

AUTO R I C E R C A

**Bioenergy and
vibrational state
detection via fMRI:
preliminary results
and analyses**

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Abstract

Bioenergy (prana, chi, orgone or subtle energy) has been known for millennia but has eluded science in respect to its detection, measurement and theoretical understanding. To help cover this serious gap in the comprehension of reality and consciousness manifestation, the author designed and conducted three series of experiments using fMRI (the latest in December 2014) focused on the research and understanding of: 1. neurological changes of the brain during execution of bioenergy techniques and vibrational state; and 2. effects of bioenergy over matter and the mechanism of consciousness-matter interaction via bioenergy. This paper intends to present thought-provoking findings and their preliminary analysis, mainly of bioenergy transmission to different types of substances, like a “fMRI reference phantom”, while discussing some of their consequences and possible uses, including the possible future development of a “bioenergy technology”. It aims mostly to motivate researchers to replicate and discuss his experiments. Future experimental approaches will also be proposed and discussed.

1 Objectives

The main objectives of the present paper are:

- Communicate some thought-provoking findings with bioenergy effects detected via fMRI
- Present preliminary analysis of these findings
- Propose a methodology for the research of the vibrational state and bioenergy
- Stimulate other researchers to replicate these experiments to confirm (or to falsify) those findings
- Collect suggestions and constructive criticism for improving the next series of experiments
- Propose further experimental approaches
- Lay the foundations for a Bioenergy Technology
- Establish hypotheses and initial theories
- Discuss possible future applications for this line of study.

2 Introduction

Since ancient times humanity mentions a form of subtle energy, parallel to the materiality of the day-to-day, but not so far from human beings that would not be felt and known by people more sensitive or those aware of their existence.

Having received several names over the centuries, such as prana (Yoga), chi / qi (Chinese medicine), orgone (Reich), magnetic fluid (Mesmer), vital fluid (Kardec), life force (Hahnemann), astral light (Blavatsky) and etheric force (dowsing), bioenergy, as it is called in this paper has eluded modern science not only with regard to its detection and measurement but also in respect to its theoretical conceptualization and modelization.

There have always been stories, accounts and reports of people claiming to be able to feel or see this form of subtle energy in living

things, the environment and other people and sometimes also be able to apply it to improve their own quality of life or of others around them, including in situations such as spiritual healing.

Studies have been carried out in various areas of human knowledge, including Parapsychology, alternative medicine and biology (morphic resonance, biophotons) in order to clarify the nature of this energy. But, why in despite of millennia of cases and of these research works and others from some pioneers like Wilhelm Reich, Semyon Kirlian and Konstantin Korotkov, the reality of bioenergy has not been accepted by the scientific community and general public? Perhaps the scientific quality of the evidences and experiments have not being good enough.

To better understand this form of energy as well as its role in the expression or manifestation of consciousness, the author has been conducting various experiments since 1984 in order to detect and measure this bioenergy. While still studying electronic engineering in the university, the author used various instruments and components available at the time, such as magnetometer, Geiger counter, semiconductors, and others, but without relevant or reliable results.

Based on the assumption that living things, including humans, are natural transducers of bioenergy, since physical life would be itself the biggest manifestation of bioenergy, and also knowing about the ability of many people, throughout the centuries, to feel bioenergy, the author took off from the hypothesis that the answer to his quest for an bioenergy detector principle was in organic matter.

To avoid the use of living things, both due to the ethical problem with that and the unreliability of the results due to interference of the natural dynamics of the internal metabolism and even to behavioral changes, organic substances "in vitro" were chosen. So, proteins were picked for being universal in the central processes of life and also due to their flexibility in reactions. Indeed, their behavior depends not only on their chemical formula but also on their particular 3D folding or shape.

Thus, transducer prototypes were built based on an aqueous gel of collagen, of which its electrical resistance was measured. Some promising results were obtained with this principle but unfortunately the author had to put this line of research on hold for reasons whose explanation would go beyond the scope of the present writing. However, he intends to return to this line of experimental

research as soon as possible.

With the goal of establishing a new line of investigation allowing for the identification of parameters for the development of a methodology of bioenergy research, this author presented in 1990, during the 1st International Congress of Projectiology and Conscientiology (Rio de Janeiro, Brazil), a conference entitled “Bioenergy Technology”, where he presented the results of his research done from 1984-1988 (Alegretti, 1990). In that ambit, the principles of ‘bioenergy technology’ were also presented, as well the initial experimental results, the discussions about its relevance and applications and also the planning of the phases for its development.

However, over time, the author tried to stay up-to-date of the progress of science, scientific instrumentation and research in medicine and neurology. A resource exploited in medical analysis always called his attention: the nuclear magnetic resonance imaging (MRI), and mainly a variation of it that allows the monitoring of the functioning of the brain during specific tasks: the functional magnetic resonance imaging (fMRI), which is based on the BOLD (Blood Oxygenation Level Dependent) technique to register the change of magnetic resonance of the hemoglobin when passing from the oxygenated state (arterial blood) to deoxygenated (venous blood). This technique has been used in several scientific researches on brain function and also is now being used in clinical exams, especially as a way to get previous data before certain brain surgeries.

So, he had the idea of using fMRI to monitor what happens in the brain when someone consciously and willfully controls his bioenergy to provoke an internal intensification of one’s natural energetic vibration, a phenomenon known as *vibrational state* (VS) (Trivellato, 2008). The VS has the advantages not only of creating an unusual intensification of the personal bioenergy field, but also of being producible by the will through a standardized technique: VELO (voluntary energy longitudinal oscillation), which can be learned, developed and applied by anyone. At that time, he published a paper in the Journal of Consciousness¹ (Alegretti, 2008) proposing this particular research and discussing its methodology, possible benefits and applications. But as it will be explained below this line of research expanded to also understand what

¹ Formerly known as: Journal of Conscientiology.

happens in the brain during the intentional absorption and transmission of bioenergy, including to different media, like fMRI phantoms, a potato and an egg.

The possible success of this approach may open doors for future similar studies, by showing that the research of certain consciencial phenomena, until now considered subjective or beyond the scope of intraphysical analysis, is doable and viable through conventional third-person methods and techniques. Besides proving this methodological line, such demonstration of executability and viability would certainly stimulate studies of other consciencial and parapsychic (not purely physical) phenomena which are even more complex.

As bioenergy is claimed by many to be a central aspect of consciousness manifestation, not only through the expression of biological life itself but mainly in a class of phenomena called paranormal, non-physical, extra-physical, psychic or parapsychic, its detection and highlight could be half way to a more solid evidence for the objective nature of consciousness, as understood in the so-called consciencial paradigm (Vieira, 2002). According to this paradigm, the bioenergy would be the bridge between the nonphysical consciousness (independent from the body) and the physical world of the ordinary forms of matter-energy (hard problem of consciousness).

The data and preliminary qualitative results from the 3 series of experimental sessions already conducted by the author, as presented below, seem to point towards the validity of the hypotheses and viability of this research and of the methodology adopted.

In parallel to the bioenergy detection line of research, as explained, the author also conducted some pilot experiments with electroencephalography (EEG) to search for neural correlates of some consciencial states and bioenergy procedures. In 1991 he had the first opportunity of doing some personal experiments with the lucid projection (out-of-body experiences) while monitored by an EEG (and other devices for measurement of several physiological parameters) in a sleep study laboratory of a hospital in the city of Porto Alegre, Brazil. On this occasion, the author also installed the VS voluntarily, as to allow for the observation of the changes in brain waves pattern that could be generated as a result of this process.

Also, in December 2007, another series of experimental sessions of were done, having this author and Nanci Trivellato as objects of

study, at a neuroscience laboratory in the city of Natal, Rio Grande do Norte, Brazil. Those experiments focused on registering brain activity through digital EEG during the production of VSs and partial projections (Alegretti, 2008).

Continuing this specific line of investigation, a pilot study with a more advanced EEG equipment and a better scientific support has just being initiated in partnership with the TransTech Lab at the Sofia University in Palo Alto, California, USA.

Another precious source of information for this line of study has been the research done through the bioenergy evaluations of individuals, mainly of students of the course 'Goal: Intrusionlessness', given by this author in partnership with Nanci Trivellato since 2002, at the International Academy of Consciousness (IAC). Those individual evaluations brought up observations, findings and further questionings about the VS and bioenergy procedures, generating new hypothesis and allowing for the perfecting of the experimental protocol of the research discussed in this paper (Trivellato & Alegretti, 2005).

Some of the fMRI preliminary results and analyses have already been shared with fellow researchers in this field such as Dean Radin (IONS – Institute of Noetic Sciences), Beverly Rubik and Harry Jabs (IFS – Institute for Frontier Science), Ivan Lima (North Dakota University) and members of the FMBR – Foundation for Mind-Being Research, in Palo Alto, California, USA.

The EEG line of research recently inspired Rute Pinheiro (UFRN – Universidade Federal do Rio Grande do Norte, Brazil) to initiate and conduct a similar investigation (Pinheiro, 2013).

3 Hypotheses

Assuming the Consciential Paradigm (that consciousness is objective, multidimensional, a property of the universe, neither reducible to matter-energy, nor a mere product or epiphenomenon of it) this research is founded on three basic hypotheses:

1. Bioenergy is real and objective, being able to interact with matter and other form of energies, as in the manifestation of life;

2. The VS is an objective condition, not being just imagination, illusion or sensory hallucination of the practitioner;
3. The VS and other bioenergy procedures and regimens are, in certain circumstances, accompanied by detectable changes in the human brain or can cause alterations in such (some temporary and, perhaps, others more permanent).

Based on the specific knowledge existent today about the VS, which is still relatively limited due to the lack of systematic research about this phenomenon conducted until this moment, it is not yet known whether there are true VSs, of high intensity, that do not produce any level of repercussion on the soma, or even if all the intense VSs will cause a repercussion on the soma.

Within the numerous types of repercussions of the VS so far observed in first-person experiments, it is reasonable to assume that some VSs will produce a bigger effect on the soma, while others will concentrate its effects more directly on the energosoma, or maybe, on the vehicles more subtle than this one. This way, it is anticipated that there would be VSs that do not produce any somatic effect that can be registered by technical apparatus of physiological or neurological monitoring existent nowadays (or, more probably, that produce a too weak somatic effect to be detected).

So, this research initiated on studying the VSs and bioenergy procedures which effects can directly reach the physical body, while recognizing that the VS happens primarily at the level of the energosoma, and that this subtle energy body acts as an interface between the consciousness (or better, between the more subtle vehicles of manifestation of the consciousness) and the physical body.

Another aspect that suggests that the occurrences of somatic repercussion of the VS are a common condition is the observation (through personal experience of this author and other people's reports and publications (Trivellato, 2014)) that the great majority of the VSs experienced by the consciousness when in coincidence with the physical body are felt also in the body, or at least as physical sensations (for the less sensitive individuals towards subtle energies, those would anyway be felt mainly on and by the physical body). This observation points to the logical assumption that,

since the sensations and – or at least some – energosomatic effects manifest frequently (and at times intensively) on the soma, the VS probably also produces changes on the soma that can then be measured.

4 Objectives of the research

The experimental development of studies in this area has sufficient merit, since it would allow for promoting the following possible relevant results and discoveries, among others. So, within a broad view, in short, mid and long terms, the objectives of this line of research are:

- Create means for the detection of bioenergy;
- Measure such bioenergy;
- Gather a sufficient number of different and converging evidences that support the theory of objectivity of the bioenergy (see hypothesis 1);
- Investigate its characteristics and properties and establish the general laws that govern it (analogy: history of the study of electricity and magnetism up to the Maxwell equations) to create a theoretical framework (able to predict findings) for understanding of bioenergy within a multidimensional view of the nature of consciousness;
- Understand the biological and, more specifically, neurological effects of bioenergetic processes, like the VS, and bioenergy in general;
- Identification, categorization and description of the neurological effects provoked by the VS or concomitant to it (see hypothesis 3);
- Demonstration of the VS as a real and objective energetic phenomenon (see hypothesis 2);
- Characterize the VS as a stand-alone state, different from other neurological, physiological or mental states;
- Collection of data and findings for a better comprehension of the VS itself;
- Better understanding of the processes and factors involved in

the development and effective installation of the VS, allowing for the generation of more effective didactical methods and more exact descriptions, capable of promoting better energetic self-control for the community of practitioners of the VS technique;

- Classification of the VS according to the level of effect on the soma, and then according to the types and intensity of the repercussion on the energosoma and other vehicles of manifestation;
- Clarify the mechanisms of the interfaces psychosoma-energosoma-soma and parabrains-brain (hard problem of consciousness), so understanding how the consciousness (a non-physical entity) interacts with the physical dimension, or, in other words, how it can control and sense the physical body and universe;
- Search for and development of new therapeutic applications of the VS in particular and bioenergy in general;
- Build a bridge between the study of consciousness under a multidimensional paradigm and the more specific neuroscientific approaches, enriching both sides.

5 fMRI experiments

The somatic and inter-vehicular repercussions of the VS and other bioenergy procedures and regimens can in principle be studied according to different criteria and techniques. The ideal would be through a bioenergy technology that would allow for the direct detection and measurement of the energies. However, this technology does not yet exist. With regard to indirect methods, due to its advanced design and the fact of being based on a pure quantum effect (the alignment of nuclear spins in a magnetic field) the fMRI seemed to be a good choice for initial tests.

In other terms, to allow for the realization of a more objective exam of the effects of the VS and the systematic comparison of the results, the most effective and consistent method seemed to be the detection of the neurophysiological alterations of the practitioner through the best technology for analysis of neurological functions

available today. This is also because the method allows for the easy replicability of the experiments by any researcher (even those with a more skeptical approach or who has never felt or produced a VS).

So, the fMRI experiments were performed by the author in 3 series, as listed below, using MRI systems graciously lent by generous clinics and radiologists in Brazil, which allow their use over weekends and other free periods of time when the systems were not being used to perform clinical exams. Also, the chief radiologist of each clinic took part on most or some of the experiments of each series, monitoring the results and contributing with suggestions and advices. Furthermore, MRI technicians were made available for the running of the tests.

- Series 1: 2009-December – 1T Philips machine (at the Clínica Radiológica de Anápolis, with Dr. Paulo Eduardo de Jesus);
- Series 2: 2010-March – 1T Philips machine (at the Clínica Radiológica de Anápolis, with Dr. Paulo Eduardo de Jesus);
- Series 3: 2014-December – 3T Philips machine (at Ultramed Clinic, in Londrina, with Dr. Fábio Takeda).

As explained before, these experiments started with the initial objective of studying neurological changes of the brain during the VELO procedure and consequent VS. Nonetheless, as it will be better explained later it widened to encompass also the effects of bioenergy over matter and the mechanism of consciousness-matter (so far observed on water solutions, potato and egg) interaction via bioenergy.

Basic protocol

Each individual experiment (data acquisition session of the fMRI system) was planned to be divided in 3 periods, in the following way:

- 1st period: initial resting (inaction) with the subject or “energizer” just being as relaxed as possible, but conscious, to establish a baseline or reference state;
- 2nd period: action (which was different for each group of experiments or sessions);
- 3rd period: post resting (inaction), with the subject or “energizer” just being as relaxed as possible again, but conscious, to establish an afterglow or a second reference state but also to

test any possible lingering or delayed effect of the previous action period.

The average duration of the individual experiments was of 3 minutes, divided equally in 3 periods of 1 minute.

As it is the case in all fMRI tests, at the beginning of each series of experiments with a subject, being a person or object, a regular MRI test for static, anatomical data acquisition, was run, which would take between 40 to 50 minutes. Later, the fMRI (BOLD) tests were run and the images imposed over the static or “anatomical” images.

In the cases when people were being the subjects, after the static MRI imaging, a standard “finger tapping” test was run to verify the proper functioning of the system, adjusting the parameters to avoid a too low sensitivity (that would cause no images during the action phase – in this case just the “finger tapping”) or a too high sensitivity (that would pick noise or artifacts images during the inaction periods).

As in many experiments of this type, an intercom between the experiment (MRI) room and the control room where the researchers and the computers were was used to guide the subject actions and to facilitate and enrich many of the results, for allowing, among other possibilities, that the subject announces to the researchers beforehand of what he wants to do, or what according to him just happened or, yet, what is taking place at that exact moment.

The procedure for the attainment of the VS (through the VELO technique) presents a certain complexity in terms of the several mental commands applied and their synchrony, when compared to other simpler actions such as moving a finger or seeing a colored light. For this reason, when it is taken into consideration also all the procedural vices and bad habits used by many practitioners of the VS, the necessity of establishing a protocol with strict criteria that allows for the isolation, and later removal, of those interferences from the ‘pure’ VS becomes important. Otherwise, such factors could generate spurious effects in the results of the research.

The recording and analysis of the brain activity in certain stages described below (apparently disconnected of the objective of the bioenergy experiments) have the purpose of working as a ‘control’ reference for the analyses, since they will allow the comparison of

the results with the data obtained from the voluntary and correct application of the VELO and possible installation of the VS with great intensity.

So, as previously proposed in by the author (Alegretti, 2008), for phase 1 of the experimental protocols, during the “action period” the following actions were performed:

1. Relaxation/rest only (so, resulting in continuous inaction during the 3 periods);
2. Conscious and voluntary rhythmic inhaling and exhaling only (as some people do while trying, erroneously, to perform VELO) - slow in the beginning and then with its gradual acceleration;
3. Conscious and rhythmic moving of the eyes up and down, with the eyelids closed (as some people do while trying, erroneously, to perform VELO) - slow in the beginning and then with its gradual acceleration;
4. Visualizing or imagining the rhythmic movement of bioenergy up and down, slow in the beginning and then with its gradual acceleration, simulating VELO, without real intent to move energy;
5. Scanning of the perception of the sensations of the body, up and down. In other words, only sweeping of attention and perceptive focus through the soma - slow in the beginning and then with its gradual acceleration. In this case, the subject tries to concentrate exclusively on the existence of the part of the body that is being focused on. Such focus will move smoothly, continually and cyclically up and down along the body (from feet to head and vice-versa);
6. Effective installation of the VS through the correct and vigorous application of the VELO.

In accordance with the above discussion, the protocol here presented can be used with any data collection resource, like fMRI or EEG, or even, in the future, with a direct bioenergy detection system.

Even though the procedure described on Stage 1 is unnecessary for the production of the VS (though not counterproductive), its recording and study are essential to establish the baseline, meaning, the specific basic resting neurological condition specific and

particular to each participant. This resting condition will be an important reference for posterior comparisons and analyses.

The six experimental steps here described were planned to make possible, in the data analysis, the basic strategy of subtracting from the data set relative to Stage 6 the signals obtained in the previous stages, determining in this way the profile of the VS itself, separating its neurologic ‘signature’ from the other associated neurological processes, be them natural or derived from the technique application (assuming here that the neural structures supporting cognitive and behavioral processes combine according to a simple additive logic).

The steps described in the Stages 2 to 5 aim at simulating a pseudo-execution or erroneous execution of the technique of installation of the VS, having been inserted to take into consideration also the habits (some of them inappropriate) common in the application of the VELO technique. Evidently, the data obtained during those stages have the objective of being more than just ‘noise to be removed’, since the careful analyses of those can lead us to a better understanding of the mechanisms of the technique of the VELO and of the pros and cons factors to the attainment of the VS. Furthermore, they will allow for a clearer verification of the influence or not of those somatic or mental ‘crutches’ over the execution of the VELO and the VS.

6 Description of some of the results

With VELO and VS

For the actions listed above, during 2 through 5 there was no relevant difference when compared to the “action” 1 (whole session of resting) or the inaction periods before and after each of those respective actions (there was very little or no BOLD activation).

VELO produced significant BOLD activation and when VS occurred the activation was comparatively stronger.

During VELO, and even more during VS, there was intense activation of many and different areas of the brain (see Figures 1 and 2), distinct from and perhaps even stronger than that of normal

actions or tasks, but certainly stronger when compared to the previous finger tapping (see Figure 3).

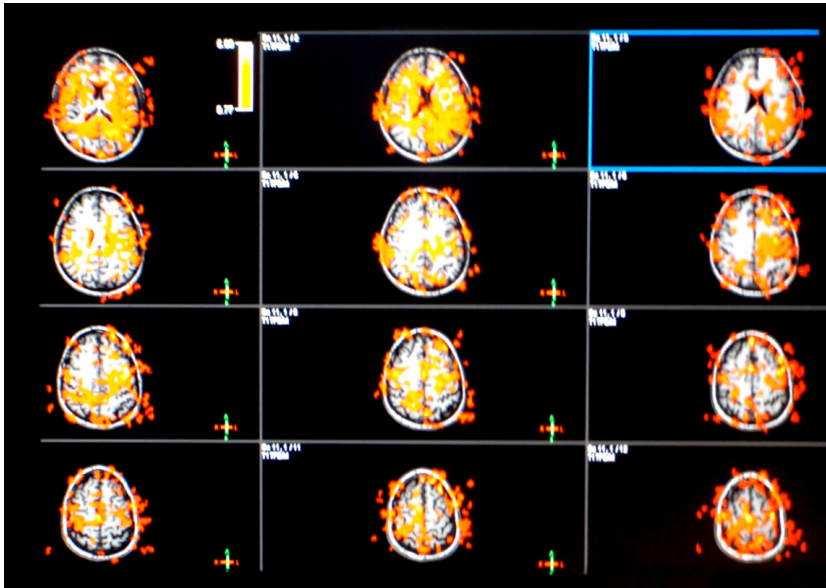


Figure 1 The fMRI images of the brain during the VS, with an intense and generalized BOLD activation (series 1).

Up to this moment it was not observed any specificity or pattern of active areas of the brain or cerebellum, for the same subject or even across different ones. For the VELO experiments, the subjects were: *Nanci Trivellato*, *Luis Cláudio Gonçalves*, and the author.

During VELO and VS, images (BOLD-like signal) appeared outside of the skull region, something that in principle should not happen. The first explanation was obviously of artifacts. Nonetheless these extra-cranial signals remained consistent throughout most of the VELO-VS sessions during series 1 and 2, but not during series 3. It is important to remember that the coil room (exam room, where the subject stays during the tests) is heavily shielded to avoid interferences, inwards or outwards. Even the possibility of a shower of cosmic rays was considered, but it was discarded when the same effect repeated many times.

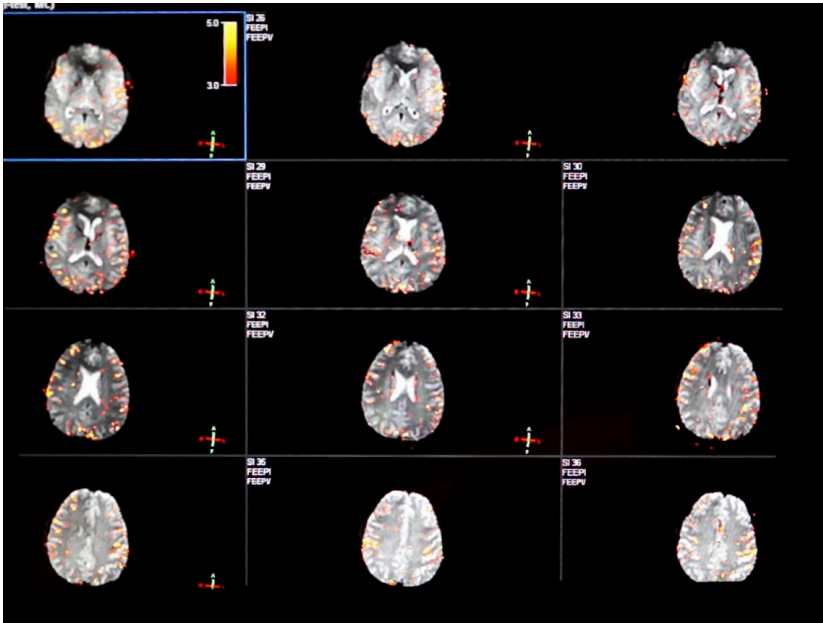


Figure 2 The fMRI images of the brain during the VELO, with a widespread BOLD activation (series 3).

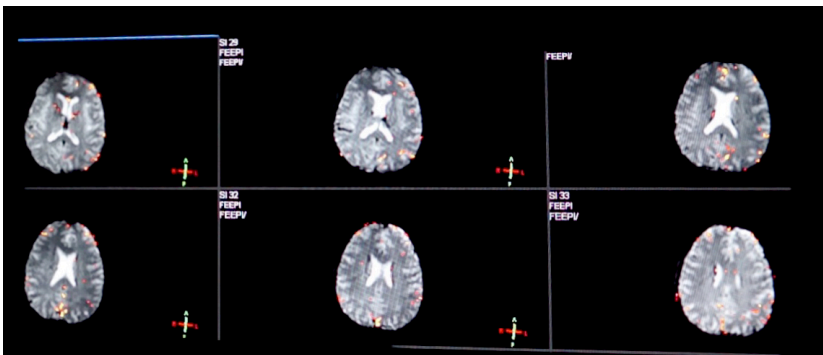


Figure 3 The fMRI images of the brain during the execution of the “finger tapping” (series 3).

It was considered that small head movements could have provoked the out-of-the-head images. During the series 1 and 2 the radiologist said he reviewed the data and confirmed there was no movement. Even so, extra experiments were conducted to try to control

for that and the subject, during the action period, produced small amplitude and fast trembling of the head by contracting strongly the neck muscles, even more pronounced than any micro movements possibly produced during VELO and VS. A few and faint BOLD images were produced out of the head, but significantly weaker than with the real VELO and VS.

With externalization of bioenergy

Expanding from the original plan of studying initially only the VELO procedure and VS, due to the unexpected finding of the out-of-the-head signals, it was decided, already at the series 1 of experiments, for the subject to actively exteriorize bioenergy from the head. The result was the production of out-of-the-head images even stronger, across all experiments of this sort (Figure 4).

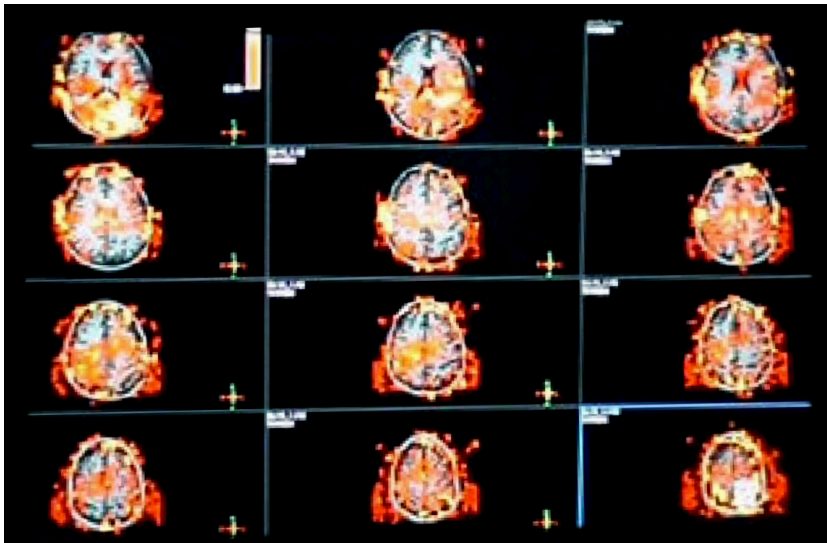


Figure 4 The fMRI images of the brain during the execution of exteriorization of energy from the head (series 1).

To go deeper on this possible important finding, of apparent direct effect of bioenergy over a non-organic (and no living) medium, the author, also the active subject (the “energizer”) for this particular series of experiments, had the idea of using a MRI phantom as the “the fMRI or passive subject,” inside of the secondary coil (the one

normally put around the head of the person when under MRI examination). The phantom used during the series 1 and 2 (Figure 5) was basically a plastic bottle with water containing copper sulfate, sodium chloride, sulfuric acid and *arquad* (a surfactant and preservative agent).



Figure 5 The liquid sample used in the experiments of series 1 and 2.

With the phantom inside of the coil and the energizer lying on the bed with abdomen down, arms stretched above the head with both hands positioned out and at the sides of the secondary head coil, the experiments were run (Figure 6). The hands were kept out to avoid or at least reduce any possible influence of hand movements or blood circulation changes during the “action period” of the experiment. A strong BOLD signal occurred again, during the energization period, which stayed and got slightly stronger even during the 3rd period (Figure 7). This result was confirmed with all of the other repetitions (sessions) of the same type of experiment. During the sessions with no externalization of bioenergy during the “action period”, but with exact the same setup, (meaning with hands still at the external side of the secondary coil surrounding the phantom) there was no BOLD signal. So, the mere presence of the hands was not producing BOLD signal and corresponding images.

During the 3rd series of experiments (3T machine) a different phantom (the one available) was used. It was spherical and the solution was of water and chromium chloride. Surprisingly and unexpectedly there was no relevant result. This could be because the

head-neck coil was being used (see the discussion in the next section) or due to the specific chemical profile of it.

During the 3rd series of experiments a potato was also used. No relevant results were obtained, just a few very little groups of pixels of BOLD image (Figure 8).



Figure 6 The experimental setup for the transmission of bioenergy to the reference phantom (series 2).

Also, during the 3rd series of experiments an unfertilized chicken egg (off a common type from a supermarket) was further used. The results obtained were the most significant, for being very intense and very synchronic with the periods on and off of the experiments. To get results even more reliable, in this case the hands of the energizer (the author) were kept not at the sides of the head coil, but further down along the bed, about 10 cm far from the base of the coil. During the first inaction-resting period there was no BOLD activation. Then, 4 seconds after the beginning of the energization (transmission of bioenergy to the egg) the BOLD signal starts to appear, and it keeps intensifying up to the moment the energizer receives the instruction to stop. Then, after about 5 seconds the signal starts to fade until it

disappears. During the activation the BOLD image revealed an internal structure inside of the egg (not noticed before), mainly inside of the yolk. See Figure 9 (before) and Figure 10 (during).

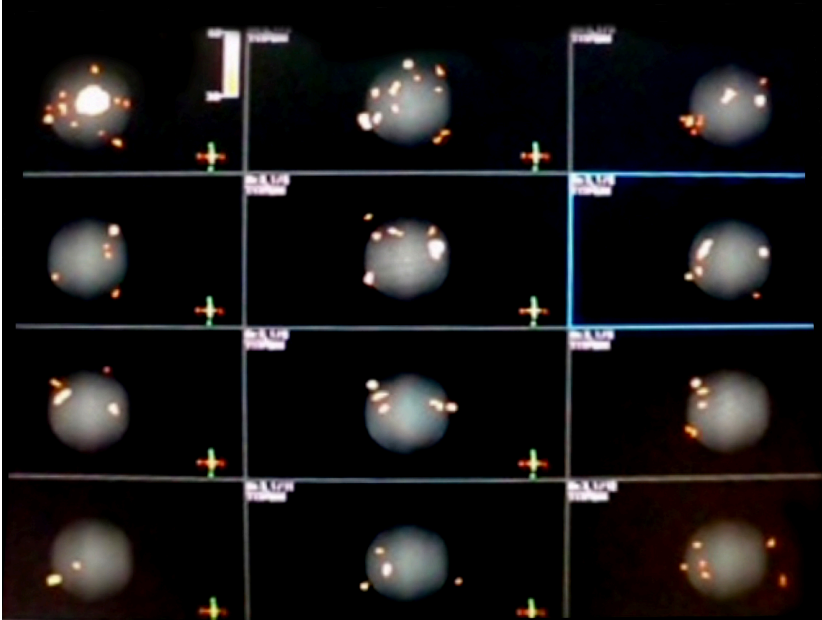


Figure 7 The fMRI images of the reference phantom during the bioenergy transmission by the energizer (series 2).

Successive experiments with the same egg and energization procedure started to show a growing tendency for lingering effects of the bioenergy. In other words, with each experiment of this type there was a stronger and more lasting BOLD activation after the cessation of the exteriorization of bioenergy.

7 Preliminary analysis and discussion of results

The MRI head coil is more sensitive than the head-neck coil and should be the one used in this kind of experiments. The sessions

performed with a head-neck coil, used only at the beginning of the 3rd series of experiments, with the 3T system, produced no relevant or reliable results. All experiments done with that coil had to be repeated with the head coil. In spite of knowing that the head-neck coil was somewhat less sensitive, it was used to try to observe a wider area of the body and around of the head.

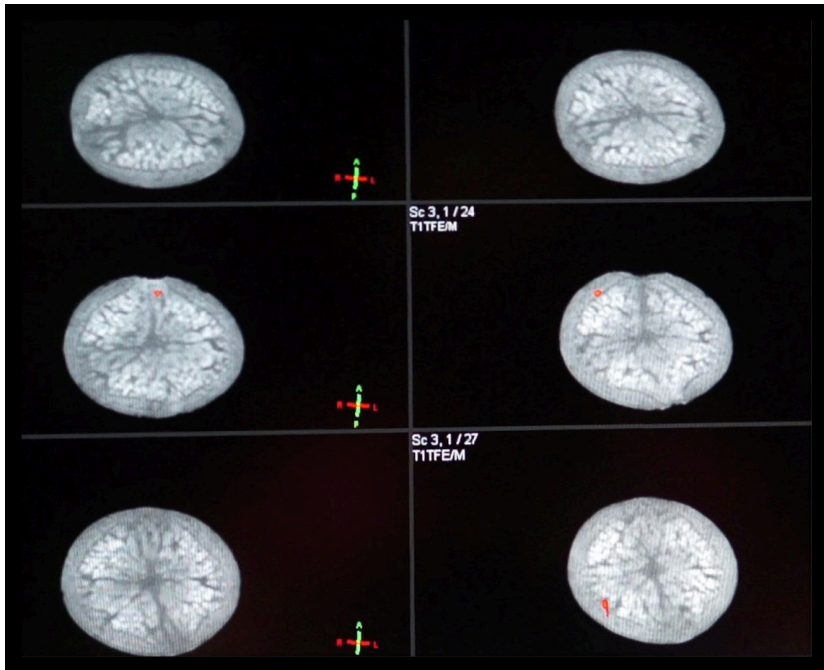


Figure 8 The fMRI images (detail) of the potato during the bioenergy transmission by the energizer.

In respect to the out-of-the skull images during VELO and externalization, could the intensified bioenergy field around the head be altering the MR (magnetic resonance) properties of one or more of the gases of the air (related to their spins or collective behavior of its molecules), to the point of producing a BOLD-like signal that can be picked by a machine able to detect magnetic variations, in a way similar to what happens with the hemoglobin? If so, which gas(es)?

The same effect occurred with the phantom. Was the bioenergy

acting equally on all the different types of atoms or molecules of the constituents of the phantom or more/only on one or a few of them? Which ones would be more responsive to the bioenergy? If such, what kind of “artifact” could be produced that way?

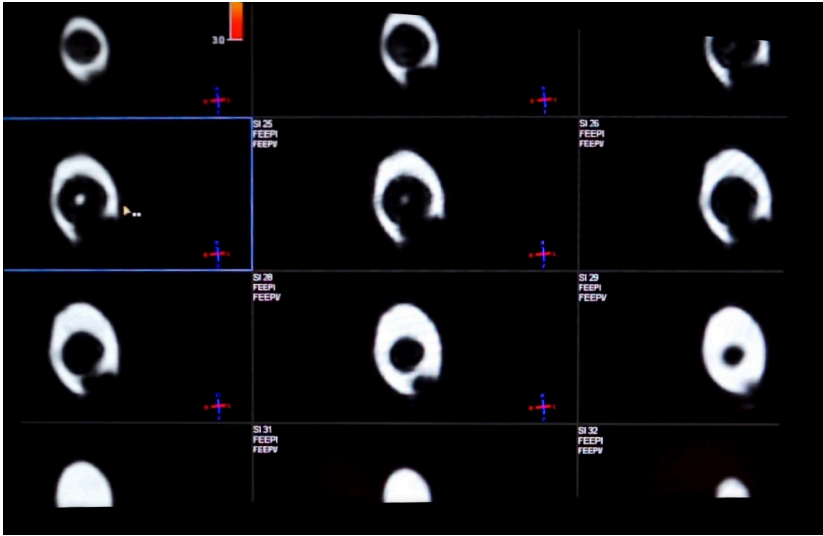


Figure 9 The fMRI images of the egg before the bioenergy transmission by the energizer, where no BOLD signals are detected (series 3).

In the case of the chromium chloride phantom (3rd series of experiments) the absence of BOLD activation could be because the head-neck coil was being used or due to the specific chemical profile of it. Also, if the activation seen in the other experiments was just artifacts (caused for instance by hand movements), why it did not happen in this case?

It is of course necessary to repeat this kind of experiment with many different types of MRI phantoms, preferably always using a coil of same sensitivity, to look for possible patterns.

Why there was such a little result with the potato? There is water and many complex molecules in it. Why none of them reacted significantly to the bioenergy that particular time? Again, if the activation seen in the other experiments was just artifacts (caused for instance by hand movements), why it did not happen in this case? Why there was such a strong effect with the egg? Why, with the

bottle phantom, different from the egg, there was no lingering activation after cessation of the energization? It was because of the medium per se or it could be due to a particular difference in the data acquisition, analysis and presentation by the fMRI system? What is the physical mechanism (detectable via the fMRI technique) that could explain these different observations? In that respect, it is interesting to observe that the spin of subatomic entities, which is at the origin of the changes in magnetization observed via the fMRI technique, is a quantum observable having no classical analogue. Could it be then that the spin, with its typical non-spatial properties (Aerts & Sassoli de Bianchi, 2015), could provide a sort of bridge between ordinary matter-energy and the more subtle bioenergy?

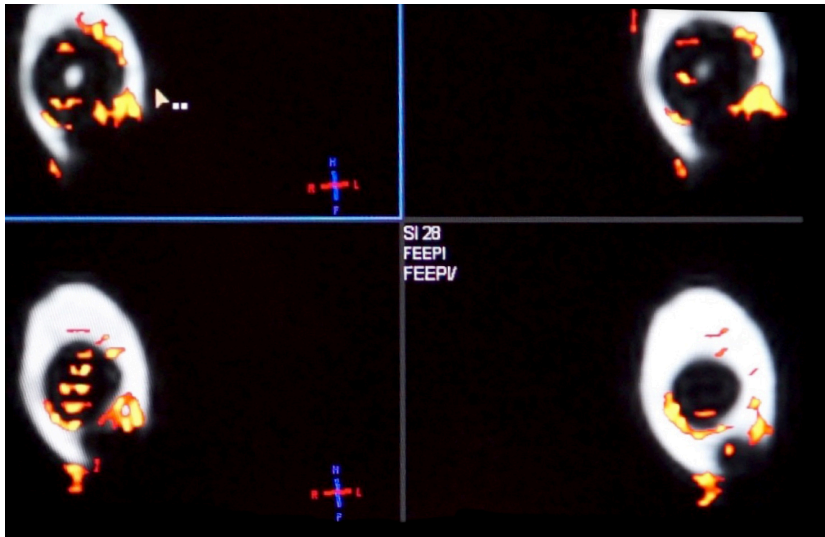


Figure 10 The fMRI images of the egg during the bioenergy transmission by the energizer, with the presence of a strong BOLD signal (series 3).

As for the BOLD image revealing an internal structure inside of the egg, mainly inside of the yolk: Which substances predominate there, that can be easily activated by bioenergy? Perhaps some specific proteins that could be used in further experiments, to provide a more efficacious transducer (as discussed earlier), without the need for the complex fMRI.

If the lingering effect of the bioenergy is confirmed, would it change with different materials? Will it be possible to indicate different bioenergy decay rates, for different materials?

The occurrence of activation (BOLD images) in the air, bottle phantom and egg bring the very important question if the images detected in the brain during VELO and other bioenergy procedures are the result of the mind-brain action of moving the bioenergy or if the brain is being affected by the bioenergy (or a combination of both things)? Can the brain (a physical organ) act on the energy of the more subtle bodies of the consciousness or is the opposite (or a combination of both things)?

As seen with these preliminary experiments, they still mix neurology, biology and physics in a way that is still difficult to separate their respective domains of study. It is necessary to design experiments to isolate them as much as possible.

Under the very strong field of the 3T machine it was very difficult for the subject (the author) to “work” with or to move his bioenergy. Why? Was this due to the effect of a magnetic field 3 times stronger than with the system used during series 1 and 2? Or, could it be due to other yet to be identified physical factors, or also non-physical ones, like the holothosene (information-energy matrix left by previous patients) of that particular machine?

It is worth mentioning that the limitation of time has been always an important constraint (for all the 3 different series) as the time available was not enough to run as many sessions of the same type as it would be ideal, or changing subjects for all of them.

Experiments are still somewhat exploratory. There is so far no theoretical framework with some specific predictions to be tested. This certainly does not invalidate the experiments and their relevance. Many important scientific discoveries and progresses happened this way, like with the famous Maxwell equations, describing electricity and magnetism in a unified way, which could only be derived following a series of exploratory experiments done by Volta, Galvani, Faraday, Marconi, Hertz and many others. Quantum mechanics is another example of a theory that was created to deal with otherwise unexplained experiments, like the black-body radiation, the photoelectric effect and the electromagnetic radiation absorbed and emitted by atoms. And of course, physics is always facing new explanatory gaps, requiring new theories, as is the case for instance

today with the unexpected experimental observation of the so-called dark matter and dark energy.

8 Future experimental steps

Based on the results obtained so far and also on the experience accumulated, the author plans to conduct the following steps, in short, mid and long terms:

- Comparison with EEG experiments, under similar conditions (as described earlier, a pilot study is already on the way).
- During the next fMRI experiments, to focus more immediately on effects of bioenergy on materials, not the brain, for initial simplicity and better control of the experimental parameters, to gather knowledge for better understand, later, about what happens in the brain, discriminating what is cause and what is effect.
- Perfect protocol and technical conditions of the experiments, incorporating suggestions and criticism collected after publication of these preliminary findings and analyses.
- Test different materials to find very responsive to bioenergy. Based on the egg experiment, it could start with pure proteins like albumin, collagen or laminin.
- Use a 9T fMRI system (9 times stronger than the machine used in series 1 and 2, and 3 times the one used in series 3), to evaluate the effects of a more intense magnetic field over all the previous preliminary findings. For example: would it be even harder for the subject-energizer to move energies inside of such a machine?
- Develop a protocol to measure intensity of the bioenergy based on the BOLD technique: standardize conditions, identification of an appropriate scale, quantitative analysis of the fMRI image, etc.
- Test effects of: time decay of the bioenergy activation; bioenergy accumulation; distance between energizer and medium; different materials put on the way, between the energizer and

- the medium.
- Expand the fMRI and similar experiments to a wider and more diverse group of subjects or practitioners, to find common characteristics and determine average values.
 - Deepening of the research of other energetic maneuvers.
 - Third-person experiments and research of out-of-body experiences.
 - Broadening of the research via the study of the possible spontaneous occurrence of the VS in animals and the effects of bioenergy transmission to them.
 - Comparative analyses (cross-analysis) of the fMRI study with the results of other similar researches (with the same objective, however, with different methodology), such as for instance, surveys, individual interviews, and bioenergy evaluation of the subjects by sensitive and experienced bioenergy workers (as the research conducted during IAC's course 'Goal: Intrusionlessness') (Trivellato & Alegretti, 2005).
 - Experiments with the protein transducer; Reich based instruments; gas discharge devices (Korotkov devices), for comparison.
 - Neurological analyses of the VS and bioenergy procedures through the use of other technologies, like, for instance:
 - PET scan (Positron Emission Tomography)
 - fNIRS (functional Near Infrared Spectroscopy)
 - Analyses of other effects of the VS and bioenergy (endogenous or exogenous) on the soma:
 - biochemical changes: hormonal and metabolic
 - influence over the immune response
 - epigenetic changes, or the pattern of expression of genes (which ones would be activated; which ones would be deactivated; mechanisms of these changes)
 - Development of a portable and simpler NMR device specific for bioenergy detection, measurement and analysis, as the size, price and complexity of the medical MRI system is a direct result of the need of a big hole in the main magnet for a person to be put in and also for the generation of 3D image for clinical diagnostics.
 - Development of a Bioenergy Technology, analogous to the development of the mechanical, thermodynamic, electrical-

- magnetic, and information technologies.
- Test the hypothesis of ectoplasm as being an exotic state of the matter, as it seems to be many times created by bioenergy action.

9 Possible future applications

From the accumulation of data, the expansion of collection of case studies, the widening of the knowledge about the phenomena, and especially the establishment of average values and behaviors of the VS and bioenergy procedures through the examination of the greatest number possible of participants, it will probably be possible to develop the following practical applications, among several not yet glimpsed:

VS confirmation. External detection and confirmation of the VS in any person, including those that are still developing their specific parapsychomotricity, and therefore are not yet confident or lucid about their experiences, diminishing in this way the possible doubts about the existence or actuality of their VSs.

Energometry. Measure, indirectly through the neurophysiological measurement or directly through bioenergy transduction, of the power and broadness of the VS or the intensity of the transmission or absorption of bioenergy, also allowing the practitioners an initial feedback to facilitate their development.

Qualification. Analysis of the quality of the VS, through the indirect measurement of the attributes associated with its generation, such as: quantity of bioenergy, velocity, rhythm, broadness, cohesion, activation and others (Trivellato, 2008).

Intraphysicality. Determination of the degree in that a specific VS is physical (or has a somatic repercussion). It is anticipated here, for example, possible cases in which the participant has a VS that operates or happens mostly in other more subtle vehicles. In such cases, the cerebral analyses could indicate weak signals in where the participant could be convinced of having experienced an intense VS, but yet, subtle. The occurrence of a true VS could be confirmed by an external agent (researcher sensitive to bioenergies, able to measure

the VS and its intensity), as to confirm the existence, in this case, of a VS with less interface or action over the physical vehicle, or through a direct bioenergy transducer, when and if available.

Mechanisms. Better understanding of the mechanisms and correlation of the factors that intervene in the VS and other bioenergy procedures: positive or negative; endogenous or exogenous.

Classification. Possibility of characterization and contextualization of different types of VS and bioenergy regimens.

Projectability. Possibility of detection of the imminent projection, when it is associated with the occurrence of the VS (a common condition for many lucid projectors). In certain cases, this detection could be used to generate the extraphysical awakening of the consciousness and to help in the obtaining of lucidity and control of the projection (in case the VS happens during takeoff), or yet to help stimulate the recollection of the projective experience (when the VS happens during the return to the soma). In other cases it could allow for the objective and technical study of the lucid projectability by researchers of Projectiology. A sensitive bioenergy transducer could in principle detect directly the presence of a person out of the body, for instance in a separate room from the latter, or by the bioenergies changes around his physical body. This could be the so much sought objective proof of the OBEs.

Biofeedback. The development of a supporting technology, in the form of biofeedback, which would facilitate the beginners to develop the ability to generate the VS or other bioenergy actions. In a way, compared to the topic 1, is like the relation that exists between medical EMGs and more specific instruments that help people to relax, or EEGs and the simpler instruments that can help people to enter and stay in alpha.

Training. Perfecting of the teaching method of the VS and other bioenergy techniques. All the findings obtained through this line of research would be used to improve the techniques per se and also the clarifications for their application, right from the beginning of the teaching process to the neophytes. Clearly it would help also those already working with VELO to perfect their personal technique.

Therapy. Improvement of certain therapeutic and self-therapeutic

techniques. Given the importance of the VS and control of energies as holosomatic homeostatic resource (physical, energetic, emotional and mental balances), and as an energetic self-defense technique, it would be evident the application of the findings in this line of research aiming the integral health of the consciousness.

Bioenergy technology devices. Support to the development of a *Bioenergy Technology* with many possible applications, most still to be envisioned. It would contribute for research and development of bioenergy apparatus capable of interacting or dealing directly with bioenergies. According to the type of transduction, these applications could be divided in 3 groups, listed below, along with a few examples (here only considering, for simplicity, electromagnetism as the physical form of energy, as it is undoubtedly the most widespread in technological applications):

No transduction: absorbers, accumulators, conductors, insulators, switches, regulators, amplifiers

Transduction of bioenergy into electromagnetic energy: sensors or transducers capable of detecting and measuring bioenergy could be the basis of instruments such as: bioenergy-meters to assess peoples', animals' and plants' level of vitality and health; devices for medical analysis (equivalent to the Star Trek tricorder); bioenergy-meters for natural and artificial environments; more advanced means of communication, perhaps able to overcome the limitations of current systems; bioenergy imaging devices (cameras based on a "bioenergy CCD"); imaging of the interior of the body and even chakras, aura and meridians; remote sensing satellites for bioenergy geographical surveys; telescopes capable of taking pictures of the still invisible realities of the cosmos, perhaps even other dimensions; and instruments that could prove objectively the reality of out of body experience (astral projection), coming closer to the evidence of consciousness as other property of the universe, independent of matter.

Transduction of electromagnetic energy into bioenergy: devices capable of: generating bioenergy fields that can vitalize people, heal the sick, clean houses and environments; approximate dimensions or even build bridges between them; convert matter into ectoplasm, and vice-versa, enabling dematerialization, rematerialization, recycling

of waste and other materials and even teleportation.

Paratechnology. The development of all these 3 forms of bioenergy technology could progress to a point in which it could work as an intraphysical interface with the extraphysical paratechnology.

10 Conclusion

The preliminary results so far are encouraging and point to real results as for the objective reality of bioenergies and their role in the consciousness' action over the brain and other forms of matter, and should be seen as meriting further experiments by other researchers looking for sustaining or falsifying these findings and their interpretation. It is very important to continue and progress with further experiments.

It is essential to emphasize that these results cannot yet be taken as definitive proof (if such a thing exists) of the objectivity of bioenergy and its manifestations. It is necessary that several other open-minded researchers replicate (repeat) these experiments. If they reach the same or similar results, then a greater acceptance of these findings would be achieved, first within the informed scientific community and then the general population.

If these findings are replicated and proven, they will cause enormous impact on physics, science in general and philosophy - that is, it would be evidence that consciousness is objective and independent of matter and is able to affect it and change some of its characteristics (even possibly at the level of protons and neutrons). This would inaugurate a new field in science and technology.

As discussed, the deepening of the study of the possible mechanisms of interaction between bioenergy and the BOLD and MRI techniques can inspire the development of better and more specific or dedicated systems for bioenergy detection and also for the creation of an explicative and predictive theoretical framework for the conceptualization and understanding of bioenergy.

Nonetheless, the main consequences would not be in the areas of technology, convenience or human comfort, but in the areas of philosophy, holistic comprehension of the deep nature of reality and

of our understanding of ourselves as multidimensional consciousnesses. Perhaps it would even reinforce other evidences that humans (and other living beings) are transcendent consciousness, so that, similar to the NDE (near-death experience), it can help people to improve their worldview, consciential maturity, personal principles and collective ethics, ushering in a true golden age of human civilization.

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