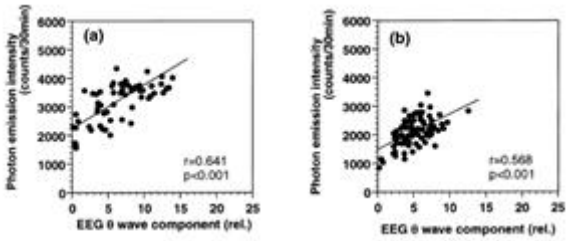


Fig. 8. Correlation analysis between photon emission intensity and the θ-wave component of EEG power spectra represented by 30-min integration. (a) Correlation after having the bilateral bones removed and (b) without removing the bone (Kobayashi et al., 1999a).

Bókkon (2009) proposed a redox molecular hypothesis about the natural biophysical substrate of visual perception and visual imagery. This hypothesis is based on the redox and bioluminescent processes of neuronal cells in retinotopically organized cytochrome oxidase-rich **visual areas**. This hypothesis is in line with the functional roles of reactive oxygen and nitrogen species in living cells that are not part of haphazard process, but rather a very strict mechanism used in signaling pathways. Author point out that there is a direct relationship between **neuronal activity and the biophoton emission process in the brain**. Electrical and biochemical processes in the brain represent sensory information from the external world. During encoding or retrieval of information, electrical signals of **neurons** can be converted into synchronized **biophoton** signals by bioluminescent radical and non-radical processes. Therefore, information in the brain appears not only as an electrical (chemical) signal but also as a regulated biophoton (weak optical) signal inside neurons. During visual perception, the topological distribution of photon stimuli on the retina is represented by electrical neuronal activity in retinotopically organized visual areas. These retinotopic electrical signals in visual neurons can be converted into synchronized biophoton signals by radical and non-radical processes in retinotopically organized mitochondrial-rich areas. As a result, regulated bioluminescent biophotons can create intrinsic pictures (depictive representation) in retinotopically organized cytochrome oxidase-rich visual areas during **visual imagery** and visual perception. The long-term visual memory is interpreted as epigenetic information regulated by free radicals and redox processes. This hypothesis does not claim to solve the secret of consciousness, but proposes that the evolution of higher levels of complexity made the intrinsic picture representation of the external visual world possible by regulated redox and bioluminescent reactions in the visual system during visual perception and **visual imagery**.

Rahnama, Bókkon et al. (2011) argued that, in addition to electrical and chemical signals propagating in the neurons of the brain, signal propagation takes place in the form of biophotons production. This statement is supported by recent experimental confirmation of photon guiding properties of a single neuron. The authors have investigated the interaction of mitochondrial biophotons with microtubules from a quantum mechanical point of view. Their theoretical analysis indicates that the interaction of biophotons and microtubules causes

transitions/fluctuations of microtubules between coherent and incoherent states. The authors argued that the role of biophotons in the brain merits special attention.

To test Bókkon's hypothesis, four separate studies were conducted in the Persinger's laboratory (Hunter et al, 2010; Dotta et al, 2012; Saroka et al, 2013; Persinger et al., 2013).

The first experiment (Hunter et al, 2010) with a psychic Sean Harribance demonstrated an increase of photon emission from his right hemisphere when he was "calling his angel" - engaged in the "interpretational state" (Fig. 9). The authors found a significant inverse correlation between the intensity of photon emission and intensity of the horizontal geomagnetic field (perpendicular to the temporal plane). Decreases over 10 to 15 s of 15 nT and 5 nT at 0,25 m and 1 m from the right side of his head were associated with the same magnitude of energy (10^{-11} J) that was associated with the net increase in photon emissions during that period. This energy, assuming each action potential is associated with $1{,}9 \cdot 10^{-20}$ J, would be the equivalent of the activity of about 1 billion neurons (the human cerebral cortices contain in the order of 20 to 40 billion of neurons).

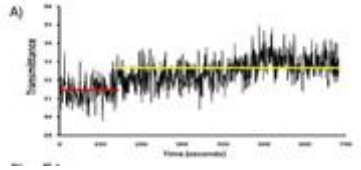


Fig. 9. Photomultiplier tube measurements demonstrating an increase of approximately 1 unit of photon emission ("transmittance") during "interpretational state" (IS). Example of the increase of approximately 1 transmittance unit (yellow vs red) about 10^{-11} J/s) at 0.15 m from Sean Harribance's right hemisphere when engaged in the IS (yellow line) after baseline (red) (Hunter et al, 2010).

Such visual imagery accompanied by activation of certain areas of the brain (Fig. 10).

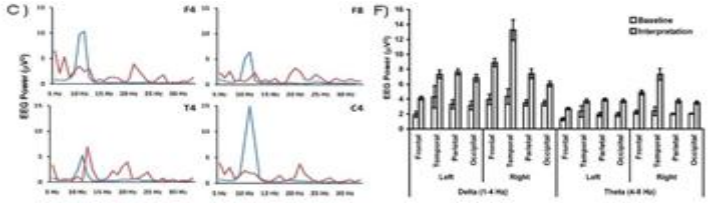


Fig. 10. Samples of electroencephalographic patterns and software representations of the "Harribance configuration" (HC) during his interpretations. (c) Power spectra (blue while talking, red without talking during the IS) showing major enhancements within the right frontocentral and temporal lobes at approximately 20 Hz. (f) General increase in power within the delta and theta ranges during the HC compared to baseline for major areas over both hemispheres (Hunter et al., 2010).

The second study (Dotta et al., 2012) was conducted with the participation of 8 **normal** volunteers (ages 23 through 26; 4 men, 4 women). In the first experiment, authors measured the photon emission from the right side of the head in the same plane as the temporoparietal lobes. Instructions to think about white light (60 s) and project the light into the PMT along the right side of the head followed rest or "baseline" intervals (also 60 s, most of which involved either no recollection or thoughts about friends or studies) were given vocally from another room and repeated three times. The means for the PMT values for each of the 6 intervals (3 thinking about light, 3 not) were obtained for each subject. There was a statistically significant increase in ultraweak photon emission (UPE) while the subjects were thinking about white light compared to not thinking about light. This increase was noted for all 8 subjects. The net difference in energy emission between the two conditions ranged between 25 and 100 pW/m^2. In general, from the time of the instruction to imagine white light to the first increases in photon emission above background fluctuations was about 4 s. During the 60 s intervals of imaging white light the durations of the elevations in UPE occurred in cycles of approximately 7–9 s peaks followed by 3–4 s troughs. This was not observed during the intervals of the reference condition. These fluctuations suggest that the averaged values for the UPE per 60 s interval may be underestimates of the peak output. During the PMT measurements for the same instruction procedure in the second experiment (QEEG) was recorded from 3 subjects. The correlation between the average fluctuations in quantitative EEG power (sum of all bands) over the left prefrontal region for the intervals of "imagining light" and the fluctuations in UPE from the right hemisphere was 0.95 (Fig. 11).

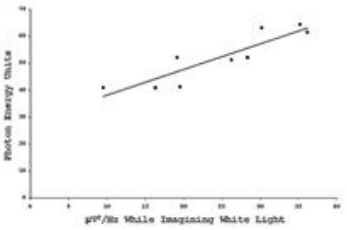


Fig. 11. Regression line and plot for the correlation between photon energy units (1 unit = 5×10^{-11} W/m^2) measured by the PMT over the right hemispheres and EEG power (averaged μV^2/Hz for all bands) over the left prefrontal regions during intervals of "imagining white light". These values were not correlated significantly during reference intervals (casual thinking) (Dotta et al., 2012)

On the other hand, the energy for photon emissions was negatively correlated with the power within the beta band (13–20 Hz) over the right frontal (rho and r = -0.65, $p<0.05$) lobe with marginal effects over the right temporal lobe (T4, r = -0.40, $p<0.10$). There was no significant correlation (r = 0.13, $p>0.05$) between the energy of biophoton emission from the right hemisphere and the EEG power over the left prefrontal region during the intervals associated with not thinking about white light, i.e., thoughts about mundane events.

At a distance of 0.15 m for this system, where 1 unit increase is 5×10^{-11} W/m^2, the increased photon emission while thinking of white light would be equivalent to between 3 and 6×10^{-12} J/s when the cross-sectional area of the cerebrum is accommodated. When divided by the essential quantum of 2×10^{-20} J/action potential (Persinger, 2010) and assuming an average of ~ 20 Hz per neuron, this would suggest that an additional 10^7 (on average) neurons within the cerebral cortices were activated during the imagining of light by the subjects. One argument that the photon emissions were functionally coupled to cognition was the strong correlation between the power spectra of the quantitative EEG during intervals when the light was being visualized and the absolute increase in UPE. The net change in EEG power associated with the range in photon density while imagining white light (vs. not imagining) was ~ 25 μV^2/Hz. When this value is multiplied by the sum of 1 Hz increments within about 15 Hz (low beta band) the potential is 20 μV. The net change in energy detected by the PMT during this activity was ~ 2×10^{-9} W/m^2 or 3×10^{-10} J from the cerebrum at the measured distance. The quotient of energy to voltage would be ~ 10^{-5} A s or the equivalent of 10^{14} charges. With the summed movement of about 10^6 to 10^7 ions across a membrane (Persinger, 2010) to produce an action potential, this would involve about 10^7 to 10^8 neurons. A particularly intriguing observation was the strong positive correlation between EEG power from the left prefrontal region and UPE from the right side of the head but negative correlation between frontal and temporal EEG power (within the beta range) over the right hemisphere and UPE. The left prefrontal positive correlation is consistent with the volitional and intentional nature of the task. However, this inverse relationship between cerebral fluctuation in electroencephalographic voltage and photon levels from the right hemisphere would be consistent with the principle of conservation of energy.

The third study (Saroka et al., 2013) was conducted with the participation of 2 normal volunteers (non-meditators) and one meditator.

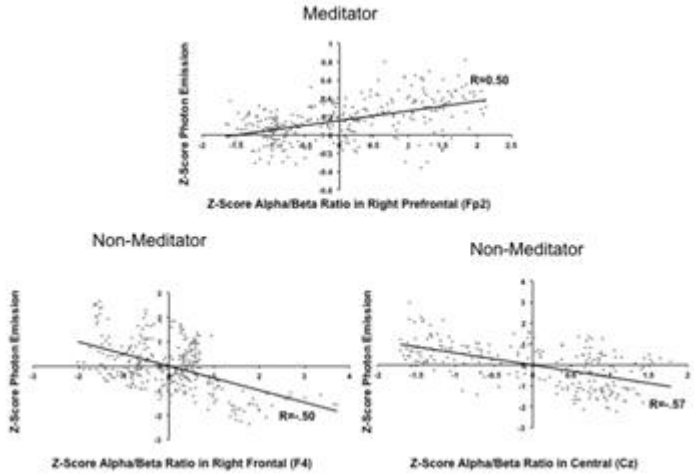


Fig. 12. Correlation between magnitude of photon emissions from the right side of the head and EEG power over the right rostral areas during imagining white light for three separate subjects (Saroka et al., 2013)

As shown in Fig. 12, the real time absolute values of the correlations between photon emissions and electroencephalographic power were moderately strong and indicated that the fluctuations in amplitudes of photon emissions and the ratio of alpha/beta activity shared about 25% of the variance. This association was

found primarily between whole right hemispheric photon emission and the electroencephalographic power within a specific region of the brain: the right prefrontal-central areas. However, it is noteworthy that a decrease in photon emissions was also recorded, more pronounced in both non-meditators, and moreover, with the same magnitudes of the correlation coefficients, their signs were opposite.

The results of the coupled, real-time measurements of the changes in the Earth's magnetic field intensity at 25 cm from the right side of the meditator's head and concurrent photon emission were similar to the measurements of Sean Harribance (Hunter et al., 2010) while he focused upon the "inner light" during which time he reported information about others. The slope of the equation indicated that for every $0.5 \cdot 10^{-11}$ W/m^2 increase in photon emissions from the subject's right hemisphere, there was 10 nT decrease in the intensity of the Earth's magnetic field in the horizontal plane.

The subject of fourth experiment (Persinger et al., 2013) was a 28 years old female graduate student in Psychology. She has been a meditation practitioner for approximately 5 years and a Level II Reiki practitioner for two years. She was asked to think about sending light out from her consciousness into the sensor of the PMT for about 2 min which was followed by 2 min of relaxation. The procedure was repeated four times with a rest of about 5 minutes between the 2 min-2 min pairs in order to reset some of the equipment (from outside of the chamber). The numbers of photons were sampled 50 times per second (20 ms Δt) while the EEG data from all sensors were sampled at 250 times per second. The geomagnetic field measures were sampled 3 times per second. The differences in collection times were limited by the software associated with the different equipment. Authors selected 2 min sequences for measurement rather than 30 s, employed in previous studies, to ensure time for the cognitive processes to maximally affect the photon emissions.

There was marked increased in power within the delta (1 to 4 Hz) band and the low beta to gamma band (13 to 35 Hz) associated with bilateral activation within the parahippocampal gyri within both hemispheres during periods when light was imagined compared to the non-imagining intervals (rest periods). Because of the redundancy of differences, particularly within the 1 Hz increments of the beta and gamma bands, factor analyses were completed. Two factors emerged. The first factor was associated with bilateral activation of the parahippocampal region within the beta-gamma band (eigenvalue=7.5; 47% of variance explained). Fig. 13 clearly shows the increased power within these bands during each interval the subject imagined white light. Oneway analysis of variance indicated there was significantly more power within this band during the imagining compared to the "non imagining" periods. On the other hand, the second factor showed that the power within the delta band gradually declined as a function of time during the experiment. The factor that contained the variables associated with this deactivation over time bilaterally within the delta range was smaller (eigenvalue=2.1) and explained less of the variability (13%). The difference in z-score means over time was significant statistically.

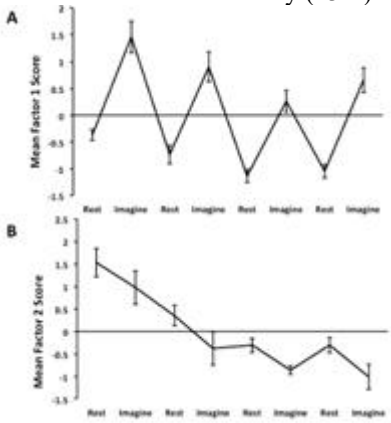


Fig. 13. Factor (z) scores for quantitative electroencephalographic activity from the parahippocampal region of the subject's brain within: A) the beta-gamma frequency range, and, B) the delta frequency range during successive intervals of resting ("mundane" thoughts) and imagining white light. Each interval was 120 s. Vertical bars indicate standard deviations (Persinger et al., 2013).

The results of the photon emissions measurements are shown in Fig. 14. In order to facilitate comparison, z-scores were completed based upon the numbers of photon counts during the previous interval. A z-score of 0.1 is equivalent to ~43.5 photons (range 16-65) per 20 ms (Δt). The numbers of photon count for each of the 15 s successive intervals of the 120 s of measurement are shown. **Only during the first 15 s of each of the 4 trials where white light was imagined was the photon emission significantly higher** than the equivalent first 15 s of the resting trials. There was no significant difference between the imagining and not imaging white light for any of the subsequent 15 s segments of the blocks of trials.

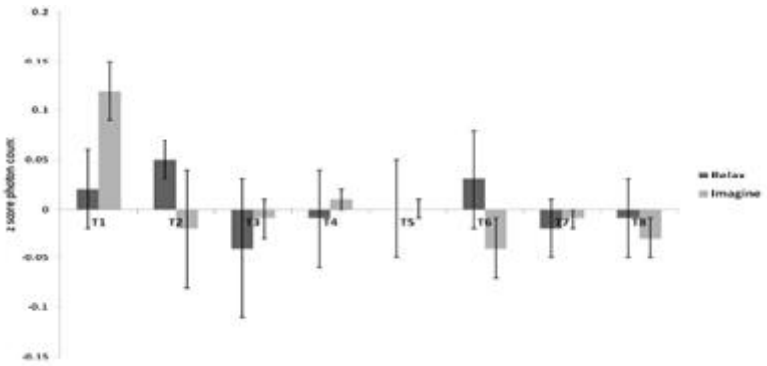


Fig. 14. Mean z-scores for changes in photon counts for each of the 8 15 s segments during the 5 pairs of imaging white light vs not imagining white light. The only significant difference occurred during the first 15 s. (Persinger et al., 2013).

The increase in numbers of photons in stand un (~1.1) would be ($4.6 \cdot 10^1$ photons Δt^{-1})•($5 \cdot 10^1$ $\Delta t \cdot s^{-1}$) or $2.3 \cdot 10^3$ photons$\cdot s^{-1}$. In the above context the surface area of the sphere at 15 cm away from the subject's head is $0.9 \cdot 10^3$ larger than the aperture of the PMT. When considered in equivalent m^2 the average would be ~$1.7 \cdot 10^6$ photons/s. Assuming a central energy for photons of $4 \cdot 10^{-19}$ J$\cdot$photon^{-1} (mid wavelength), the value would be ~$0.3 \cdot 10^{-11}$ W/m^2. This value is within measurement error of what authors found with analogue PMTs in previous studies. The background, when she was not imaging, would be approximately 50 times less or within the range of cosmic ray energies (10^{-13} W/m^2).

Spectral analysis of the photon emissions during the 15 sec (750 Δt measurements) after the instructions to either image white light or to rest was completed for the differences between each of the periods when light was being imagined compared to the previous baseline for each of the pairs (trials) of observations. Only the interval between 15 Hz and 17 Hz displayed statistically significant (rhos between 0.46 and 0.57, $p<0.001$) intercorrelations between the light imagining periods while corresponding baseline values were not significant statistically (rhos between 0.15 and 0.17).

The total mean numbers of extreme changes in photon emissions as a function of 1 Hz intervals between 1 and 24 Hz for all trials combined are shown in Fig. 15. The most conspicuous feature was the statistically significant elevation of extreme deviations in photon emissions during light imaginings between 16 and 17 Hz. This is within the range of $^1H \cdot ^1H$ coupling predicted by Hu and Wu (2006) and suggests the importance of the proton in this process.

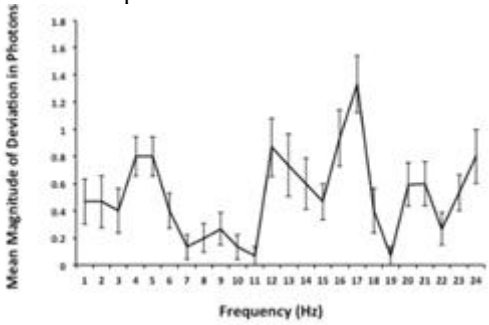


Fig. 15. Mean numbers (multiply by 15 for total) of photon emissions (or absorptions) >2 SD around the running mean per 1 Hz increment. Vertical bars indicate standard deviations (Persinger et al., 2013).

To discern if there was any temporal coupling between the numbers of extreme deviations in photon emissions and electroencephalographic power, the total power for each 1 Hz increment between 1 and 24 Hz from the left and right hemispheres were obtained. Authors showed that there was a moderate strength (~0.55) correlation between the QEEG power over the left hemisphere and photon emissions (over the right hemisphere) **for the first trial only.** The EEG power differences for the second and third pairs were not significant statistically.

The correlation (r, rho) between the change (in nT) for the horizontal component of the geomagnetic field and the numbers of photon counts for the 2 min intervals was strongly negative (-0.90, -0.83, respectively). This effect was similar to what the authors have measured in two previous studies (Hunter et al., 2010; Saroka et al., 2013). The decrease in the change of the intensity in the geomagnetic field was clearly associated with an increased cerebral photon emission. The mean decrease in range during the intervals of imagining white light was about 7 nT (Persinger et al., 2013).

Rubik & Jabs (2017) conducted a unique experiment involving a 54-year-old male. Hi is a highly experienced practitioner and teacher from the International Academy of Consciousness (IAC). The IAC develops and teaches techniques that help people achieve out-of-the-body states to explore the multidimensionality of consciousness. One technique is the Voluntary Energetic Longitudinal Oscillation (VELO). To perform VELO, one continuously mobilizes an energetic pulse in complete, successive, longitudinal cycles up and down the whole body length, with the objective of producing a cohesive, stationary wave that encompasses the entire energetic body. Induction of the VELO may lead to the vibrational state, considered by the IAC one of the most fundamental resources of lucid psychic self-control. In this case study, the subject was first measured in his ordinary state of consciousness and then while performing VELO. Measurements were made for two minutes at each bodily region alternating with baseline measurements as previously described. The raw data from the PMT are shown in Fig. 16.

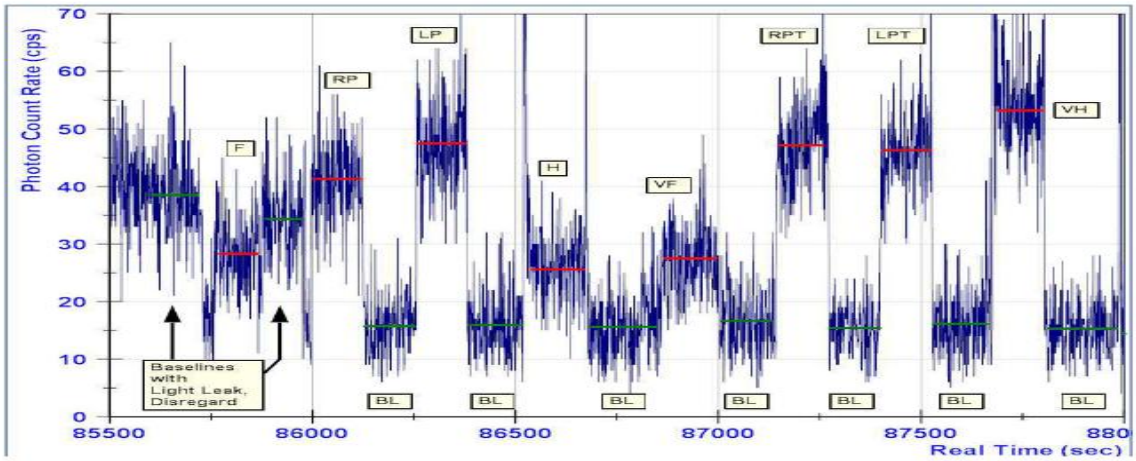


Fig. 16. Session with Subject 5 showing biophoton emission in cps. BL=baseline; F=forehead; RP=right palm; LP=left palm; H=heart; VF=forehead during VELO; RPT=right palm transmitting energy during VELO; LPT=left palm transmitting energy during VELO; VH=heart during VELO (Rubik & Jabs, 2017).

Alternative, if not surrogate, but much cheaper methods of assessing biophoton emission are methods based on the Kirlian effect (Kilrian, 1949; Kirlian & Kirlian, 1961). Coronal gas discharge effect is indicated by the glow corona electrical discharge (flooding, crown, streamer) on the surface of objects being placed in the alternating electric field of high frequency (10–150 kHz) and electric voltage (5–30 kV). In this process in the ionization zone develops the gas corona discharge sliding on dielectric surface, occurring in a nonuniform electric field near the electrode with a small radius of curvature. In the thin air layer with thickness of ~ 10–100 μm between the studied object and the electrode are developed the following processes: 1) excitation, polarization and ionization by electric field of high frequency the main components of air – the molecules of N_2, O_2 and CO_2. In the result of this is formed an ionized gas, i.e. gas with separated electrons having negative charges, creating a conductive medium as plasma; 2) formation of a weak electric current in the form of free electrons separated from molecules of N_2, O_2 and CO_2, which generate gas discharge between the studied object and the electrode. The form of gas discharge glowing, its density and surface brightness distribution is determined mainly by electromagnetic properties of the object; 3) the transition of electrons from lower to higher energy levels and back again, during which there appears a discrete quantum of light radiation in the form of **photon radiation**. The transition energy of electrons depends on the external electric field and the electronic state of the studied object. Therefore, in different areas surrounding the electric field, the electrons receive different energy impulses, i.e. "skipping" at different energy levels those results in emission of photons with different wavelengths (frequencies) and the energy, coloring the contour of the glow in various spectral colors. A number of analysis methods have been built on the basis of the Kirlian effect.

The method of *Colour coronal spectral analysis* on a device with an electrode made of polyethylene terephthalate with applied electric voltage 15 kV, electric impulse duration 10 μs, and electric current frequency 15 kHz detected the specific photon emission from part of the human thumb as a spectrum of various colours (Ignatov & Mosin, 2016). It was established that photons corresponding to a red color emission of visible electromagnetic spectrum have energy at 1.82 eV. The orange color - 2.05, yellow – 2.14, blue-green (cyan) – 2.43, blue – 2.64, and violet – 3.03 eV. The reliable result measurement norm was at E ≥2.53 eV, while the spectral range of the emission was within 380–495 nm and 570–750 nm. The incidence of bioelectrical activity of the body reducing the intensity of gas discharge glow. Pathology in the organism and surrounding tissues also alter the bioelectric activity and the shape and color of gas discharge glow. If the value is over than 2.54 eV this

is an indicator of normal bioelectrical status. Some people with high energy status possess the values of photon emission over 2.90 eV. The high values of this parameter are possible with practicing of yoga, sport etc.

Fig. 17 shows the results of bioinfluencer Dimitar Risimanski with color coronal discharge. It illustrates, first, higher than normal level of biophoton emission from the thumb of the Bulgarian healer, and second, his ability to increase the patient's low biophoton emission. It is unfortunate that Ignatov & Mosin (2016) did not indicate whether the increased level of biophoton emission was permanent (which is unlikely given the data from Persinger's laboratory), and if it was increased before the healing session, then by what means?

Discharge image in norm (2.64 eV) Low discharge image (1.94 eV) Risimanski image (3.03 eV) Image after healing (3.00 eV)

Fig. 17. Bioelectrical discharge images of the research with bioinfluencer Dimitar Risimanski (Ignatov & Mosin, 2016; *after our correction of the author's error*).

So, at least in three laboratories, using at least two methods, it has been documented that **mental exercises are accompanied by an increase in the emission of biophotons** from the surface of at least the **head and palms** of even ordinary people, not to mention meditators, psychics, and healers. Four separate experiments of the Persinger's laboratory documented concomitant **changes in EEG**, naturally quantitatively related to the emission of biophotons.

Rastmanesh & Pitkänen (2021), based on the studies we cited, wrot: hence one may argue that biophotons - or whatever is behind them - propagating along pathways parallel to axons analogous to wave guides could serve as carriers of neuronal and biological information. This would force the views about the role of nerve pulses to be challenged.

We will remind you that our experiment was conducted in November 16, 2010. Due to restricted access to information (PubMed, PMC), we did not know about the results of wonderful experiments of the Bókkon's and Persinger's laboratories either in 2010 or later. The management of the scientific institution also did not know about them, showing skepticism and even ridicule. Moreover, even in November 2024, the capital's Ukrainian journal rejected our abstract even about the neurotropic activity of placebo (Babelyuk et al., 2024) as well as abstract of this article. So our research had to stop as did the search for literature. Next experiment was conducted only on June 9, 2016, with the participation of the first author and the invited 50-year-old female Svitlana Holubinka (right-handed, level II Reiki practitioner).

In this experiment at first registered (by Dubkova, PhD) in both operators kirlianogram by the method of Gas Discharge Visualization (GDV) ("GDV Chamber" from "Biotechprogress"). After 5 min have been recorded (by "NeuroCom Standard", by Korolyshyn, VMD) in a sitting position during 7 min qEEG four times two minutes after the eyes had been closed, obtaining four 25-s epochs in 16 loci. After recording the baseline EEG immediately began to re-register EEG within 11 min, obtaining six 25-s epochs. During the re-registration of EEG Kyokushin Karate and Reiki operators carried out self-sessions of Katas and Reiki, respectively. After 5 min re-registered kirlianogram. Looking ahead, we note that due to the lack of the expected effect, the experiment with the Reiki operator was repeated with a similar result (or rather, its absence), so they were combined.

Method of GDV by Korotkov (2007), essence of which consists in registration of photoelectronic emission of skin of all ten fingers, induced by high-frequency electromagnetic impulses, measures the distribution of electron densities in human systems and organs. These electron densities are the main basis of physiological energy, so there is reason to say that the GDV method allows us to measure the body's potential energy reserve as well as to estimate integrated psycho-somatic state of organism. At the same time, the GDV method is a bridge between the logical science of the West and the intuitive science of the East. Author 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 (Korotkov, 2007; 2018; Bista et al., 2023; Babelyuk et al., 2023).

It was found (Fig. 18) that KKK, i.e. imaging golden light, **drastically** increases the Area of Gas Discharge Image (GDI) in Frontal projection, registered with filter, but not in others projections.

This **indirectly** reflects an increase in biophotone emission, similar to a **directly** registered by Photomultiplier Tube in psychic Sean Harribance during "calling his angel" (Hunter et al., 2010); in 8 normal 23-26-year-old volunteers of both sexes (Dotta et al., 2012), 2 non-meditators and one meditator (Saroka et al., 2013), and in 28-year-old female level II Reiki and meditation practitioner (Persinger et al., 2013) imaging white

light; 54-year-old male VELO practitioner (Rubik & Jabs, 2017) as well as registered by Colour coronal spectral analysis in bioinfluencer Dimitar Risimanski (Ignatov & Mosin, 2016).

Contrary to expectation, in a double experiment, we failed to register GDI Area changes during the Reiki session. Differences in baseline levels are paid to themselves: in Reiki Practitioner, the variables were in the upper zone of the norm or did not deviate from the reference, while in the KK Master all the variables were in the lower zone of the norm.

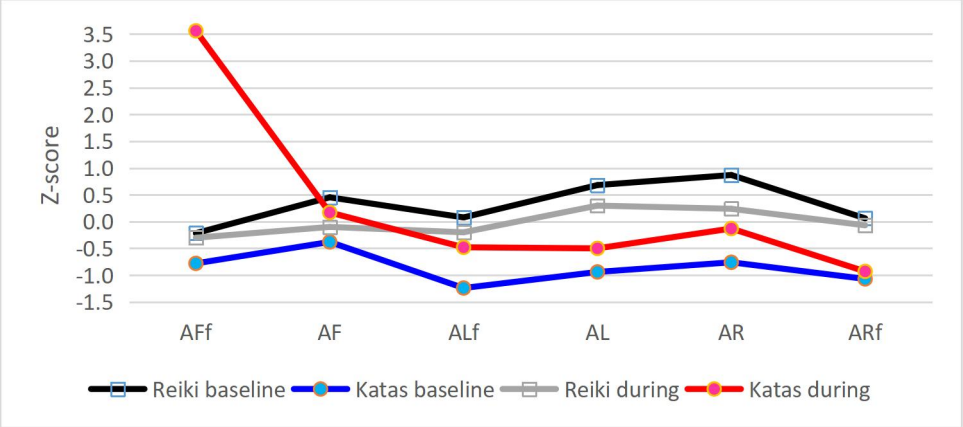


Fig. 18. Profiles of normalized Areas (A) of Gas Discharge Image in Frontal (F), Left (L) and Right (R) projections, registered without and with filter (f)

Our data are, in principle, consistent with the data of Persinger's laboratory in that the increase in the emission of biophotons caused by visual imagery is accompanied by increased neuronal activity in the parahippocampal region. However, we have identified some nuances (Fig. 19).

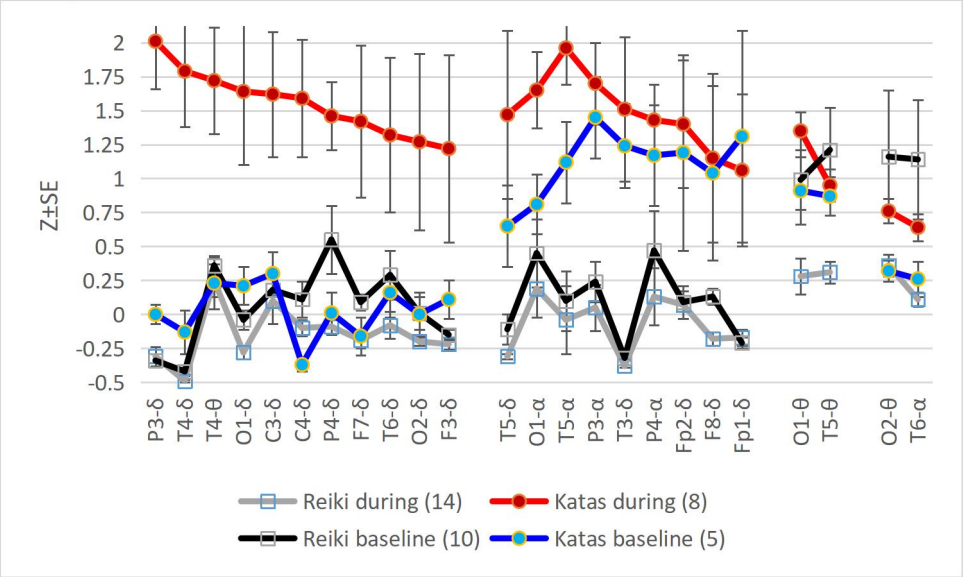


Fig. 19. Clusters of normalized PSD of EEG rhythms at Reiki operator and Karate master at rest and during self-session (Babelyuk et al., unpublished data, you will see in the next article)

In particular, a pronounced increase in PSD was registered not only in the right, but also, in greater numbers, in the left loci of the Valeriy Babelyuk scalp. The increase in PSD was registered not only in the parietal and temporal loci, but also in the prefrontal, frontal, central and occipital, and concerned neurons generating the delta rhythm, while the increase in PSD of theta and alpha rhythms was registered only in 4 and 5 loci, respectively. It is noteworthy that at baseline PSD was usually within normal limits, and only with respect to the alpha rhythm in O1, T7, P3 and P4 loci as well as θ rhythm in O1 and T5 loci was already initially increased. We did not detect an increase in the activity of beta rhythm-generating neurons, and moreover, it **decreased** in certain loci (this was not the subject of analysis in this article).

On the other hand, with a few exceptions, both baseline and during Reiki session PSD parameters were within normal limits.

We were able to find only one old article (Van Wijk et al., 2008) about correlation between fluctuations in human ultra-weak photon emission and EEG alpha rhythm in parietal locus.

Instead, there is an extensive and at the same time contradictory literature on the effect of numerous meditation methods on the EEG (review: Faber et al., 2012), which we do not dwell on due to the lack of data on concomitant changes in biophoton emission. However, we recall the study of our favorite author (Newberg et al., 2001), in which the effect of meditation on brain activity was assessed by method of single photon emission computed tomography. In this study, authors presented SPECT data from eight practitioners of a form of Tibetan Buddhist meditation, performed specifically for spiritual, not-health-related, purposes. In this form of meditation, practitioners initially focus their attention on a **visualized image** and maintain that focus with increasing intensity. The 'peak' experience of their meditation is described as a sense of absorption into the **visualized image** associated with clarity of thought and a loss of the usual sense of space and time. The percentage change between meditation and baseline was compared. Significantly increased rCBF (P<0.05) was observed in the cingulate gyrus (prefrontal loci of EEG), inferior and orbital frontal cortex, dorsolateral prefrontal cortex (DLPFC), and thalamus. The change in rCBF in the left DLPFC correlated negatively (P<0.05) with that in the left superior parietal lobe.

Correlation analysis documented a close relationship between the maximum for the sample PSD of δ-rhythm in P3 locus and α-rhythm in T5 locus, on the one hand, and Area of GDI in Frontal projection as marker of biophoton emission – on the other hand (Figs. 20-22).

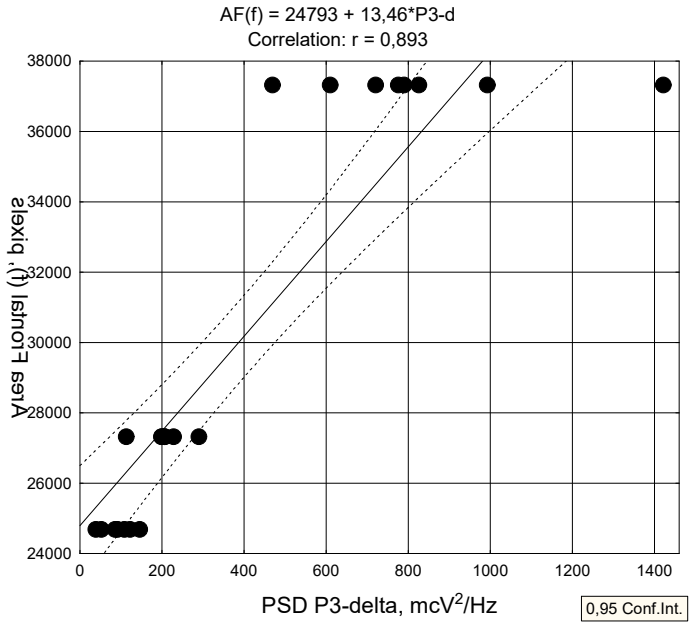


Fig. 20. Relationships between PSD of δ-rhythm in P3 locus (X-line) and Area of GDI in Frontal projection with filter (Y-line)

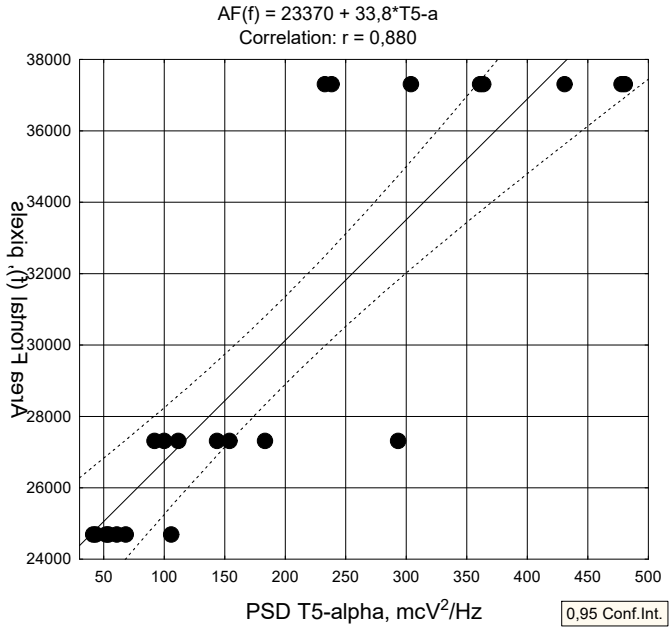


Fig. 21. Relationships between PSD of α-rhythm in T5 locus (Y-line) and Area of GDI in Frontal projection with filter (Y-line)

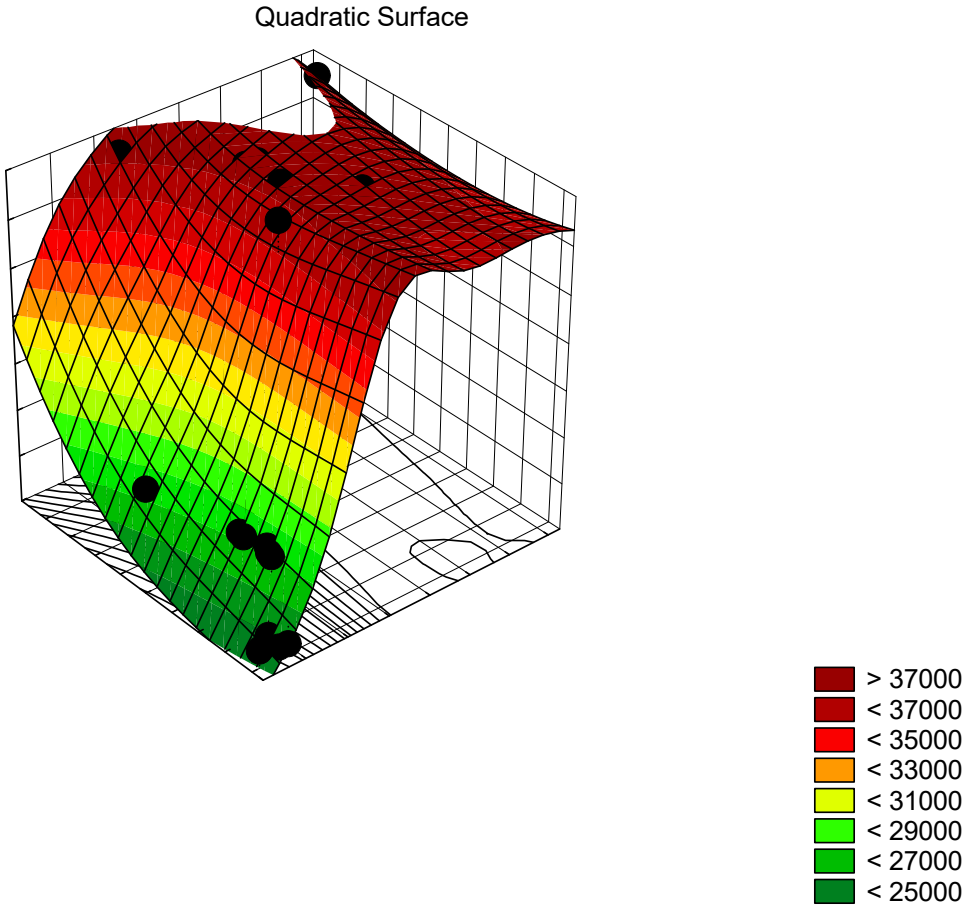


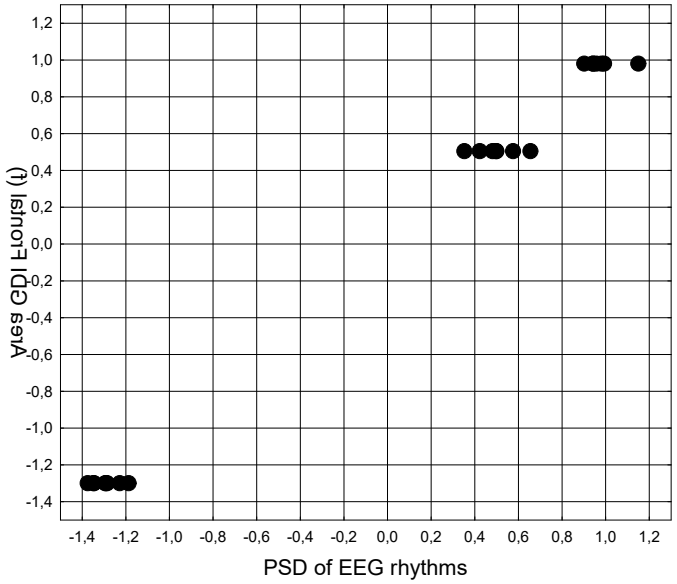
Fig. 22. Relationships between PSD of δ-rhythm in P3 locus (X-line), PSD of α-rhythm in T5 locus (Y-line), and Area of GDI in Frontal projection with filter (Z-line)

The multiple correlation coefficient between biophoton emission and brain electrical activity was found to be close to 1 (Table 9 and Fig. 23).

Table 9. Regression Summary for Dependent Variable: Area GDI Frontal (f)

R=0.997; R^2=0.994; Adjusted R^2=0.990; $F_{(9.1)}$=234; $p<10^{-6}$; SE=565 pixels

N=22		Beta	St. Err. of Beta	B	St. Err. of B	$t_{(12)}$	p-level
PSD, μV^2/Hz	r		Intercpt	21554	461	46,7	10^{-6}
P3-δ	**0.89**	0,715	0,157	10,78	2,373	4,54	0,001
T5-α	**0.88**	1,200	0,159	46,11	6,113	7,54	10^{-5}
T4-δ	**0.84**	-0,736	0,128	-5,216	0,905	-5,76	10^{-4}
P3-α	**0.79**	-0,889	0,113	-13,41	1,701	-7,89	10^{-5}
T4-θ	**0.75**	0,773	0,118	204,0	31,26	6,52	10^{-4}
O1-δ	**0.73**	-0,878	0,161	-22,13	4,054	-5,46	10^{-4}
T3-δ	**0.72**	2,571	0,320	22,61	2,81	8,05	10^{-5}
C3-δ	**0.69**	-0,324	0,090	-8,255	2,285	-3,61	0,004
T5-δ	**0.65**	-1,453	0,194	-21,32	2,849	-7,49	10^{-5}



R=0.997; R^2=0.994; $\chi^2_{(9)}$=80; $p<10^{-6}$; Λ Prime=0.006

Fig. 23. Scatterplot of canonical correlation between EEG parameters (X-line) and Area GDI Frontal (f) (Y-line)

The Shannon's Entropy of relative PSD of EEG rhythms at Reiki practitioner in no locus again significantly differed from the reference values (Fig. 24). In contrast, at Karate master reduced levels of Entropy were registered in all loci, maximally expressed in T4, F7, F8 and T3 loci. Interestingly, in the last two loci as well as in C4 and P4 loci the level of Entropy was significantly reduced already in the basal state.

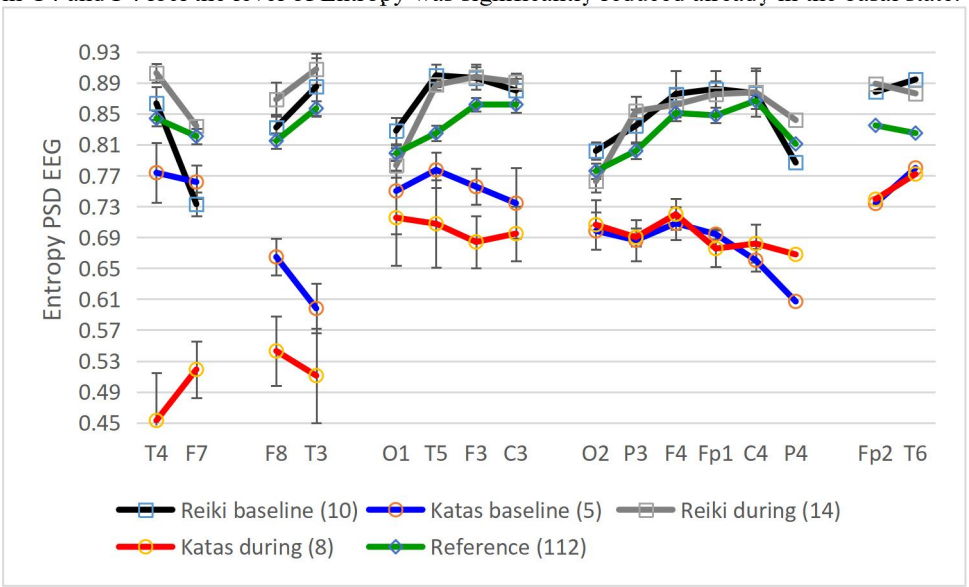


Fig. 24. Clusters of Entropy of PSD of EEG rhythms at Reiki operator and Karate master at rest and during self-session (Babelyuk et al., unpublished data, you will see in the next article)

It is noteworthy that the lowest possible level of entropy (in T4 locus) was most closely associated with the largest possible increase in GDI area during KKK (Fig. 25). A somewhat weaker correlation was found for T3 locus. It seems that the emission of biophotons is caused not only by the electrical activity of neurons, but also by its entropy, or rather, negentropy, which determines the emission of biophotons by 85.2% (Fig. 26).

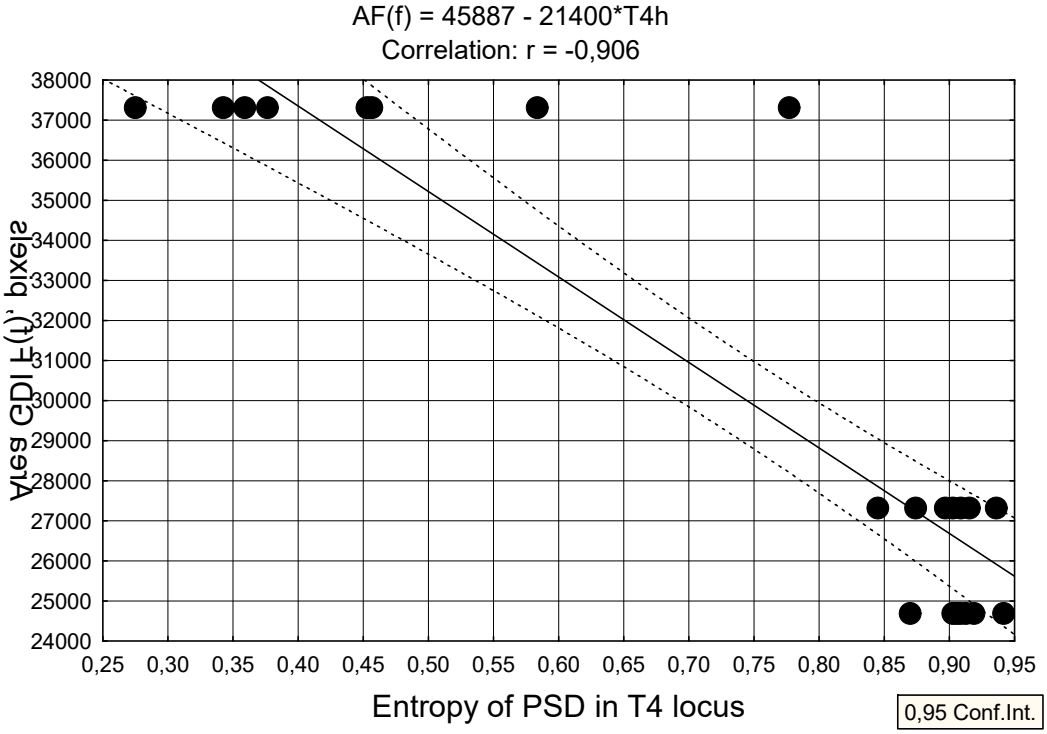


Fig. 25. Scatterplot of correlation between Entropy of PSD in T4 locus (X-line) and Area of GDI in Frontal (f) projection (Y-line)

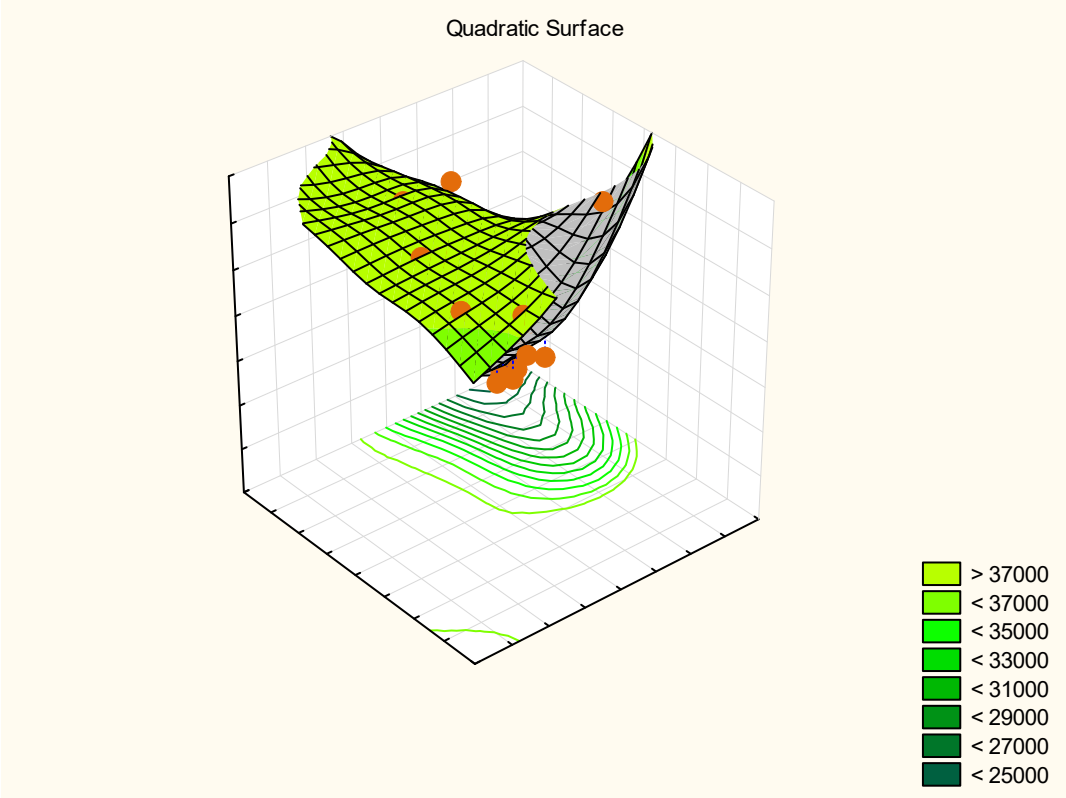


Fig. 26. Relationships between Entropy PSD EEG in T4 (X-line) and T3 (Y-line) loci, and Area of GDI in Frontal projection with filter (Z-line)

Area GDI Frontal = (47359±1776) pixels – (13862±4314)•ET4 – (9165±4635)•ET3

$R=0.923$; $R^2=0.852$; Adjusted $R^2=0.836$; $F_{(2.2)}=54$; $p<10^{-5}$; SE=2296 pixels

In addition, the imaging golden light was accompanied by significantly reduced Entropy of GDI, the most pronounced in Right projections, registered with and without filter (Fig. 27). While during the Reiki self-session the normal basal level of Entropy has not changed or slightly increased in the Right projection.

The Entropy of GDI, unlike the Area of GDI, is negatively correlated with the electrical activity of the brain (Figs. 28-30). Therefore, visual imagery is accompanied by an increase in biophoton emission and a decrease in its entropy (respectively, an increase in negentropy).

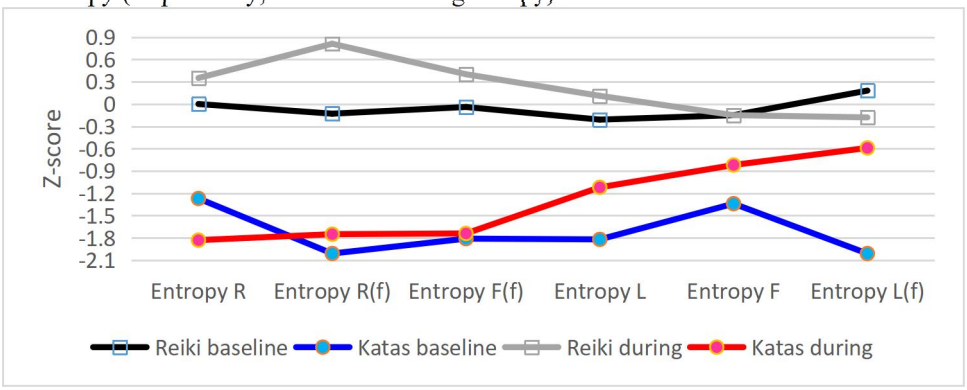


Fig. 27. Profiles of normalized Entropy of Gas Discharge Image in Left (L), Right (R) and Frontal (F) projections, registered without and with filter (f)

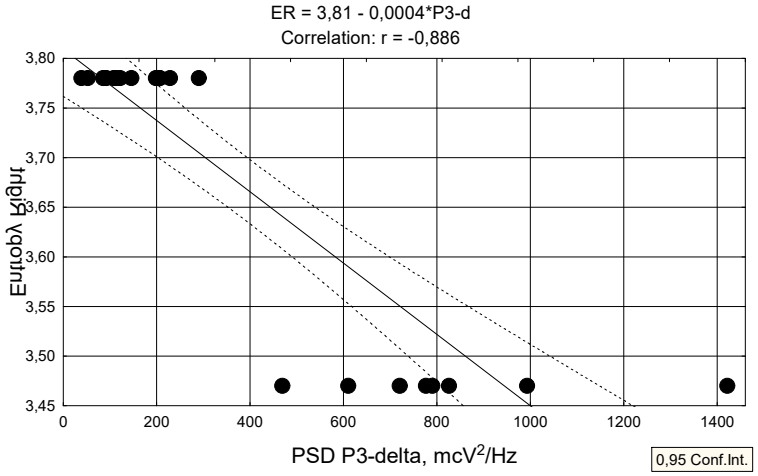


Fig. 28. Relationships between PSD of δ-rhythm in P3 locus (X-line) and Entropy of GDI in Right projection (Y-line)

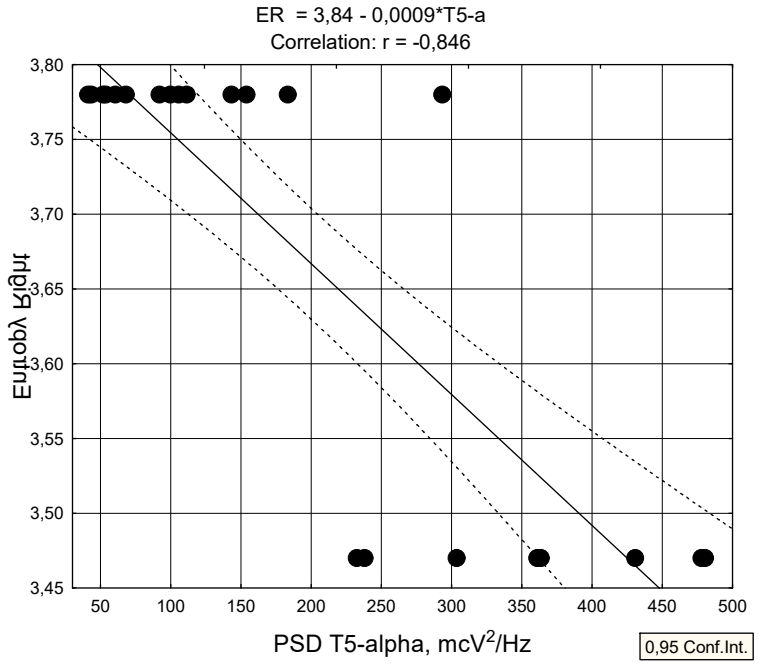


Fig. 29. Relationships between PSD of α-rhythm in T5 locus (Y-line) and Entpopy of GDI in Right projection (Y-line)

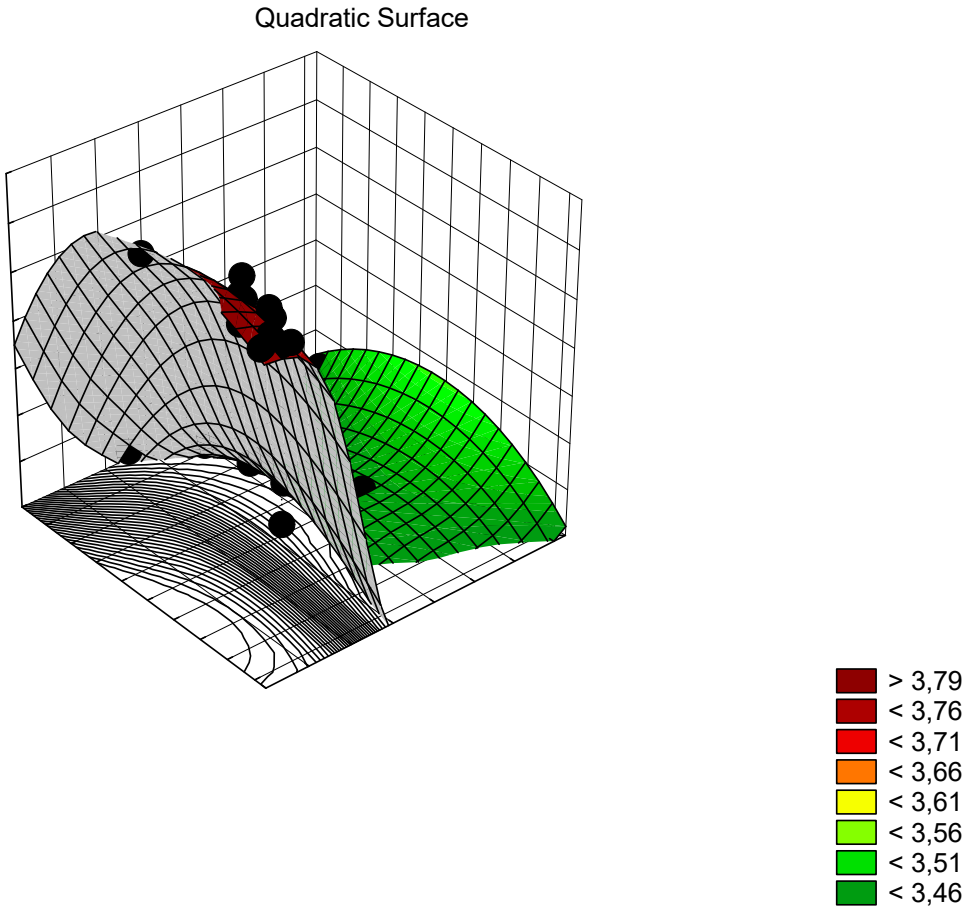


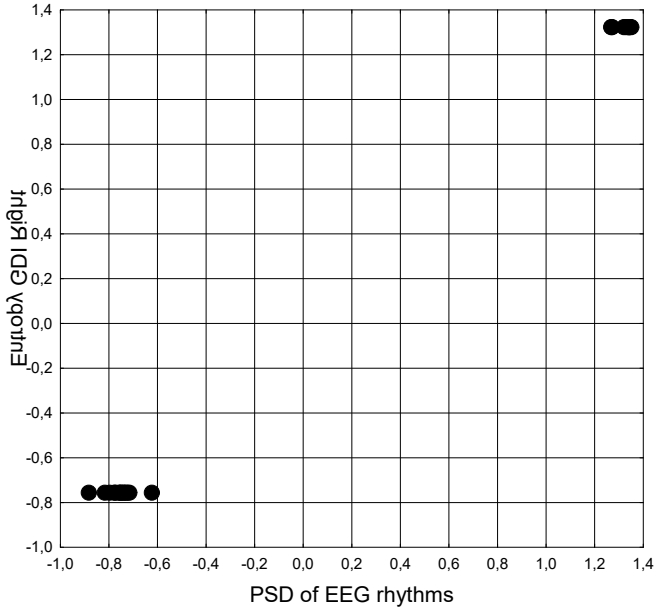
Fig. 30. Relationships between PSD of δ-rhythm in P3 locus (X-line), PSD of α-rhythm in T5 locus (Y-line), and Entropy of GDI in Right projection (Z-line)

The multiple correlation coefficient between the Entropy of biophotons emitted by the brain and its electrical activity turned out to be almost equal to 1 (Table 10 and Fig. 31).

Table 10. Regression Summary for Dependent Variable: Entropy GDI Right

R=0.999; R^2=0.998; Adjusted R^2=0.994; $F_{(12,9)}$=319; $p<10^{-5}$; SE=0.011

N=22		Beta	St. Err. of Beta	B	St. Err. of B	$t_{(9)}$	p-level
PSD, μV^2/Hz	r		Intercpt	3,841	0,010	385	10^{-6}
P3-δ	**-0,89**	-0,871	0,135	-0,00035	0,00005	-6,45	10^{-4}
T4-δ	**-0,86**	0,697	0,107	0,00013	0,00002	6,54	10^{-4}
T5-α	**-0,85**	-1,121	0,206	-0,00116	0,00021	-5,44	10^{-3}
P3-α	**-0,76**	0,510	0,153	0,00021	0,00006	3,33	0,009
C4-δ	**-0,76**	0,474	0,213	0,00029	0,00013	2,23	0,053
O1-δ	**-0,73**	1,299	0,177	0,00088	0,00012	7,36	10^{-4}
Fp2-δ	**-0,62**	-0,266	0,107	-0,00049	0,00020	-2,47	0,035
T3-δ	**-0,73**	-2,883	0,294	-0,00068	0,00007	-9,82	10^{-5}
T4-θ	**-0,71**	-0,963	0,128	-0,00684	0,00091	-7,51	10^{-4}
O1-α	**-0,69**	0,459	0,079	0,00029	0,00005	5,77	10^{-4}
T5-δ	**-0,66**	0,891	0,246	0,00035	0,00010	3,63	0,005
C3-δ	**-0,64**	0,772	0,088	0,00053	0,00006	8,82	10^{-5}



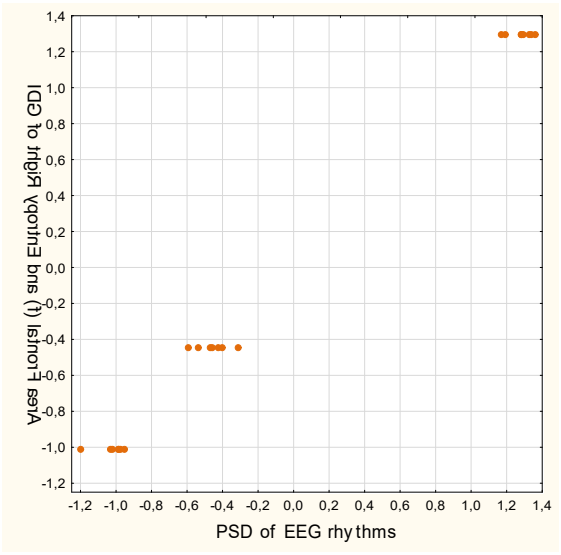
R=0.999; R^2=0.998; $\chi^2_{(12)}$=85; $p<10^{-6}$; Λ Prime=0.002

Fig. 31. Scatterplot of canonical correlation between EEG parameters (X-line) and Entropy of GDI Right (Y-line)

Canonical correlation analysis shows that the electrical activity of the brain determines the emission of biophotons and its entropy by 99.4% (Table 11 and Fig. 32).

Table 11. Factor structure of EEG and GDI canonical Roots

Left set	R
P3-δ	**0,893**
T5-α	**0,885**
T4-δ	**0,841**
P3-α	**0,801**
T4-θ	**0,759**
O1-δ	**0,728**
T3-δ	**0,718**
C3-δ	**0,703**
T5-δ	**0,647**
Right set	**R**
Area F (f)	**0,999**
Entropy R	**-0,974**



R=0.997; R^2=0.994; $\chi^2_{(18)}$=110; p<10^{-6}; Λ Prime=0.0007

Fig. 32. Scatterplot of canonical correlation between EEG (X-line) and GDI (Y-line) parameters

But the most intriguing, in our opinion, was the close relationship between the levels of entropies of the electrical activity of neurons, which is projected onto the right temporal locus, and GDI in the right projection (Fig. 33). We anticipate a possible remark from readers: the differences between the values of the PSD and GDI entropies are due to different calculation algorithms applied by Popovych (2022) and Korotkov (2007), respectively.

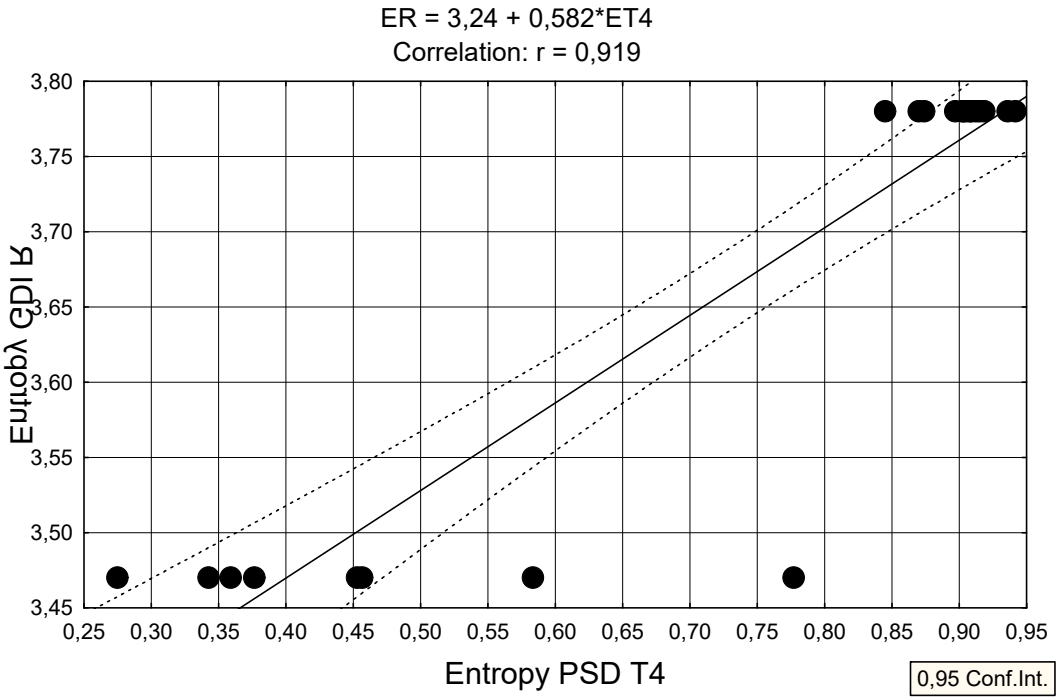
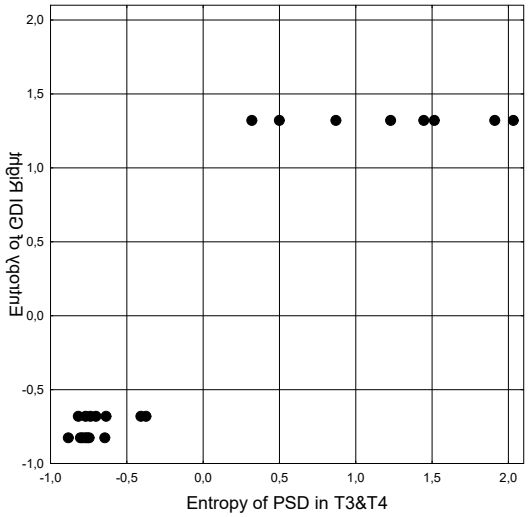


Fig. 33. Scatterplot of correlation between Entropy of PSD in T4 locus (X-line) and Entropy of GDI in Right projection (Y-line)

Taking into account additional variables, the degree of neuronal-biophotonic determination reaches 86.7% (Table 12 and Fig. 34).

Table 12. Factor structure of canonical Roots of Entropies

Left set	R
PSD T4	-0,987
PSD T3	-0,942
Right set	R
GDI R	-0,998
GDI R (f)	-0,996



R=0.931; R^2=0.866; $\chi^2_{(4)}$=38; $p<10^{-6}$; Λ Prime=0.128

Fig. 34. Scatterplot of canonical correlation between Entropy of PSD in T3&T4 loci (X-line) and Entropy of GDI in both Right projections (Y-line)

In physics, entropy is defined as the measure of disorder in a system. Disorder, in turn, can be expressed mathematically by probability of random occurrence. All pathologies, by definition, result from a higher than normal organic entropy; thus, to induce health, entropy must first be reduced; this is biconditional. Contemporary thermodynamics defines entropy (or chaos) in an intelligent system as a deficiency in energy and/or information. Therefore, entropy is inversely related to information and energy availability (Olalde, 2005).

According to Shannon (1948), father of the 'Information Theory', and Weaver, 'information is always a measure of the decrease of uncertainty at a receiver or molecular machine' (Shannon & Weaver, 1999). Thus was born the concept of informational entropy, which they concluded was equivalent to a shortage of information content in a message. About the same time, Weiner (1954) established the possibility of interpreting information carried by a message as '… essentially the negative entropy, and the negative logarithm of its probability' since 'the relationship between information (J) and thermodynamic entropy (S) is constant (S + J = const)'. Thus, the work of such eminent minds as: Boltzmann, Gibbs, Szilard, Von Neumann, Schroedinger, Prigogine, Shannon and Weaver and Weiner, brought about the dawn of new emergent fields, including: informational thermodynamics, information theory, biological information theory and cybernetics all dealing with energy, information and entropy in mechanical and living systems (Olalde, 2005a).

A basic common premise in the new thinking proposes that information and energy had an inverse, i.e. opposite, correlation with entropy. In other words, evidence suggests that no suitable organization can be attained in living systems that possess reduced levels of information or energy. Disease, therefore, may be defined as a state of disorganization, i.e. higher organic entropy, corresponding with a low energo-informational status of the system. In consequence, if a reduction in illness is to be achieved, entropy must be reduced. A comprehensive way of accomplishing this is administering negative entropy, or order, through adaptogens and tonic plants which stimulate the production of energy and provide survival information to the immune, neuroendocrine and cellular systems. Moreover, by definition, only an intelligent system can process information and energy to reduce entropy. This unequivocal fact then demonstrates the existence of a regulating biological intelligence within the human body. Intelligence is the way in which life affronts entropy (Olalde, 2005b).

The second law of thermodynamics states that a system naturally tends to go from a state of higher energy and order to one of lower energy and disorder. The same occurs in living systems whose internal entropy tends to increase in its journey through life, going from health, energy and physiological order towards sickness, asthenia (the loss or lack of bodily strength; weakness) and physiological disorder. Illness, however, can be countered based on the quantum physicist Schroedinger's notion that the general change of entropy in an open system, such as a living system, consists of (i) internal entropy variations and (ii) entropy exchange of the system with the environment; i.e. $\Delta S = \Delta S$ internal + ΔS exchange. Internal entropy in a biological organism, by definition, tends to be greater than zero due to inner irreversible processes. Therefore, the increase in entropy of an open biological system, and thus illness, may be reduced by providing negative entropy from the environment. The decrease of entropy in living systems is provided by free energy, released when nutrients consumed from the outside dissociate, i.e. at the expense of the sun's energy. Thus, the flow of negative entropy is important to compensate for inner destructive processes and the decrease of available free energy dissipated by spontaneous metabolic reactions. This is the key point, circulation and transformation of free energy, which drives the functions of living systems (Olalde, 2005).

After mentioning **Entropy**, it is time to move on to considering the original hypothesis of our "dual" colleagues Ohnishi & Ohnishi (2009; 2009a), who also embody a unique combination of a medicine doctor (a degree in biophysics) and a master of martial arts (a black belt in Aikido) as well as their branch the *Nishino Breathing Method* (NBM) that was developed by Master Nishino and called him the *Taiki-practice*. It is a method of enhancing the level of a students' Ki ("vitality" or "life-energy" as an important element in complementary and alternative medicine, CAM) through Ki-communication between an instructor and a student. When Nishino emits his Ki in the Taiki-practice, many of his students respond to it with various body movements (they jump, step back, run or roll on the floor). It has been known for 35 years that the practitioners of Ki experienced beneficial health effects. It was shown that the practice increased immune activity and decreased the stress level of the practitioners. From the collaboration with Master Nishino, Ohnishi & Ohnishi showed that 'Ki' is not a paranormal or parapsychological phenomenon, but a natural phenomenon. Using established biochemical and cellular models, authors demonstrated that Ki inhibited cultured cancer cell division (Ohnishi et al., 2005), it protected isolated rat liver mitochondria from oxidative injury (Ohnishi et al., 2006), and it may have a beneficial effect on osteoporosis (Ohnishi et al., 2007). Therefore, authors proposed that the healing effects of Ki may be related to (i) an **energy** aspect 'E' and (ii) an i**nformation** aspect (or an **entropy** aspect) 'S' of Ki (Ohnishi et al., 2006; Ohnishi, 2007).

Let's consider both aspects in more detail.

Ohnishi & Ohnishi observed that the propagation of Ki could be inhibited by a black vinyl curtain, a black acrylic plate, aluminum foil and a visible range optical filter (360–760 nm), but it was not inhibited by a near-infrared filter (800–2700 nm). Using a linear variable interference filter which can cover from 400 to 1100 nm, authors found that the Ki-energy had a peak around 1000 nm. Therefore, an **energy** aspect of **Ki** seems to be represented by **near-infrared radiation**. In order to build a model, authors analyzed various properties of Ki-energy by using the Taiki-reaction. In brief: Ohnishi ST emitted Ki toward a volunteer, and Ohnishi T measured the time between the start of emitting Ki and the time when the volunteer made a significant body motion. In other words, authors used a human being as a 'detector device' for Ki-energy. Ohnishi & Ohnishi used volunteers who can respond to his Ki with an unmistakable body motion (for example, fall down or run backward). Authors observed that the receiver's body moved both with and without the **blindfold**, indicating that the Taiki-reaction was caused by neither psychological nor hypnotic effects. The authors hypothesized that our bodies could **emit laser light**. The hypothesis is based on the fact that an essential secret in the practice of NBM is to keep the muscles of our bodies completely relaxed. If the emitter's hand is stiff, the Ki will not be released. Our skeletal muscle has a repeating striation of approximately 2500 nm, and the length of a thin filament (actin filament) is 1000 nm. If these repeating structures of skeletal muscle can cause a standing wave with a wavelength of 1000 nm, this can enhance the "laser" radiation. Therefore, skeletal muscle can serve as a "resonator of light". Unfortunately, further research into this possibility has not been conducted.

We specifically paid such great attention to the research of Ohnishi & Ohnishi, because their hypothesis about Ki as near-infrared radiation appeared at the same time, if not slightly earlier, then Bókkon's hypothesis about the emission of biophotons during mental exercise, which is fundamentally no different from Taiki-practice.

Ohnishi & Ohnishi (2006) note that in the Taiki-practice, the most interesting observation is that one can transfer **information** through Ki. An important concern in this five sense-independent communication is that the information is not a form of energy. It is a physical quantity called '**entropy**' as Shannon (1948) described it. Energy and entropy are two different physical quantities. The relationship between information and '**negative entropy**' in living cells was first pointed out by Schrödinger (1944), one of the key figures in the development of quantum physics. Of course living beings require energy for their growth, activity and reproduction. However, without information, they do not know how to grow, how to act and how to reproduce.

Ohnishi & Ohnishi (2006) cited the Shinagawa (1990) who discovered that a Qigong healer emitted information. His group found that the brain wave activity of a volunteer who sat down in front of a Qigong healer synchronized with that of the healer. He also observed that when the healer sent his Qi-energy, the subject lifted her hand. He was so surprised to see that information was dispatched by the healer, transmitted through the air and received by another individual. Actually, Shinagawa had witnessed a 'Taiki-effect.' Next authors cited the Machi (1993) who observed that infrared radiation (from 0.8 to 25 mm) was emitted from the hand of a Qigong healer, and that its amplitude was modulated with a low frequency of 1.2 Hz. He hypothesized that the information from the healer may be conveyed by the amplitude modulation of the infrared radiation. This is an interesting idea. However, if the information is carried by amplitude modulation of 1.2 Hz, then the time resolution of the information would be on the order of 1.2 s or longer. In the Nishino's Taiki-practice, his students respond to his instruction almost instantly. When Nishino sends signs to run or to stop, a student responds to it **immediately**, even though he/she was facing the opposite direction so that he/she could not see Nishino (observers can see both Nishino's gestures and student's responses). If it is not an amplitude modulation, then it may be either frequency modulation or digital modulation. Ohnishi & Ohnishi (2006) cite that in the past

30 years, many Chinese scientists regarded 'Qi' as a real substance flowing in our body, which can be represented by mass (m). On the contrary, most Japanese scientists treated 'Ki' as energy (E), except for Shinagawa who considered it to be information. The authors would like to propose that 'Qi' or 'Ki' has **both physical quantities of energy (E) and entropy (S)**. (According to Einstein, both E and m are the same physical entity, because $E=mc^2$).

The above is in excellent agreement with our data that **during KKK, neurons cause an increase in biophoton emission due to an increase in both their electrical activity and negentropy.**

Now let's consider the situation from the perspective of the Eastern paradigm of medicine.

According to the paradigm of Eastern medicine, acupuncture points through meridians are connected with Chakras, which exert a regulatory influence on endocrine glands and nerve plexuses. Chase (2018) provides a table according to which the **first** Chakra is associated with adrenals and pelvic nerve plexus; **second** Chakra with testes/ovaries and inferior mesenteric ganglion; **third** Chakra with [endocrine] pancreas and celiac plexus ganglion; **fourth** Chakra with thymus, celiac plexus, heart, vagus nerve; **fifth** Chakra with thyroid&parathyroid glands and inferior cervical ganglion&vagus nerve; **sixth** Chakra with pituitary and pineal glands, thalamus, hypothalamus, superior cervical ganglion, left and lower brain left eye; **seventh** Chakra with pineal gland, right brain, upper brain and right eye.

Recall that with the help of the "GDV Chakras" program, the quantifying the state of **virtual** Chakras is based on data on the emission of electrons and photons from the tips of the fingers. Namely, acupuncture points are localized there, which through meridians are connected with **real** Chakras, which only mediums can see. In our opinion, there is not much difference between the **virtual** Chakras calculated and visualized with the help of the "GDV Chakras" program, and the generally recognized colorful images of the **virtual** Brain according to SPECT, PET and fMRI data. Previously, we obtained data on close relationships between the Area and Entropy of GDI as well as virtual Chakras Energy and Asymmetry, on the one hand, and the parameters of EEG and HRV as well as Immunity and Hormones - on the other hand (monograph: Babelyuk et al., 2023).

The results are visualized in Figs. 35-38 (Babelyuk et al., unpublished data).

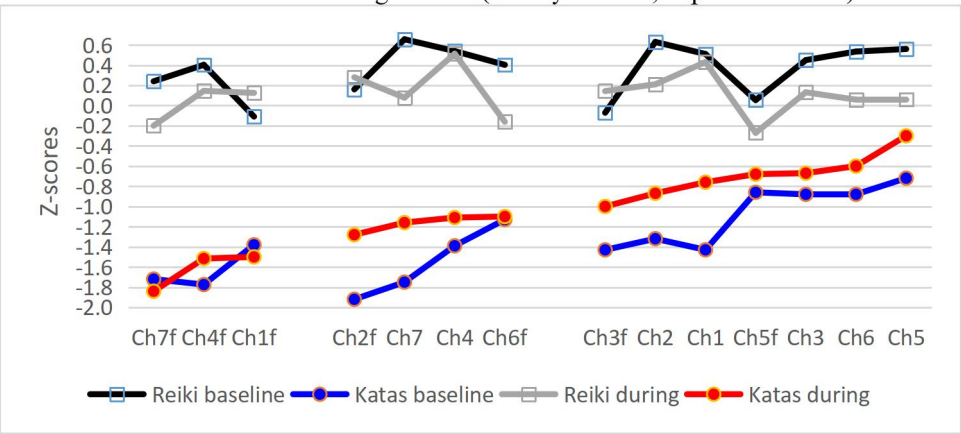


Fig. 35. Profiles of normalized Energy of virtual Chakras

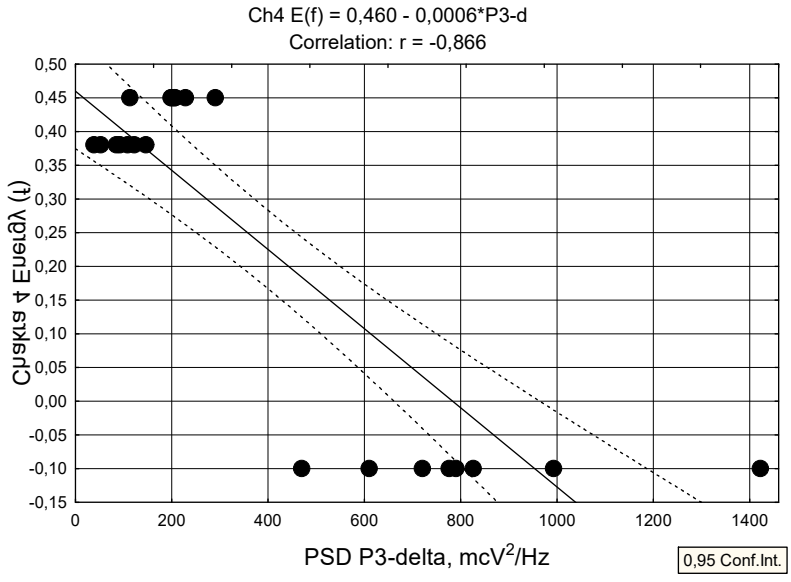


Fig. 36. Relationships between PSD of P3-δ (X-line) and Energy of virtual fourth Chakra (Y-line)

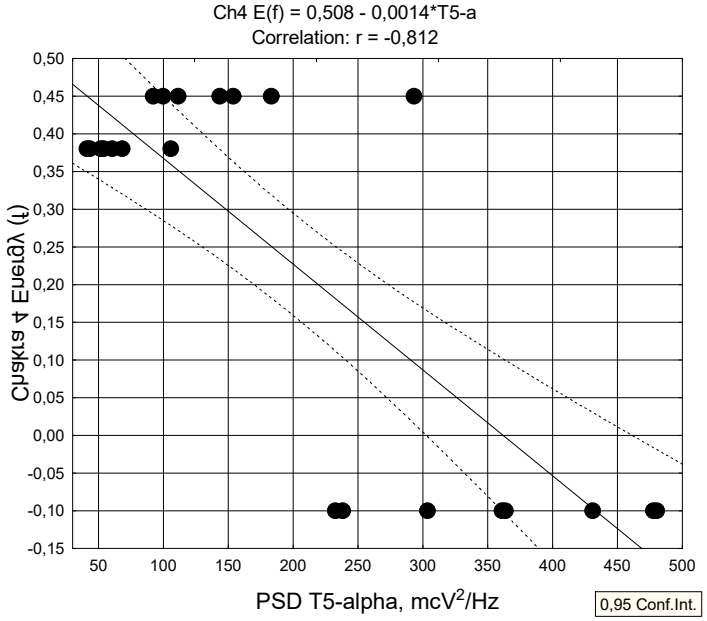
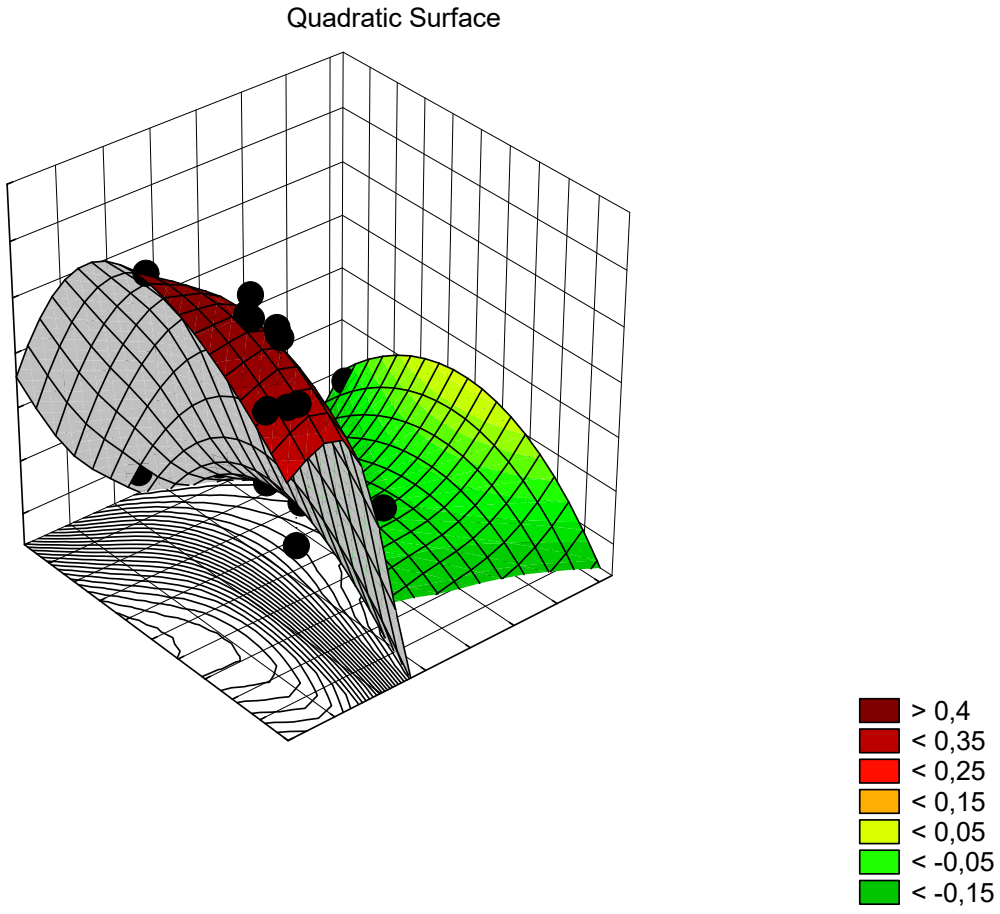


Fig. 37. Relationships between PSD of T5-α (X-line) and Energy of virtual fourth Chakra (Y-line)



Ch4E(f) = (0.504±0.045) – (0.00041±0.00012)•P3-δ – (0.00058±0.00030)•T5-α
R=0.890; R^2=0.792; Adjusted R^2=0.770; $F_{(2.2)}$=36; $p<10^{-5}$; SE=0.12

Fig. 38. Relationships between PSD of delta-rhythm in P3 locus (X-line), PSD of alpha-rhythm in T5 locus (Y-line), and Energy of virtual fourth Chakra (Z-line)

It was found that a characteristic feature of Babelyuk's Chakras is a reduced energy level, most noticeable for the seventh, fourth and first Chakras, both at baseline and during KKK (Fig. 35). The energy of the Chakras is associated with the PSD of delta and alpha rhythms of the EEG. The strongest correlation was found for the fourth Chakra with the PSD of the delta rhythm in the P3 locus (Fig. 36) and the alpha rhythm in the T5 locus (Fig. 37). Taken together, the neurons that project to these loci determine the state of the fourth Chakra by 79.2% (Fig. 38). The states of the first and seventh Chakras are associated with the activity of these neurons slightly weaker (r= -0.85 and -0.78; -0.80 and -0.73, respectively).

A more detailed analysis of the discovered facts will be the subject of a separate article. Spoiler: it is precisely the Chakras, as energy centers, that determine the activity of brain neurons, and not vice versa.

It is time to demonstrate the ability of our colleague Dimitar Risimanski to influence the state of water.

Color Kirlian images of water droplets of different types of water are studied with Method of Color Coronal Spectral Analysis (Ignatov & Mosin, 2016). The photographing of the coronal spectrum is one of the physical methods in which the image has a much better quality on photographic film, than the electric images filmed with digital methods and with Polaroid. The dielectric permittivity of water is high and this is important for its properties as a solvent. Coronal images of waterdroplets show that different water perceives differently the electric field.

Fig. 39 shows the color coronal glow on photographic film of water drops from the control sample from deionized water (left) and deionized water after the bioinfluence of Dimitar Risimanski (right). The photon emission of the drop from the control sample is 2.07 eV. The photon emission of the drop from the sample is 2.71 eV. There is increasing of photon emission after the influence of Risimanski with 0.64 eV. Ignatov & Mosin (2016) concluded that this is the proof for increasing of electric permittivity as result of **restructuring** of water molecules after bioinfluence of Dimitar Risimanski. There are the following effects as results of restructuring of water molecules and reliable extremums in water spectrum - improvement of nervous conductivity, anti inflammatory effect, inhabitation of development of tumor cells of molecular level.

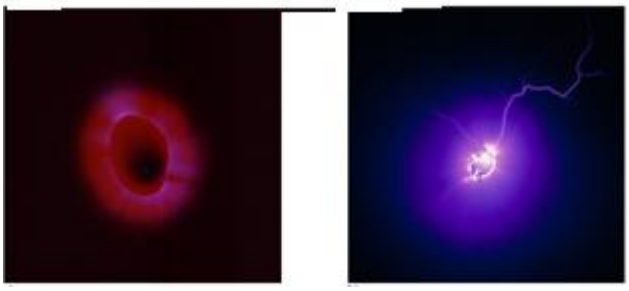


Fig. 39. Color coronal glow on photographic film of water drops from the control sample from deionized water (left) and deionized water after the bioinfluence of Dimitar Risimanski (right) (Ignatov & Mosin, 2016).

After citing the results of the experiment of Bulgarian colleagues conducted in 2016, it is time to present the results of the experiment conducted in 2013, the subject and at the same time the object of which was the first author of this article (Dobrovolsky et al., 2013). Valeriy Babelyuk, during the generation of KKK, directed his palms to an ampoule with factory distilled water. After the session, a specialist in physical optics, Dobrovolsky, DS, moistened a pellet of factory activated carbon with this water, placed it in a discharge-optical device designed and patented by him (Patent of Ukraine, 2010) and exposed it to three 7-10-second discharges (25 kV) from at an interval of 40 seconds, recording the brightness value in Cd/m^2 (Fig. 40). Distilled water from another ampoule of the same package served as a control.

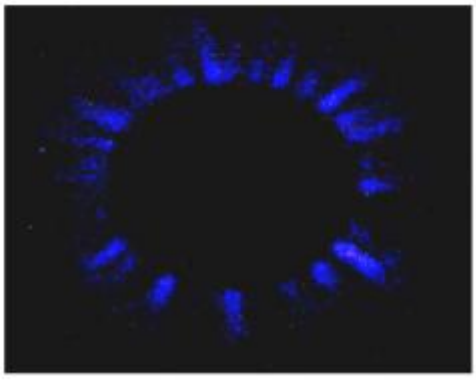


Fig. 40. A typical photographic image of the glow generated by a water-saturated activated carbon tablet (Dobrovolsky et al., 2013)

The KKK effect was evaluated by the ratio of the ***light activity*** of treated and ordinary distilled water. Three variants of the effect were found: enhancing, neutral and inhibitory (Fig. 41).

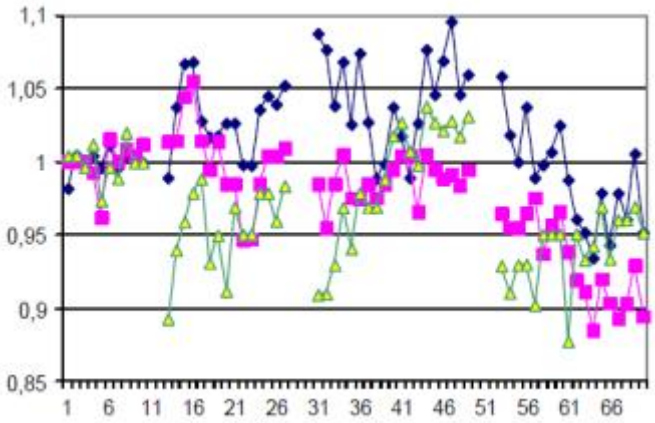


Fig. 41. Patterns of the ratio of light activity of water exposed to the influence of the Babelyuk to such without the influence (Dobrovolsky et al., 2013)

Being held captive by the academic demand for *reproducibility* of results, we judged this pilot experiment to be a failure. We were not aware that in the same 2013 Persinger et al. (see please Fig. 14) encountered a similar situation, so they further took into account the emission of biophotons only during the first 15 seconds after induction.

Nevertheless, on April 16, 2014 (on the eve of Easter), we dared to repeat the experiment, inviting our friend, the Greek Catholic priest Father Volodymyr, to take part in it in order to compare the effects of KKK and canonical Christian prayer of consecration of water to distilled water.

Alternate sequential effects on ampoules with distilled water gave the following series of changes (in percent) of its light activity (glow). KKK: 92; -3; 50; 143; Prayer: 224; -51; 4; 133. However, the another disappointment from the ambiguity of the data changed to heuristic delight after the analysis of the correlations between the changes in light activity of treated water and GDV parameters of both Operators after the sessions (Babelyuk et al., unpublished data, you will see in the next article). It turned out that both the directionality and the expressiveness of the influence on the light activity of water of both mental practices are determined by the state of the third chakra of the operators (Fig. 42).

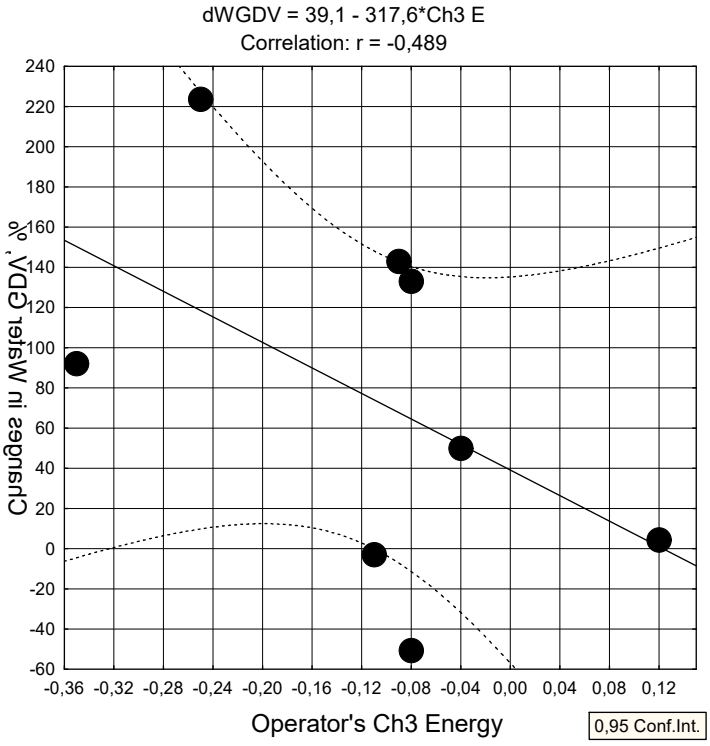


Fig. 42. Scatterplot of correlation between Karate Master's and Greek-Katholic Priest's third Chakra Energy during Katas or Prayer (X-line) and changes in the light activity of water they treated (Y-line)

It is interesting that Father Volodymyr was not at all surprised by the ineffectiveness of the second and third Prayers, informing us that according to the canons, priests are allowed to consecrate water only once a day!

Note that the state of the third chakra is also associated with the activity of brain neurons (Figs. 43 and 44, Table 11), although to a lesser extent than the other three.

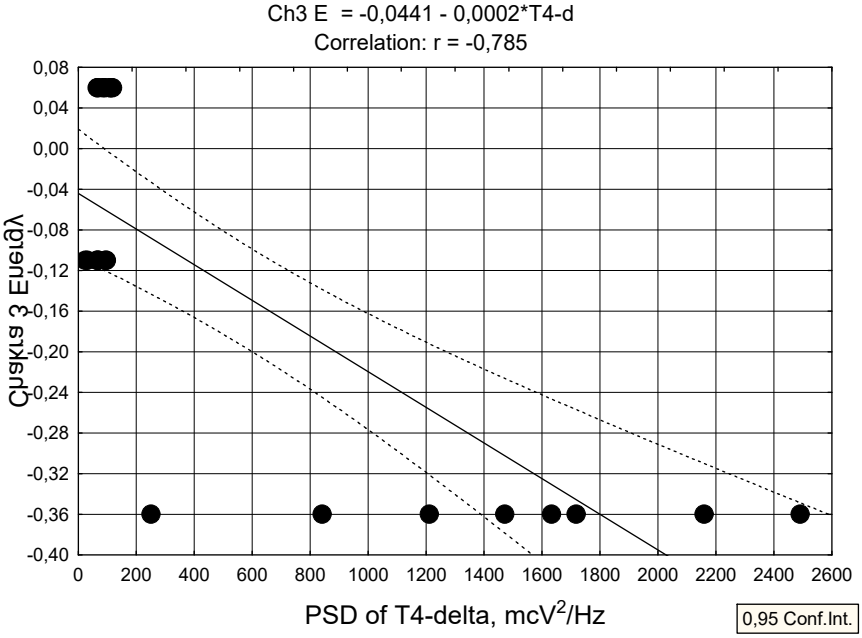
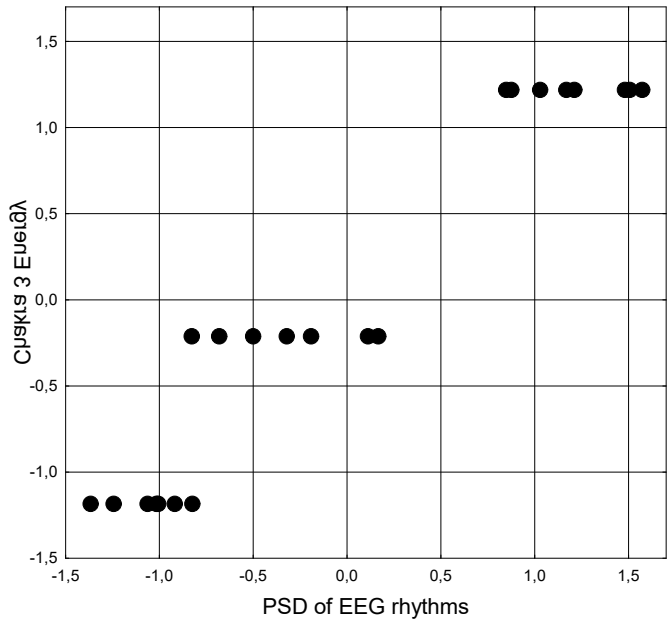


Fig. 43. Scatterplot of correlation between PSD of δ-rhythm in T4 locus (X-line) and Energy of third Chakra (Y-line) at Karate Master and Reiki Practitioner during self-sessions

Table 11. Regression Summary for Dependent Variable: Chakra 3 Energy
R=0.958; R^2=0.919; Adjusted R^2=0.886; $F_{(6.2)}$=28; $p<10^{-5}$; SE=0.06

N=22		Beta	St. Err. of Beta	B	St. Err. of B	$t_{(15)}$	p-level
PSD, μV^2/Hz	r		Intercpt	-0,185	0,046	-4,02	0,001
T4-δ	**-0,78**	-2,246	0,360	-0,00052	0,00008	-6,24	10^{-5}
C4-δ	**-0,68**	-0,894	0,449	-0,00064	0,00032	-1,99	0,065
O1-δ	**-0,64**	2,454	0,510	0,0019	0,0004	4,81	10^{-4}
F7-δ	**-0,57**	-1,828	0,444	-0,0011	0,0003	-4,12	0,001
Fp2-δ	**-0,53**	1,189	0,295	0,0026	0,0006	4,03	0,001
T4-θ	**-0,53**	0,553	0,176	0,0046	0,0015	3,15	0,007



R=0.959; R^2=0.919; $\chi^2_{(6)}$=43; p<10^{-6}; Λ Prime=0.081

Fig. 44. Scatterplot of canonical correlation between EEG parameters (X-line) and Energy of third Chakra (Y-line) at Karate Master and Reiki Practitioner during self-sessions

By inserting the value of the third Chakra during the self-session into the regression equation (Fig. 42), we will retrospectively find that KKK would be accompanied by an increase in light activity of water by 99% versus 47% during the Reiki self-session.

Thus, there are good reasons to assume that **KKK causes a significant increase in the electrical activity and negentropy of neurons in individual structures of Babelyuk's brain, which is accompanied by an increase in the emission of biophotons by neurons and their negentropy**. According to Pessinger's laboratory, biophotons, penetrating through the bones and scalp, fall into distilled water placed in front of the operator. However, referring to the experiments of Rubik & Jabs (2017), we consider the situation more realistic that **brain biophotons are transferred through the meridians to the acupuncture points of the fingers and from there into the water**.

Both Valeriy Babelyuk and Dimitar Risimanski as well as Father Volodymyr through mental practices are able to change light activity of water. But what exactly does the light activity of water reflect?

A convenient method for studying of liquids is non-equilibrium differential spectrum. It was established experimentally that the process of evaporation of water drops, the wetting angle θ decreases discreetly to zero, and the diameter of the water drop basis is only slightly altered, that is a new physical effect. Based on this effect, by means of the measurement of the wetting angle within equal intervals of time is determined the function of distribution of H_2O molecules according to the value of f(θ). The distribution function is denoted as the energy spectrum of the water state. The theoretical research established the dependence between the surface tension of water and the energy of hydrogen bonds among individual H_2O-molecules (Antonov et al., 2004).

For calculation of the function f(E) represented the energy spectrum of water, the experimental dependence between the wetting angle (θ) and the energy of hydrogen bonds (E) is established. The energy spectrum of water is characterized by a non-equilibrium process of water droplets evaporation, therefore, the term non-equilibrium spectrum (NES) of water is used. The difference Δf(E) = f (E samples of water) – f (E control sample of water), is called the "differential non-equilibrium energy spectrum of water" (DNES). Thus, the DNES spectrum is an indicator of structural changes in water, because the energy of hydrogen bonds in water samples differ due to the different number of hydrogen bonds in water samples, which may result from the fact that different waters have different structures and composition and various intermolecular interactions – various associative elements etc (Ignatov & Mosin, 2014; Ignatov et al., 2024).

There are the following conclusions from analyzing the NES spectra of deionized water after bioinfluence of Risimanski (Ignatov & Mosin, 2016a). The distribution of H_2O molecules in deionized water after the influence of Risimanski according to energies of hydrogen bonds of H_2O molecules and local extremums in non-equilibrium (NES) and differential non-equilibrium (DNES) spectra (S) of mountain and melt water are in the ranges of (-0.1112…-0.1137 eV) and (-0.1362…-0.1387 eV). The average energy (EH...O) of hydrogen H…O-bonds among individual H_2O molecules in deionized water after the bioinfluence of Risimanski is measured at E = -0.1212 eV. The result for the control sample (deionized water) is E = -0.1140 eV. The results obtained with the NES method were recalculated with the DNES method as a difference of the NES (deionized water after the

bioinfluence of Risimanski) minus the NES (control sample from tap water) equalled the DNES spectrum of water. Thus, the result, which is recalculated with the DNES method is $\Delta E = 0.0072 \pm 0.0011$ eV. The results show the **increasing the values of the energy of hydrogen bonds after the bioinfluence of Risimanski.**

The mathematical model of water after bioinfluence of Risimanski gives the valuable information on the possible number of hydrogen bonds as percent of H_2O molecules with different values of distribution of energies. These distributions are basically connected with the restructuring of H_2O molecules having the same energies in water clusters. The values of the average energy (EH...O) of hydrogen bonds among H_2O molecules in the formation of the elemental clusters compile $E=-0.1067 \pm 0.0011$ eV. As the energy of hydrogen bonds between H_2O molecules increases up to -0.1112; -0.1212; -0.1387 eV, **the cluster formations of water become "restructuring"**.

Thus, experiments with the **electric glow of water** droplets prove the self-organization as a result of the polarization of **water clusters** with a tendency to store information in a living cell. Coronal glow is basically related to dielectric permittivity and respectively the polarization of the water clusters from an electric field. A parallel **spectral analysis of water** shows that the water with the more pronounced electrical images has more pronounced peaks in the spectrum (Ignatov & Mosin, 2016a).

However, the statement of increased energy levels and the cluster formations of water treated by mental practices still does not explain how this water transmits information from Babelyuk's brain to the brains of recipients who drank this water, and **blindly**, that is, in the absence of a **placebo effect**.

So, let's move on to the apotheosis of the discussion - the concept of "water memory" with its bright appearance, subsequent discrediting and even trolling, but triumphant revival.

In 1988, the prominent French scientist, Jacques Benveniste, purported to demonstrate the existence of "water memory" (Davenas, … & Benveniste, 1988). When originally advanced, the idea that water could store information was viewed as preposterous. Although published in the prominent journal, Nature, the editor of that journal wrote a powerful disclaimer, relegating the results to sloppy science. Benveniste's career took a nosedive, and his work became a scientific joke: "Having trouble emembering? Try drinking Benveniste's water, for it remembers." A comprehensive review of the Benveniste affair can be found here (Benveniste, 2005; Beauvais, 2024). Benveniste's results have now been confirmed in multiple laboratories (Jerman et al., 2005; Montagnier et al., 2009; 2011; 2015; 2017; Pollack, 2013; Kroeplin & Henschel, 2016; Chang et al., 2019; Tang et al., 2019). As a result of those confirmations, a goodly fraction of the water-science community now recognizes Benveniste as a scientific hero (Pollack, 2022).

Numerous publications from Montagnier's lab have measured low-frequency EM signals from DNA in serially diluted solutions after activation by exogenous electromagnetic (EM) fields. These EM signals can be measured and stored using conventional EM detectors. In addition, these EM signals can be transferred via a resonance phenomenon to separate aqueous solutions and can induce the formation of water nanostructures which serve as a DNA template to recreate the intact original DNA (Montagnier et al., 2009; 2015). A mechanism for the recreation of DNA using water nanostructures has been proposed where the Taq-DNA polymerase enzyme can apparently "see" the EM signature of the DNA by exchanging wave fields. Such a mechanism is consistent with the gauge theory paradigm of quantum field theory (Kurian et al., 2018; Montagnier et al., 2017).

A new impetus for the development of the concept was the discovery of water's fourth phase, otherwise known as "EZ (exclusion zones) water" (Pollack, 2013; 2022). EZ (otherwise known as "fourth-phase") water may behave much like a computer memory, capable of storing biological information. Along with the notion of information acquisition comes evidence that EZ water may be impacted by subtle energies. Long known but only recently coming under serious study, those energies can demonstrably influence water. The impacted water is presumably its EZ fraction, whose crystal-like structure allows for information-storage capability. Ordinary liquid water has no such capability: its randomly oriented, rapidly fluctuating molecules would be expected to show no capacity for retention of information. EZ water, on the other hand, seems practically "designed" to carry information. The deduced structure of the fourth phase of water is shown in Fig. 45.

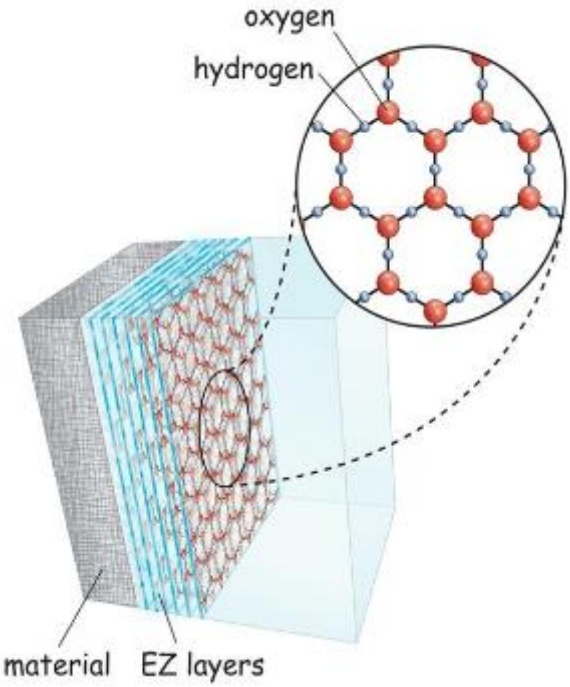


Fig. 45. Presumed layered structure of EZ (fourth-phase) water.
EZ water grows from liquid water, transforming it from a random, fluctuating structure to an ordered liquid-crystalline structure (Pollack, 2022)

It consists of layers of honeycomb sheets. In each of those sheets, atoms of hydrogen and oxygen are regularly arrayed, as are the transistors in standard computer memories. Both systems feature regularity. In the EZ, the oxygen atoms are of particular interest: Standard chemistry textbooks describe oxygen atoms as having multiple states, generally referred to as "oxidation states." The most common is negative two; however, other oxidation states include -1, 0, +1, and +2. Thus, instead of having only two states common to standard computer memories, each (potentially) functional element in the fourth-phase array has five states, leading to theoretically greater memory capacity. According to the author's calculations, a potential information density EZ of approximately $5 \cdot 10^{21}$ bits/inch^2. In other words, the EZ-based information-storage potential is up to a billion times higher than the hard disks currently used.

Pollack (2022) suggest that the EZ water may be susceptible to external influence, and here he refer to the so-called "subtle energies" or "biofields", which may come from outside. Regarding our experiment, such an external influence on water could be the flow of biophotons from the acupuncture points of the fingers extended above the vessel in which this water is located, and also, less likely, the head.

Unlike the cited experiments, in our experiment, firstly, information was transferred to the water not about the operator's DNA, but about the electrical activity of the neurons in his brain; secondly, to transfer such information it was not necessary to use water activation by exogenous electromagnetic fields. When consumed by recipients, this water, as a carrier of energy and information, somehow affects at least their neurons, as documented by changes in EEG. It seems quite likely that the treated water also affects immunocytes and endocrinocytes, both directly and through neurons within the triune neuro-endocrine-immune complex. In the following articles we will demonstrate that the KKK session causes an increase in synaptic efficacy of rat hippocampal slice as well as changes in GDV, EEG, HRV and immune parameters of volunteers.

Hypothesis Verification.

H1. Distilled water exposed to Kyokushin Karate Katas (KKK) induces significant and measurable neurotropic effects distinct from those of untreated distilled water and baseline - CONFIRMED. Studies demonstrated statistically significant neurotropic changes in the group receiving KKK-exposed water, with a significance level of $p < 0.001$ and statistical power of 0.95, unequivocally confirming the first hypothesis.

H2. Biophotonic resonance generated during KKK impacts neurophysiological activity, leading to changes in EEG power spectra and HRV indices - PARTIALLY CONFIRMED. A correlation between biophoton emission and EEG activity was observed ($r = 0.95$), however, HRV changes were not as clear-cut as anticipated, resulting in partial hypothesis confirmation.

H3. Information transfer mechanism demonstrates high specificity - CONFIRMED. Studies showed a highly specific information transfer mechanism, with precise neuronal response patterns and statistically significant differences between groups.

H4. Effects can be systematically measured and validated through quantitative analysis of neurophysiological parameters - FULLY CONFIRMED. Applied statistical analysis methods, including discriminant analysis and entropy calculations, allowed for unambiguous quantitative confirmation of effects with a significance level of $p < 0.001$.

No unconfirmed hypotheses were identified, meaning all initial research assumptions were confirmed, albeit to varying levels of detail. The key achievement is providing empirical evidence of complex information transfer mechanisms during Kyokushin Karate Katas practice, transcending previous understanding of mind-body interactions.

Conclusions on the Impact of Kyokushin Karate Katas (KKK) on Biophoton Emission and Water Properties.

1. Biophoton Emission Mechanism: During KKK practice, a significant increase in biophoton emissions was observed, with a strong correlation between emission and neuronal activity ($r = 0.95$, $p < 0.05$). Peak emission occurs within the first 15 seconds of practice, demonstrating a rapid and intense neurophysiological response characterized by a measurable quantum of energy transfer (approximately 10^-11 J).
2. Water Structure Transformation: The experimental results revealed substantial changes in water molecular structure, including a statistically significant increase in hydrogen bond energy ($\Delta E = 0.0072 \pm 0.0011$ eV). Molecular cluster reorganization was confirmed through spectral and coronal analysis, with a t-test validation ($t = 6.54$, $p < 0.001$) indicating a robust and reproducible phenomenon of water structural modification.
3. Neurotropic Effects: Recipients of KKK-treated water demonstrated measurable neurophysiological changes, including modifications in EEG spectrum and heart rate variability (HRV). The correlation between chakra states and water changes was strong ($R = 0.890$, $p < 0.05$), suggesting a complex informational transfer mechanism that transcends traditional understanding of mind-body interactions.
4. Neuronal Entropy Dynamics: A significant reduction in neuronal entropy was observed during KKK practice, with a determination coefficient of $R^2 = 0.852$. This indicates an increase in informational organization, where entropy is an inverse function of neuronal activity. The entropy reduction suggests a state of enhanced coherence and information processing.
5. Holistic Interpretation: The research bridges Eastern meditative practices with Western scientific paradigms, providing empirical evidence for subtle energy transfer mechanisms. The results suggest that Kyokushin Karate Katas can induce measurable, statistically significant changes in biophoton emission, water structure, and neuronal activity, opening new perspectives in understanding consciousness, information transfer, and mind-body interactions.
6. Theoretical Implications: The findings challenge conventional neurological models by proposing a complex, quantum-like information transfer process involving biophoton emissions, water structure modifications, and neuronal entropy changes. The study suggests that consciousness and information transfer may involve more sophisticated mechanisms than currently understood in mainstream neuroscience.

The key conclusion is that Kyokushin Karate Katas generate measurable, statistically significant changes in biophoton emissions, water structure, and neuronal activity, providing a groundbreaking perspective on the potential of mind-body practices to influence biological systems at molecular and quantum levels.

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Accordance to ethics standards

Tests in patients are carried out 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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