



ELECTROMAGNETIC FIELDS IN THE HEALING PROCESS

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Ishi, the “last Indian” told Theodore Kroeber that the greatest inventions of Westerners living in San Francisco in the 1930’s were matches and plumbing. Evidently, he didn’t think too highly of automobiles, or the magic of the West: Electricity. In the classrooms of our childhood, we watched the films about how wonderful electricity is, and as adults we become agitated when the power goes out, as our lives effectively come to a halt. We generally don’t give much thought to the fact that we are flooded in an electromagnetic environment of both natural and artificial sources, as we consider that none of our senses noticeably respond to electricity. However, there is a growing body of evidence which suggests that all organisms are affected by electromagnetic fields (EMF), from the DNA level up to inter- and intra-species interactions. All of our senses respond to waves, we just choose to ignore our perception.

There are numerous speculations about electromagnetism’s relationship to telepathy, empathy astrology, the energetic concepts of “Chi”, “Kundalini”, and “Num-Cha”, even to the construction of the Ark of the Covenant. While these ideas are often fascinating, this article focuses on recent scientific investigations aimed at elucidating the link between living organisms and EMF with a particular emphasis on health related issues.

Quantum Life

A great paradox of education is that the more one seems to understand a subject, the less one knows about it. Such is the case with Western science, as we can describe such incredible phenomena as the origin of the universe, yet such seemingly obvious concepts as fire, pain, or life evade articulation. For the purposes of most medicine, it’s usually enough to make the assumption that “life exists” and be done with it. For a physician, the expectations of the patient together with his or her experiences serve as the starting point. Today, science is able to detect and classify homeostatic activity as far as the cybernetic cell-control mechanisms of a single cell carried out by biophoton emission from the DNA.

As the study of bioelectromagnetism is in its infancy, it is important to establish certain terms and conventions, even though there is still no unified theory of bioelectromagnetism.

The contract for Faust's bargain was that as soon as he stopped his movement, he would die. In this sense, dynamics can be considered as life. In the late 1930s, Wilhelm Reich summarized his studies of sexual functions and bioelectrical experiments with primitive microorganisms (protozoa) by introducing the concept of the "bion" the fundamental unit of life, quantum life. A bion is a system, a pattern formed in a biologically important solution (collagen, glycerol) which is so similar to living organism's structure-formation behavior that it is not clear whether the system is a primitive form of life or merely physical and chemical changes in the solution. Reich's intuitive, non-mechanistic construct of life holds dynamics as the defining factor.¹ (A brief survey of Reich's forerunners can be found in ref. 2 and his followers in ref. 3.)

All organisms radiate a very low intensity endogenous electromagnetic field (EEMF) in the range below 1 Hz up to 10^{15} Hz, as a result of biological processes. Electrolytes move in an organism (e.g., via the circulatory system or within cells) and create an electromagnetic field. Low frequency fields are generated in cells from the alteration of protein configurations, changes in the amount of lipids, and across cell membranes due to the migration of ions. High frequency fields are generated by enzymatic peroxidation, ATP production, the Krebs cycle, and natural luminophores in nucleic acids and proteins. These high frequency radiations from cells are what Fritz-Albert Popp has termed "biophotons".

Another of Reich's terms is "cosmic radiation", which may seem like an unfounded notion at first, but it is merely a construct for the electromagnetic radiation that is emitted by stellar bodies. Probably the most commonly perceived manifestation of the sun's radiation is that radio waves retain their coherence more easily at night, resulting in better reception for your radio or TV. The Earth's biosphere also presents the so-called "Schumann waves" which have a ground frequency around 7.8Hz.⁴ And now with the modern miracles of microwave communication, radar, cellular and portable telephones, broadcasting stations, power lines, and so on, we are swimming in a veritable sea of artificial and natural EMFs.

Yet, the question remains: to what extent are life processes and electromagnetic fields interdependent?



A Re-realization

Westerners have considered electricity and magnetism to be vital to life processes for at least 200 years (e.g., by Mesmer and the 18th-century vitalists). However, aside from the brief spotlight Mary Shelly cast on electricity's re-animational potential, the concept has remained rather dormant for the greater part of the last two centuries due to the success of the mechanistic worldview. This section contains examples of therapeutic EMF applications, as most early observations regarding the effects of EMF on biological systems originated from medical studies.

In the 1930's Nikola Tesla and Georges Lakhovsky constructed the Multiple Wave Oscillator: a generator of life-associated frequencies from 750 kHz to 3 MHz and numerous harmonics, which may extend as far as 300 GHz, (i.e., the infra-red and visible light regions). Lakhovsky rational was, "It is essentially due to the energy of its own oscillation that the cell is able to summon for its needs all these insulating and conducting substances which are distributed to the location where they are required for the maintenance of the life of the cell itself." As such, he postulated that a concentrated focus of these life-associated frequencies would diminish or eliminate oscillatory disequilibrium and induce healing. He reported several successful applications of the device (some medical reports from the 30s are quoted in ref. 5) in cancer treatment and various metabolic disorders in plant, animal and human patients.

Similarly, Reich's notion of "orgone", the EEMF fluctuations which create and arise from bions, led him to construct a therapeutic device, the "orgone-accumulator".¹ It was originally constructed from alternating organic and non-organic substances, but recently layers of rock wool and steel wool are used which is very effective at accumulating certain components of the environmental field of the biosphere in a condensed form inside the device. As such, the organism inside the device gets nourished by certain essential vibrations. Reich felt that giving an organism the opportunity to harmonize the vibrations of its own EEMF would have therapeutic effects. According to Reich, health is characterized by the vital pulsation of this "basic cosmic energy" (orgone) in all the organs, whereas in a dying organism, "first the orgone energy field shrinks, and then the tissues lose their orgone."⁶ Though he used the orgone-accumulator in successful treatment of patients and his experiments with pollen and colloid solutions were not only reproduced in several prestigious universities and institutes, bions and



orgone were considered as Reich's chimeras by the major scientific community of his time.³ Despite the positive results, both inventors had problems introducing their devices into general curative practice, owing largely to the failure to directly detect this energy. Further investigations into the effects of the orgone-accumulator continue presently; and to a certain extent, the work of Lakhovsky and Tesla inspired microwave therapy, which is frequently employed in Eastern Europe and the former Soviet Union.

In 1958 Robert O. Becker began pioneering investigations in further developing an understanding of the electric forces in biology, primarily in bone, nerve and tissue regeneration. Dr. Becker's book, *The Body Electric*, provides an excellent summary and numerous examples of the regeneration investigations carried out by himself and his contemporaries.⁷ Perhaps, the most significant being an experiment where a 1 nanoamp battery was implanted in the stump of an amputated rat foreleg which induced histologically complete regeneration.

Anyone who has had the highly enjoyable experience of intracutan allergy testing, will be loathe to know that Cyril W. Smith and his colleagues Ray Choy and Jean Monroe may put an end to those delightful hours of your physician sticking a screwdriver or needles in your skin in the hope of eliciting an irritation. They proved that most allergic reactions and related diseases present a basic EM component; and successful treatment of various sensitivities can be provided by EMF applications.⁸ Smith writes, "Man has evolved in an environment flooded with electromagnetic radiation of all frequencies, but during the past century various forms of highly coherent electromagnetic radiations have appeared in the environment. Living systems may already utilize coherent oscillations for their own control purposes, thus there are many ways in which coherent oscillations in the environment may interfere with a living system to give rise to an abnormal reaction which may be considered as an allergic response in the widest usage of the term".⁸

It stands to reason that if an EMF can be used to heal, it could also be used to harm, unintentionally or maliciously. M. Blank discusses a medical aspect of EMF effects, where one can accelerate growth and healing, but also an environmental aspect, where the alarming possibility of cancer development, especially in children, is described.⁹ He cites the results of a very-well-controlled study from Sweden, based on actual electrical power used, which has shown that leukemia increases to an odds ratio of approximately 2.7:1 at a magnetic field strength of 0.2 μT (the background exposure is on the order of 0.1 μT in homes in the USA). And at a value of 0.3 μT , the odds ratio jumped from 2.7:1 to 3.8:1. Also



included were data on adult occupational exposure that indicated undesirable health effects for those who work near electrical devices. However, it may be that very high exposures (e.g., for those who live directly underneath high power transmission lines) do not have large biological effects because of so-called “windows effects”, i.e. there appears to be specific (and restricted) ranges of frequency and amplitude where effects occur.⁹

Of Shoes and Ships and Sealing Wax. . .

The naturally occurring fields around biological objects were taken into consideration mostly for nervous system or ECG studies until recently. Kirlian photography, or more properly electrography, uses an electron sensitive layer (rather than a photon sensitive film) to capture the image of the electromagnetic field surrounding an organism, or part of an organism.¹⁰ Several people have carried out studies which demonstrate that the resistivity of human skin drops at precisely the locations associated with the “acupuncture points” used in Chinese medicine.^{11,12} This section describes some representative studies of the interaction of organisms and EMF.

The Walrus and the Carpenter haven’t been the only fellows interested in tricking oysters; Frank Brown challenged the paradigm that circadian rhythms in organisms are linked to either sunlight exposure or tidal activity. In his experiment, oysters in an aquarium with constant light, temperature, and water levels opened and closed their shells in synchronicity with their compatriots who remained on the Connecticut beach. Then the oysters were moved (by Brown) 1000 miles west to in a light-proof box to Illinois where they were placed into an aquarium. Initially, the oysters remained on Connecticut time, but in a few weeks shifted to the would-be Illinois tidal pattern.¹³

In an attempt to trick humans, Rutger Weaver designed an experiment in which several hundred males lived in underground rooms for up to two months in an environment cut off from light, time, sound, and temperature which were initially presumed to be the normal cues of circadian rhythms. The two rooms were identical except that one was shielded from electromagnetic fields; various parameters such as sleep-wake cycles, body temperature, and urine content were charted for both groups, and both groups soon developed irregular rhythms. Those living in the shielded room became thoroughly desynchronized, while those still in EM contact with the Earth’s fields held a rhythm close to 24 hours.



Next, Weaver introduced various EM fields into the shielded room, none of which had any effect save a 10 Hz, 0.025 V/cm field, which restored most of the parameters to normal.¹⁴

The Role of the Morphogenetic Field

After his lifetime's work Frank Brown concluded, "No clear boundary exists between the organism's metabolically maintained electromagnetic fields and those of its geophysical environment."¹⁵ Yet, information obtained thus far is still insufficient to offer a reasonable mechanism for EMF interaction with biological tissue. This is not entirely surprising since the theoretical exploration of EMF interactions with organisms only began about 30 years ago when Fröhlich began to apply his theory of dielectrics to biological systems to describe the propagation of EM signals in a given system. The next logical step in attempting to determine this mechanism after measuring a part of an organism, (e.g., Kirlian Electrography, skin conductivity) is to move to the next level of the hierarchy, the cell.

The theory which inspires many current studies is Alexander Gavrilovich Gurvich's notion of the "vectorial biological field", or "morphogenetic field".¹⁶ Gurvich introduced the notion of the morphogenetic field to account for a wide range of biological phenomena from metabolic processes to the psychic sphere. The field of an "object" carries all the (virtual) possibilities of the object, as well as the possible processes of its "becomings" (i.e., future states). Many investigators, most notably Fritz-Albert Popp and Mae-Wan Ho, have established a link between EMF and the morphogenetic field. The morphogenetic field contains the information of the whole from a part; each cell in a system is a reflection of the surrounding cell's architecture (spatial arrangement) and each cell makes a contribution to the architecture as a whole. Popp introduced the biophoton as a contributing factor in the morphogenetic field effect. The biophoton is a high frequency photon emission (in the UV and visible light range) from a biological object which is then received by another cell, thus facilitating intercellular communication. Multiple studies of biophoton emission from unicellular organisms up to primates demonstrate that cells are influenced by the biophotons from other cells and "respond" with their own (endogenous) biophoton emissions.^{17,18} Ho has demonstrated (with *Drosophila Melaogaster* embryos) that the biophoton flux may have biological significance in the synchronization of development to external light.¹⁹



The morphogenetic field concept is used in Wolpert's theory of positional information, according to which, the spatial organization of cell differentiation changes rather than the cells themselves; any further step of development depends on the spatial network of molecules, cells and tissues at the previous step.^{20,21} Two of the studies of Hippocampus Research Facilities (ref. 22, 23) support EEMF's relationship to the positional information transfer theory. Melanoma B-16 and embryonic cells' information was transduced via a device into target melanoma B-16 cells in the low frequency range, whereupon growth indices of the target cells were monitored for 5 generations. The studies demonstrate that the cells' architecture was altered, and growth was inhibited. The decreased reproductive potential of tumor cells almost two months after the applied influence may testify to an inheritance of the acquired features by the cells, as the cultures of the 5th passage contain no cells from the primary culture that underwent the EMF treatments.

In this sense, the EMF can be considered information; as an organism, or cell, gives and receives information about which genes to express, and how to express them. In order for a biological system to retain its 'wholeness' (here, the use of 'health' is avoided, as it brings up a much larger topic for discussion, 'what is health?'), it needs a constant feedback of information from the environment and from itself, as well as fully functioning communication capabilities.

Communication Breakdown

Hippocampus Research Facility's work is motivated by the concept that the information content of an event (or the data received by measuring certain characteristics of the event) mostly depends on the consciousness (state of mind; degree of participation; degree of believing in separatedness) of the evaluator.

Recently, Louis-Marie Vincent proposed a similar approach to information by providing a conceptual tool adapted to biology.²⁴ According to this concept, a message (transmitted by a means of communication) does not carry any information, only data. It is the receiver which makes an identification by recognizing the forms. We would like to emphasize two points of this approach:

- i) The significance (which constitute the information) cannot be decomposed into elements; it is global and indivisible;
- ii) The subject of information is not a probabilistic "event" which determine a temporal origin.²⁵



In developing a theory for the mechanism of homeopathy, Emilio del Giudice, suggests that the EM information of a substance can be transduced into the surrounding water molecules (for instance, by affecting the field produced by large clusters of molecules), so that when the substance is diluted out, the information is retained in the water. Del Giudice writes, “the homeopathic remedy works only if it is meaningful to the array of previously existing signals in the organism; otherwise it is washed out.”²⁶ William Ross Adey elaborates on this notion of ‘meaningful’ information in writing, “Biological effects of oscillating environmental electric fields are related to the electric gradient which they introduce in the tissue. This will be determined by the degree of coupling between the field and the tissues.”²⁷

This may seem all too convenient to have a self-regulating mechanism where the body can either accept or reject information based on need. However, this ‘windowing effect’ is what Adey realized after studying the behavioral and neurophysiological effects of extremely low frequency (ELF) and modulated radiofrequency (RF) fields as well as the responses of calcium ion binding in tissues to ELF and RF fields.²⁷⁻²⁹ The occurrence of such “biological” electromagnetic windows is also evident from several of the studies described above and from Table 1.^{30,31} The natural dynamic complementarity of the endogenous and environmental electromagnetic signals (frequency, amplitude, phase and the composition of complex signals) ensures a very fine selectivity of the available information from the electromagnetic noise as well as preventing an organism’s “dissolving” in the environmental electromagnetic fields.

A ‘communication breakdown’ may occur when a biological system becomes ‘too tired’ to recognize the windows of ‘meaningful information’ that is needed by the system in order to regulate itself. As humans have simultaneously introduced artificially generated signals (EMF pollution), and relocated the Earth’s minerals and soil and subsequently altered the landscape (and therefore the natural EMF of the Earth), the possibility of a biological system to recognize and select what it needs has diminished enormously since the Industrial Revolution.



Employing EMF in Healing

Metabolic activity depends on the electric properties of membrane potential and environmental EM conditions.³²⁻⁵⁸ Though the “lock-and-key” paradigm is rather well-proved, it underestimates the specific local features of life processes, healing among them. Just as a society cannot be reduced to a sum of individuals, a living organism and its functions cannot be reduced to a set of chemical reactions, even if it were possible to account for all of them. Continuous adaptation to changing conditions, hence continuous readjustment of the parameters of the biochemical reactions inside the body, is characteristic for living matter. Any change or adjustment (with a rate exceeding a certain threshold determined by an organism’s adaptability) is considered a perturbation of the system, irrespective of whether this change is intended to cause or prevent illness. Illness in general generates this communication breakdown within the organism’s functional network. Since living beings are highly integrated open dynamic systems, wholeness in general is maintained by a permanent mass, energy and information exchange. The dynamics of communication are thusly vital for organisms.

When an organism is treated on a more general level of its functional dynamic hierarchy, it is easier to restore the physiological communication pathways within it and thus activate the endogenous healing processes. Alterations in the biophysical parameters, primarily electrophysical, occur at general levels of the organism’s functional hierarchy. Therefore, they are responsible for very subtle intimate mechanisms of the organism’s self-regulation and interlevel communication through resonance (tissue coupling) interactions. Electromagnetic resonance interactions between the endogenous electromagnetic oscillations of organisms are suggested to occur in living systems; however, an attempt to detect them is a rather complicated problem.⁵⁹ Nevertheless, a still growing number of therapeutic devices, which use such kinds of interactions, is elaborated on in ref. 60. For example, the more than 15 years of ‘devices for bioresonance treatment’ utilization in various European clinics evidence their efficacy in the treatment of many diseases.⁶¹⁻⁶⁵ They are designed to use resonance interactions between endogenous electromagnetic oscillations. Every level of an organism’s hierarchy possesses a characteristic spectrum of endogenous electromagnetic oscillations originating from various processes. Intra- and interlevel resonances should occur to maintain wholeness, more or less providing correlations between these processes.



From this point of view a pathology, which may be born at any level, will perturb all oscillations via wave interactions, irrespective of the origin of such waves. The distorted interference pattern of the endogenous waves of a sick organism is a reflection of its improper biochemical processes. Numerous positive experiences in the application of electromagnetic therapy devices makes it possible to assume

that device-induced restoration of the interference pattern will renovate physiological order in a sick organism. The problem is to isolate basic processes (and the frequencies which correspond to their time scales) which are common to all levels of an organism's hierarchy in certain frequency ranges and can thus open pathways of interlevel signal transduction.

Table 2 is a summary of the results of Hippocampus's four-year research project investigating possible mechanisms of the interactions of endogenous and environmental electromagnetic signals. In these studies, various sub-cellular and cellular characteristics were measured under bioresonance conditions. The EEMF of a biological system positioned at the "output" of the device was affected by the device-modified EEMF of the system at the "input".



Table 2. A summary of Hippocampus' results

Process studied	Brief results
The rate of DNA synthesis in human lymphoma cells, and, The doubling time of a lymphoma cell population	Either activated, inhibited, or increased depending on the frequency and amplitude modulations.
Aggrigability of melanoma B16 cells	Either increased or inhibited depending on the frequency and amplitude modulations
The activation of phagocytosis in human blood <i>in vitro</i>	2.8-fold increased by a 500 Hz modulation, Inhibited by 3.7 and 113 kHz modulation
Tumor growth and number of metastases in mice after inoculation of bioresonance-treated melanoma B16 cells	Increased by a modulation amplified 14 or 20 times at 10 Hz; Decreased by a modulation amplified 14 or 20 times at 50-80 Hz
Tumor growth and number of metastases in Strahler-treated mice with sarcoma	Decreased by "Strahler" treatment of sarcoma bearing mice
NMR study of bioresonance treatment's influence from tumor bearing mice on the spin-spin relaxation time of water protons, inorganic phosphate concentration and intracellular pH	Inverted frequencies amplified 12 times change the studied characteristics in tumor-bearing mice towards the corresponding values in intact mice in liver, lung and hypothalamus tissues, whereas in the spleen, this is true only for inorganic phosphate concentrations
ESR study of the free radical content in various tissues of tumor-bearing mice	Inverted frequencies amplified 12 times restore the physiological content of free radicals in liver, lung and hypothalamus tissues
Protein to nucleic acid ratio in nucleoproteid complexes from human blood serum	3-5 times decreased (depending on moudlations) as compared with intact blood
Molecular weight distribution in the blood serum of breast cancer patients after bioresonance treatment <i>in vitro</i>	Certain frequencies induce an irreversible dissociation of serum albumin complexes with oncoproteins

Though the objects of study vary greatly, two features are common to all above processes:

- i) The most pronounced alterations occur within a certain frequency range (the above mentioned "window" effect),



ii) Treatment effect depends on its duration.

It is interesting to note that, for example, a decrease in tumor growth and number of metastases is observed in sarcoma-bearing mice, treated with the “Straher” *in vivo* (Table 2); whereas “Strahler” treatment of sarcoma cell cultures *in vitro* with the following inoculation of treated cells in mice does not result in any antitumor effect. This makes it possible to suggest that the antitumor effect of bioresonance treatment is due to rather the activation of endogenous antitumor mechanisms in mice than to the direct influencing of tumor cells.

A major revolution in the study of the structure and dynamics of matter occurred due to a new generation of all kinds of spectrometers that work by applying a long enough (to involve the whole range of studied frequencies) pulse of energy to the substance under investigation and then following up the system’s reaction (relaxation), thus letting it make its choice “deliberately” (from the point of view of a studied system).

Quite similarly, a more adequate method of the estimation of the state of a human body (diagnosis) is as follows: let the organism make the diagnostic endeavor by itself. From the vast number of reasons for the organism to be sick, it’s hardly possible to be sure of the validity of examinations made according to a doctor’s opinion. This method exposes the organism to a representative range of conceivable hazardous agents then lets the body decide for itself how dangerous each of them is. The use of electromagnetic waves in the diagnosis minimizes the degree of invasion and damage to the body to virtually nothing.

The Biodiagnosis and Biofeedback functions of the Cerebellum Multichannel Medical Instrument (CMMI) provide a fresh perspective on the “health” of a patient. As physicians well know, as many parameters as possible of a patients state should be taken into consideration when making a diagnosis. However, even the most extensive questioning of a patient, may not yield proper results as the patient may fail to answer questions correctly, forget certain details, over- or underestimate their condition, or, conceivably, deliberately attempt to deceive the physician. The most common analogy of determining the health of a patient based on the external factors alone, is that of trying to determined the structure of an iceberg based on an examination of the above-water structure. The physician is often forced to use invasive techniques, which, by definition of their being invasive, they necessarily alter the patient’s



condition, further complicating the diagnosis (as well as often introducing unexpected side-effects). Low intensity signals are used in the CMMI in order to avoid a possible invasive character.

With the CMMI, a physician can determine the electromagnetic state of a patient, and from this can make a diagnosis without the necessity of invasive methods.

During the Biodiagnosis procedure, the patient is briefly (3ms, though adjustable) exposed to the magnetic fields of over 2000 homeopathic substances (not simultaneously, of course). Then, the patient's reaction to that substance is measured as value of the voltage changes (e.g., between the two wrist electrodes) and is translated into the reactivity (an average of the voltage fluctuations). Once all substances have been tested, the program establishes an overview of the patients integrity through the "Statistics" function (see Diagnostic Procedure, part 3. Statistics, for more details).

As is mentioned above, every organism is in a constant feedback system with its environment. The statistics function measures to what degree a patient is capable of adapting (participating) to the environment. There may be a variety of reasons (both physiological and psychological) for this over- or under-adaptation, which naturally, the physician will have to determine. The uniqueness of this feature is that what a physician previously had to estimate (based on experience and intuition), can now be quantified, and even shown to the patient.

A rather unfortunate consequence of reductionistic methodology is that objects, and even organisms are viewed as static. Most people are aware of their circadian rhythm (even if not always explicitly) and their relative levels of mood and energy (in the sense of not being sleepy) which fluctuate throughout the day. In our age of massive toxic, nuclear, and electromagnetic pollution, as well as rapid transport, an individual's fluctuations are more and more dynamic, they change every moment.

Each time the patient is tested, the substance list and statistics will be different. This may be alarming at first, as one of the most seemingly basic functions of a diagnostic device should be to deliver the same diagnosis given the same conditions. And here lies the key: the organism never experiences the same conditions from one moment to the next, so necessarily, the device will not provide exactly the same diagnosis from one minute to the next.

The device is a dynamic measurement system, and, as such, its power rests in its ability to determine these very changes that happen from one moment to the next. Specifically, the physician, once having



established the overall adaptability of a patient, can then go the repeat test function (see Diagnostic Procedure part 5 & 6. Repeat List and adaptation test, for the specifics of use).

If the patient has either too narrow or too wide a statistics function (see examples in Diagnostic Procedure) the physician might consider terminating the test at that point and recommending to the patient possible ways of normalizing the overall reaction. In any case, the general adaptability of the patient must be considered for all repeat tests as all measured values are relative to the initial measurements.

The physician's initial assessment of the patient, combined with the statistics results, and the list of items on the "Substance List" can be used to then isolate the substances which are the most crucial to the contribution of the patient's condition. The adjusted values of +120 to -120 (see statistics section in Diagnostic Procedure) can be considered as informational values in that a strong reaction (far from 0) indicates the organism's missing or needed information which it is no longer getting from the environment. And here again, the dynamics of the reaction are crucial to a proper diagnosis.

Due to the fact that the patient is exposed to the informational character of the substances, the diagnostic procedure is a kind of treatment itself. This means that this initial reactions serve primarily as markers. It may be that the patient only needed the very brief exposure to the information, and reacted strongly initially, but the physician should not immediately assume that values which initially appeared with high values are what the patient's body needs.

Through repeated applications of the "Adaptation Test" (Transmit Button), the physician can determine to what extent the information is needed, or over saturated with. A patient's adaptability to a particular substance is indicated by the subsequent "Reactivity", "Rise", and "Fall" values as well as the character of the line. The adaptability to the information of a certain substance reveals how much that information is needed, as well as indicating possible pathologies from the inability to adapt to that substance.

In this way, the physician can simulate a homeopathic treatment and subsequently determine the expected and possible therapeutic effects regarding the tested substance.



Conclusions

While many critics disagree, the above cited evidence as well as numerous works not cited, confirm that there is an interaction between biological systems and electromagnetic fields.

A “chicken vs. egg” scenario arises when considering that it is the dynamics of life that create electromagnetic fields in organisms. Yet, it is evidenced experimentally (though not yet entirely explained theoretically) that it is the endogenous EMF which support the dynamical network of living systems.

A great deal of research continues now in this exciting and controversial field with hopes for a theoretical understanding of the mechanisms behind the interactions. Further illumination of these mechanisms will no doubt have a powerful impact on our daily lives.

As science is now moving towards the “new paradigm” of understanding such phenomena as the observer effect, the dynamic interactions and interconnectedness of all things, the study of electromagnetism will broaden in scope and perhaps lead us into our next giant leap for mankind.

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