

The Burnham Review

The Science of Energy Medicine Evidence

Consider Manual Therapy and Complementary and Alternative Medicine for Optimal Health

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Kimberly Burnham, PhD Editor

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Defining of Energy Medicine

“Energy medicine involves understanding how the body creates and responds to electric, magnetic, and electromagnetic fields, including light and sound as well as other forms of energy such as heat, pressure, chemical and elastic energy, and gravity. We are interested in how the body produces these different kinds of energy, and how these energies can be applied to the body for beneficial effects.

It is important for Reiki and other energy therapists to realize that science does not really understand the origin of these various kinds of energy. So if you feel uncertain about what the words mean, if you are bewildered by science, you have good company. The best minds in science, including Albert Einstein, struggled to understand what energy really is and how the various forms of energy relate to each other. The problem is still unsolved at a fundamental level. We say that an electron has an electrical charge, but why it has a charge and just exactly what a charge really is continues to

be mysterious to science.

Controversial or not, energy medicine based on the use of medical equipment [electrocardiogram (ECG), optical biopsy, cardiac pacemakers, lasers, etc] is alive and well in hospitals, clinics, and medical research centers. Reiki and other forms of hands-on healing are another form of energy medicine based on scientifically measurable energy fields emitted from the healer’s hands.”¹ (Oschman,2002).

Reflex Points

Modalities which use reflex points can be included in the field of energy medicine. Stimulation of these reflex points can be energetic or mechanical. These modalities include. acupuncture, acupressure, Integrative Manual Therapy (synchronizers, hypothalamus regulation mechanisms, reference points), Osteopathy (Chapman reflexes), Neurofascial Process and reflexology.

**H a n d
Frequencies and
Autonomics**

Ronald S.

Murray, PT, Naturopath describes Dr. James Oschman, Ph.D. as an American biophysicist, published extensively on the scientific basis of energy medicine.

Oschman has found that the hand of energy practitioners pulses at a variable frequency (0.3 to 30 Hz) with most activity in 7 and 8 Hz range. He states that this range is within the spectrum to affect biological systems.

Murray continues, energetic and non-force manual therapy creates a change in the rigidity of the cellular matrix on a local and/or a systemic level through normalizing the Autonomic Nervous System (ANS), which regulates involuntary action (i.e., the intestines, glands, heart) and includes the sympathetic (fight or flight) and parasympathetic (rest and digest) systems.

Scientists using a spectral analysis, found low frequency (0.04-0.15 Hz) correlates with Sympathetic Nervous System while high frequency (0.15-0.5 Hz) correlates with

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Parasympathetic Nervous System.

“Healing modalities” work by influencing the colloidal reactive infrastructure of the ANS. In addition, light touch manual therapy positively influences the function of the ANS. The state of extracellular fluids, controlled by the ANS – not the individual cell - is the key to health.”² (Murray,2007).

James Oschman, MD on Reiki

“James Oschman is one of the leading authorities on the scientific understanding of hands-on healing. His extensive background as a scientist and his experience and understanding of holistic healing place him in a unique position to bridge the gap between the academic/medical world and the healing community.

His book, Energy Medicine, and his soon-to-be-released new book, Energy Medicine in Therapeutics and Human Performance, are remarkable in the way they easily convey a scientific basis for hands-on healing. His work makes it easy for doctors and scientists to understand and accept Reiki, which is valuable for anyone wanting to place Reiki in hospitals or to work in a clinical or scientific setting.

The integration of research science with complementary medicine is a tremendously exciting endeavor.

Reiki and the other methods certainly do not violate the laws of physics.

The body also emits light, sound, heat, and electromagnetic fields and, like all other matter, it has a gravitational field.”³ (Oschman,2002).

All Medicine is Energy Medicine

“In a sense, all medicine is energy medicine. This may seem trivial, but it makes an important point. Any

intervention with a living system involves energy in one form or another. We all have our specialties and interests, and it is challenging to take the step into the energy domain simply because it is the most multidisciplinary pursuit we can undertake, and it can always provide new insights, regardless of our main focus. It is worthwhile for Reiki practitioners [and other manual therapists] to learn a bit of physics and biology so that they can understand the mechanisms involved. It can make your intentions clearer and make the work easier to explain to medical professionals who have a scientific background.”⁴ (Oschman,2002).

Human Energy Fields

The research of Einthoven, Berger, and others established that organs such as the heart and brain produce bioelectric fields that travel through the tissues of the body and can be recorded with electrodes on the body surface.

The electrocardiogram, for example, can be picked up with electrodes placed anywhere on the body, even on the feet. There is a fundamental law in physics, Ampère’s Law, that says that when currents flow through conductors such as wires or living tissues, magnetic fields must be produced in the surrounding space.

Since living tissues are conductors of electricity, the well established laws of physics require that the currents set up by the heart and other muscles, and the brain and peripheral nerves, produce fields in the space around the body. These are called biomagnetic fields.

The magnetic field permeability of the various tissues are all about the same as in a vacuum. In essence, the

tissues are transparent to magnetic fields. So the biomagnetic measurements are a lot more informative about what is happening inside the body than are the bioelectric measurements.”⁵ (Oschman,2002).

Infrared Neurologic Treatment

“Stimulation of nerves via infrared rather than electrical methods offers benefits such as improved spatial selectivity in the brain and cochlea.”⁶ (Wells,2008).

Healing Frequencies

“The important frequencies for stimulating tissue repair are all in the biologically important extremely low frequency (ELF) range. Two cycles per second (Hz) is effective for nerve regeneration, seven Hz is optimal for bone growth, ten Hz is used for ligaments, and somewhat higher frequencies work for skin and capillaries.”

What is important about all of this is evidence that practitioners of various hands-on and hands-off therapies such as Reiki, acupuncture, aura balancing, Bowen, craniosacral, Structural Integration (Rolfing), healing touch, Polarity Therapy, massage, Integrative Manual Therapy and Zero Balancing can emit ELF signals from their hands. This was discovered in a valuable study by Dr. John Zimmerman. He found that this pulsing field is produced by the hands of practitioners of Therapeutic Touch and Healing Touch, but non-practitioners do not produce such signals.

Zimmerman found that the pulsing field produced by the hands of practitioners is not steady in frequency, but varies from moment to moment. The frequency sweeps up and down through the very same

range of frequencies in the ELF band that medical researchers have identified as being effective for jump starting the healing process in the various tissues they have investigated.

“The basic physics of induction is important because it helps explain some of the effects of Reiki, laying on of hands, and other hands-on and hands-off therapies. In essence, the biomagnetic fields produced by a practitioner’s hands can induce current flows in the tissues and cells of individuals who are in close proximity.”

Evidence that this actually can occur is nicely summarized in a fascinating paper entitled “The Electricity of Touch”⁷ (McCraty,1998) and in a book entitled Science of the Heart published by the Institute of HeartMath in Boulder Creek, California. As a result of these discoveries, Oschman has suggested a definition that is also a hypothesis: “Healing energy, whether produced by a medical device or projected from the human body, is energy of a particular frequency or set of frequencies that stimulates the repair of one or more tissues.

It is also important to realize that healing may not always involve projecting healing energy into a person; in some cases it may involve removing energy from a site of injury or disease. So it is also important to study the kinds of fields that can be detected radiating from damaged or diseased tissues.”⁸(Oschman,2002).

Conditioning with Intention

"The power of intention might be one of the best kept secrets of the mechanisms of our physical reality. Disguised as the influence of the observer in physics, as the placebo

effect in conventional medicine or as prayer in religion, the focused, coherent thought towards a specific outcome has the power to change reality, as the study of Psychokinesis has proven scientifically.

William Tiller and his colleagues⁹ imprinted an electronic device with an intention and the mere presence of this device, containing the imprint of the intention for a desired outcome, changed physical reality towards the realization of the intention. Wayne Dyer¹⁰ describes intention as being a force that exists in the universe as an invisible field of energy?”¹¹ (Löffler,2007).

Heart, Eye and Muscle Fields

“The biomagnetic field arises from the pulsing electric currents set up by the tissues. The overall field, seen from a distance from the body, is a composite of all the fields, the largest being the field of the heart. Because the blood is a very good conductor of electricity, the whole of the circulatory system pulses with electricity each time the heart beats. The second-strongest source of electricity is the retina, which acts like a large battery that changes in polarity when light falls on it. The third-strongest field is that produced by the various muscles, with the larger muscles producing larger fields and tiny muscles, such as those that move the eyes, producing tiny fields.

The field of the brain is about a thousandth as strong as that of the heart. Even weaker are the evoked fields produced by the brain when a sensory stimulus is provided, such as a sound, a light, or a touch. Finally, the weakest fields are those of the conducting system of the heart, called the Purkinje system, bundle of His, and bundle branches. Again, the

overall field is a composite of all these fields.”¹²(Oschman,2002).

There are fascinating measures of the electrical field of the heart that can be made by anyone, using do-it-yourself equipment, as described by Shawn Carlson in “The Amateur Scientist” in Scientific American, June 2000 issue.¹³ (Carlson,2000).

Modern Times and Brain Waves

“In modern societies our bodies are not normally grounded to earth because synthetic soled shoes, elevated sleeping places, motorcars, etc insulate us from the earth’s surface. Accordingly, the human body can become charged with static electricity exacerbated by exposure to extraneous stray fields and currents from artificial sources such as cell phone masts, cell phones, power lines, and domestic appliances. On the surface of the earth a flow of electrons encompasses the entire planet.

This natural flow of electrons and its related electric field also exists on the surface of all conductive objects (including people, plants and animals) in physical contact with the earth. The earth’s electron current flow and its associated electric field pulsate at approximately 10 Hz (similar to alpha brain waves) and follow a rhythmic 24-hour circadian rise and fall in amplitude.¹⁴ (Gish,1936),¹⁵ (National Research Council,1986), and ¹⁶(Ober,2003).

Cell Migration and Endogenous Electric Fields

Directed cell migration is essential for tissue formation, inflammation, and wound healing. Chemotaxis plays a major role in these situations and is underpinned by asymmetric intracellular signaling.

Endogenous electric fields (EFs)

are common where cell movement occurs, such as in wound healing, and cells respond to electric field gradients by reorienting and migrating directionally (galvanotaxis / electrotaxis).

We propose a model in which EF-polarized membrane lipid domains and EGF receptors cause asymmetric signaling through MAP kinase, which drives directional cell migration. A comparison is made with the mechanisms underpinning chemotaxis.”¹⁷(Zhao,2002).

Electrolytes in Cell to Cell Communication

"Loewenstein and his colleagues have made extensive studies on cell-to-cell communication in the Chironomus salivary gland, an epithelium in which cells are connected by separate and gap junctions. They found that cell-to-cell coupling in this tissue is markedly depressed by addition of calcium, magnesium, strontium, barium, and manganese to the cell interior via a hole in the nonjunctional membrane, and suggested that this was caused by binding of these divalent cations to the junctional membranes. Rose and Loewenstein also found that cells became uncoupled when cellular calcium levels were raised either by substitution of extracellular sodium by lithium or by addition of dinitrophenol (both of these treatments interfere with the calcium extrusion mechanism).¹⁸ (Oschman,1972).

Cells Spying on Other Cells - Bioelectromagnetic Communication

“To develop a scientific approach to concepts such as "life energy" and "healing energy" we need to consider the energetic mechanisms by which

the various parts of an organism communicate with each other.

When a physiologist is asked to discuss communication, the nervous system is usually given most of the attention, but many other forms of communication take place within the organism.

Bioelectromagnetic communications are involved in the formation of the parts of the body, both small and large, for the integration of structures, for hormone/receptor interactions, for cells to recognize each other so they can join together to form tissues, and for the maintenance and regulation of body shape. Communications are also involved in healing processes such as regeneration, tissue repair, and activation of the immune system.

The various tissues and the body as a whole are not electrically or magnetically shielded. Hence signals used in bioelectromagnetic communications tend to leak into the surrounding tissues and into the spaces around the body.

This article presents the hypothesis that the various tissues in the body "listen in" on the signals that initiate actions such as muscle contraction, secretion, sensation, etc. It is also suggested that this is an important mechanism of communication and integration. Non-neural cells, for example, may listen to the steady stream of messages that radiate out from nerves and muscles, and use this information to adjust their activities.”¹⁹(Oschman,2008)

Negatively Charged Blood Flow

The results of grounding experiments may implicate an improvement in circulation.

“Blood cells are normally net negatively charged on their surface, as are the surfaces of the blood

vessels through which they travel. In consequence, the mutually repulsive action of the two tissues will ensure an easier flow – hence better tissue oxygenation. If the level of inhaled positive ions is high however this will cause a more attractive cohesion or “stickiness” in the bloodstream and inhibit bioavailability of molecular oxygen, leading to increased levels of free radicals, consequent oxidative stress, and symptoms such as arthritic inflammation, increased Cortisol, and other indicators of stress.”²⁰ (Ober,2003).

Heart Energies and Emotions

The Institute for HeartMath has pioneered a study of the relationship between the energy fields of the heart and emotional states. In essence, feelings of love, compassion, and appreciation produce particular harmonics in the frequency spectrum of the electrocardiogram that show up in the field of the body and that beneficially affect every cell in the body. Likewise, fear, anger, and anxiety affect the field, and this, too, is communicated via energetic pathways to every cell in the body.”²¹ (Oschman,2002).

Less is More

“The most important aspect of this research is that very tiny fields can produce the best effects. This is actually a profound and vital realization that has implications for every branch of medicine. When a therapist does not get a desired effect, there is a tendency to do more, to push harder or turn up the intensity of the device or give a larger dose of a drug. Modern research points in the opposite direction. Living tissues are actually far more sensitive to external fields

than we ever imagined. After a period when many scientists were certain that observed sensitivities to energy fields were physically impossible, we now know that biological systems defy the simple logic that larger stimuli should produce larger responses. For many living systems, extremely weak fields can be far more effective than strong fields.”²²(Oschman,2002).

Equipment to Monitor the Human Energy Field

There are a variety of evaluating and treating equipment, which track electromagnetic fields, including:

- Nerve Express from Heart Rhythm Instruments, Inc., Metuchen, NJ was developed by a Russian scientist, Dr. Alexander Rytine. It has been successfully tested at Columbia University College of Physicians and Surgeons.
- Heart Tuner from Heart Coherence can be used to link or phase lock two hearts in coherence for greater empathy, compassion, etc. Heart Coherence is in Enschede, The Netherlands.
- Per Quantum or Pro Quant Systems from Tauberbischofsheim, Austria.
- Freeze-Framer from the Institute of HeartMath, Boulder Creek, California.
- Freeze-Framer™ and Heart-Lock-In® from Futurehealth, Inc., Newtown, PA. These systems are based on the work of the Institute of HeartMath.²³(Oschman,2002).

Distance Healing

“A valuable perspective comes from a quantum physicist, Dr. Milo Wolff, who has described the interdependence of all matter on all other matter in the universe. For its existence, the particle depends on the interactions between its own out waves and the waves coming in from

all of the other particles in the universe. The particle is therefore dependent on its interaction with all other particles in the universe.

Einstein called this “spooky action at a distance.” It is as though the separation of the particles is an illusion—once particles are paired they will always be paired. Since all matter in the universe was once gathered together in one place, before the big bang, all matter in the universe continues to be in relation to all other matter.”²⁴ (Oschman,2002).

Learning Energy Medicine

“The human body contains a water system that is a veritable antenna for fields in the environment, and it could well be this water system that picks up the frequencies and remembers them much as water can remember the signal from a homeopathic remedy.”²⁵ (Oschman,2002).

Electrons as Antioxidants

“The inflammation theory, which has attracted considerable interest among medical researchers in recent years, connects chronic disease with a situation that is describable in electronic or energetic terms. A free radical is a molecule that is missing an electron. Its destructive effects are explained in terms of the rapid and violent reactions taking place as electrical charges are redistributed between the reacting molecules. The “violent reactions” are the breaking of chemical bonds responsible for the integrity of the cell walls of bacteria, cell membranes, DNA, damaged connective tissue, and other structures. We observe this violent reaction when we watch a fire, since burning is the process by which oxygen tears electrons from the bonds holding matter together,

liberating heat and light. Oxygen is the ultimate “oxidizing agent” and the electron is the ultimate “reducing agent.” We are all familiar with a similar but somewhat slower “burning” process that takes place when we experience the heat, redness, swelling, pain, and loss of range of motion that can accompany an inflammatory condition.

Experience with the earthing techniques [grounding the human body to earth] has shown that these characteristic inflammatory conditions may be reduced or even prevented if the body is connected to the earth immediately after an injury. Dr. Spencer repeatedly confirmed this in his work with athletes during the Tour de France.²⁶(Oschman,2007).

The Secret of the Universe is Inside the Electron

In a series of papers, Gonzalo A. Moreno Jiménez describes "The secret of the universe is inside the electron."

He notes that "time is only the unreality form which defines that in a process in which a variation of energy exists, the energetic condition E2 will not be able to exist without the condition of energy E1, both of them limited by the impossibility of juxtaposition. The known Universe is just a heap of instantaneous energetic states which are not capable of juxtaposition.

Time is equivalent to energy variation."²⁷ (Jimenez,2002).

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