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Review Article

How Energy Medicine Will Save Health Care

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Introduction

Therapeutic use of electromagnetism has ancient roots, and was first introduced into the US by Hahnemann just prior to 1800. In 1890 and subsequently, the American Electro-Therapeutic Association conducted annual conferences on the therapeutic use of electricity and electrical devices by physicians on ailing patients. Some involved current flow through the patient, while others were electrically powered devices. At first, only Direct Current (DC) devices were utilized in the medical doctor's office for relieving pain and vibrating female patients who were routinely diagnosed with "hysteria."

In 1865, Maxwell's equations established electromagnetism as the second universal force and "The New Era of Science" at the turn of the 20th century saw electromagnetism become a central player in quantum chemistry, and more recently described as "controlling all chemical reactions, including life itself" [1].

In 1898, the father of AC electricity, Nikola Tesla, published a paper that he read at the eighth annual meeting of the American Electro-Therapeutic Association in Buffalo, NY entitled, "High Frequency Oscillators for Electro-Therapeutic and Other Purposes" [2]. Tesla concluded correctly that bodily "tissues are condensers", which today is the basic ingredient for an equivalent circuit only recently developed for the human body [3]. In fact, the relative "permittivity" for tissue at any frequency exceeds most commercially available dielectrics on the market [4]. This unique property of the human body indicates an inherent adaptation and perhaps innate compatibility toward the presence of high voltage electric fields. This can be traced to the high "transmembrane potential" (the electrical voltage across every cell membrane) already present in cellular tissue, which is the distributed electrical storage battery throughout the human body. Tesla also indicated that the after-effect from his coil treatment "was certainly beneficial" but that an hour exposure was too strong to be used frequently. This has been found to be still true today with the Tesla coil therapy devices (Figure 1).

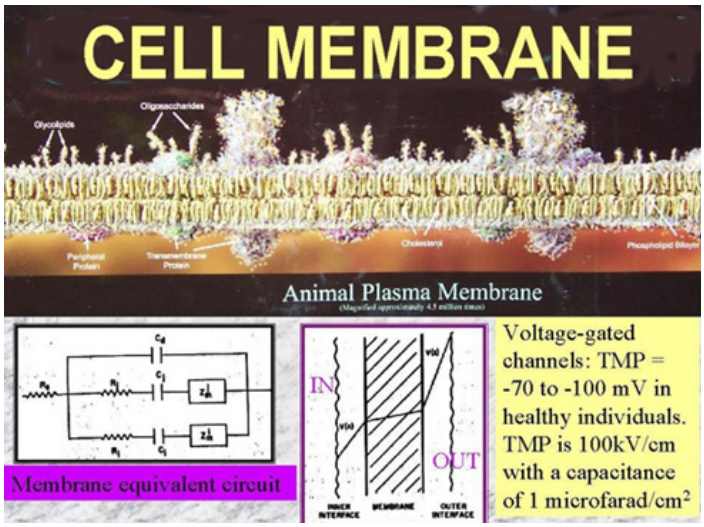

Figure 1: Cross section of the human cell membrane and its potential.

Flexner Report Impact

Generally employed to treat pain, its use to treat mental illness in the mid-1850s set the stage for the Flexner Report in 1910, which declared electromagnetism "irregular science," and purged EM teaching from medical curricula. The Flexner Report was a book-length study of medical education in the United States and Canada, written by the professional educator Abraham Flexner and published under the aegis of the Carnegie Foundation. Many aspects of the present-day American medical profession stem from the Flexner Report and its aftermath.

When Flexner researched his report, "modern" medicine faced vigorous competition from several quarters, including osteopathic medicine, chiropractic medicine, eclectic medicine, physiomedicalism, naturopathy and homeopathy. Flexner clearly doubted the scientific validity of all forms of medicine other than allopathic biomedicine, deeming any approach to medicine that did not advocate the use of treatments such as vaccines to prevent and cure illness as tantamount to quackery and charlatanism. Medical schools that offered training in various disciplines including eclectic medicine, physiomedicalism, naturopathy, and homeopathy, were told either to drop these courses from their curriculum or lose their accreditation and underwriting support. A few schools resisted for a time, but eventually all complied with the Report or shut their doors. The aftermath of such a narrow approach to healthcare is still felt today with prescriptions and vaccines being the primary mode of care, even if multiple prescriptions are counter indicated with each other.

On September 6, 1932, at a seminar presented by the American Congress of Physical Therapy, held in New York, Dr. Gustave Kolischer announced: "Tesla's high-frequency electrical currents are bringing about highly beneficial results in dealing with cancer, surpassing anything that could be accomplished with ordinary surgery" However, even such endorsements could not resurrect these technologies from the overwhelming effect of the Flexner report on medicine and healthcare. As a result, today, doctors aren't taught biophysics or electromedicine in medical school so they simply don't know the extent of the multifaceted landscape of the human body. Furthermore, the financial infrastructure of healthcare has evolved in the past century away from being patient-centric. Therefore, more expensive innovation such as MRI testing machines that generates income to the healthcare delivery system is the only type of innovation that will be funded. Without funding, penetration of the marketplace is marginalized.

Yet there is a surge of interest lately in the opportunity that electromedicine offers the world. For example, while the Bill and Melissa Gates Foundation offers pharmaceutical solutions to third world health care that need to be replenished each month, electromedicine presents a sustainable, capital intensive model that does not need a continuous influx of funding to maintain the equipment. But can electrotherapy machines reduce rehabilitation time by 65%? A system of two electrotherapy instruments has done so in clinical trials. Furthermore, the author had a practitioner Ryn Raevis and her patient give lectures at the 2003 Tesla Science Conference and Expo sponsored by Integrity Research Institute (DVDs available).

They both testified to the remarkable reversal of a gangrene leg on the patient with several days of treatment with an electrotherapy frequency system when conventional doctors repeatedly offered amputation as the only solution. The patient is still walking with both legs today, without any recurring infection and pain-free.

Modern Electromedicine

Another surprising example is of microelectrotherapy that everyone can use is silver ion therapy which can be fashioned into silvered nylon and colloidal silver that operates by "electrocution" on a cellular membrane level, since silver is electrically conductive. When applied to a laceration or even a small cut, silvered nylon has been shown to cut the healing time in half on the average (Ref. "Silver-nylon: A New Antimicrobial Agent", Antimicrob. Agents Chemother, 23, 356, 1983). The potential effectiveness of a silver-nylon fabric as an antimicrobial agent has been evaluated in a series of in vitro experiments. The good news is that colloidal silver solution also works on the infected sinuses with a nasal spray, reversing the onset of colds and flu.

Electromedicine also includes pulsed magnetic devices since electricity is used to create the magnetic fields. In clinical trials using a double-blind, randomized protocol with placebo control, osteoarthritis (primarily of the knee) was treated noninvasively by pulsed 30-Hz, 60-Gauss pulsed magnetic fields showed the treatment group improved substantially more than the placebo group [5].

It is believed that applied magnetic fields act to suppress inflammatory responses at the cell membrane level [6]. Figure 1 shows the lipid bilayer which makes up the cell membrane, that electrically insulates and stores the Transmembrane Potential (TMP) of 100 kV/cm, which is a large electrical gradient. Thus, many pulsed magnetic treatment devices are gaining respectability with physicians today. Even NASA conducted a study finding that the risetime of the pulse was the most important ingredient for effectiveness [7]. The late Glen Gordon, M.D. cited the NASA study often after he designed a small pulsed magnetic field device that he sold for a while. However, the FDA-approval was short-lived and one inspector after another kept demanding more accounting and studies until he was forced to close the business. The late Dr. Gordon was proud of the fact that his electromagnetic pulse device reversed his congestive heart condition and took him off of the heart transplant list. He also bicycled across country afterwards to prove how healthy the treatment had made him [8].

At the other end of the spectrum, there are those who think that lengthy, regular, daily exposure (over one hour per day) to electromagnetic fields, such as those from cell phones near to the head, are detrimental.

This has been confirmed in the most recent findings by the INTERPHONE Study Group [9]. However, the same study also found "protective" effects that reduced the average incidence of cancer or in other words, "apparent protective effects at most doses", which can be explained by bioelectromagnetic healing science that advocates short term exposure to a wide range of electromagnetic fre-

quencies and intensities to boost the immune system by allowing the body to absorb a small amount of the energy [10].

Our institute has had numerous anecdotal reports from satisfied clients using a high voltage device ("Premier Jr.") patterned after the historical "Violet Ray" which was recently summarized in my article on bioelectromagnetics applications [11]. It uses a 40,000 volt handheld generator that discharges through a noble gas tube like argon. The important discovery about such electrotherapy is that it provides electrons directly to the deep dermal layers to attack free radicals directly, since this author has proven that "electrons are antioxidants", which are the active ingredients in vitamin pills. Furthermore, high voltage electrotherapy will instantly boost the transmembrane potential referred to previously. This is one of only two ways the body stores energy (the other is chemical), so everyone feels more energetic after a short high voltage field exposure.

However, how will electromedicine save healthcare? An inside source has confirmed that in November, 2010, the White House met with a fiduciary consultant with impeccable credentials and several Brigadier Generals with medical degrees in order to put biophysical energy medicine on the fast track for the health and welfare of military personnel. More of the history and latest developments are found in the author's book, Bioelectromagnetic Healing: A Rationale for Its Use [8,12] (Figure 2).

Figure 2: The author (standing) chairing a panel discussion on Electromagnetic Healing at the Whole Person Healing Conference, 2005 [12].

Pulsed ElectroMagnetic Fields

Recently, innovators at NASA Johnson Space Center researching Time-Variance Magnetic Field (TVMF) therapies have developed a Pulsed Electromagnetic Field (PEMF) device that can alleviate cartilage degradation in synovial joints by promoting the growth of new cartilage. Joint disorders, whether induced by rheumatism, joint dysplasia, trauma, or surgery, often degrade cartilage and result in intense patient pain. Noninvasive and painless regeneration of a patients own tissue offers fewer side-effects than surgical joint replacement or tissue engineering procedures. The PEMF device could simply be wrapped around synovial joints where cartilage-degrading inflammation is located [13]. NASA also issued US Patent No: 8,795,147 and 9,896,681 to cover this 2021 announcement.

However, our institute realized that our mentor and inventor of the EMpulse, Glen Gordon MD, obtained his original design for his PEMF device from a NASA study [14] finding that a fast rise time of the pulse stimulates the heat shock protein (HSP 70) which helps heal tissue trauma quickly and also counters inflammation more effectively than icepacks or aspirin. Therefore, IRI followed his design years ago and perfected the EM Pulser 78 with a 7.8 Hertz pulse rate that Dr. Gordon recommended, based on the earth's Schumann Resonance and the brain's alpha rhythm. It also has a nanosecond rise time as well, which has satisfied over 1000 clients who use the affordable electrotherapeutic product as of this year *www.BioenergyDevice.org*. Since NASA found that a wrap-around pad was also helpful for joints, to stimulate new cartilage growth, IRI has an attachment called the PulsePad which is a 4" x 6" pad specially designed with a flexible, pancake coil to product the same 7.8 Hz magnetic PEMF in the pad and can be placed under clothing. Every EM Pulser 78 also includes a DVD of Dr. Gordon's lecture "Speaking of Your Injury" which gives lots of advice for using the device for injuries. He healed his own chronic heart condition with it by daily application of his original EMpulse until he was able to bicycle across the United States to appear on TV and radio programs to celebrate his recovery (Figure 3).

The Schumann resonances (or frequencies) are quasi-standing electromagnetic waves that exist in the cavity (or space) between the surface of the Earth and the ionosphere. In 1952, German phys-

icist Professor Winfried Otto Schumann of the Technical University of Munich began attempting to answer whether the Earth itself has a frequency – a pulse. His assumption about the existence of this frequency came from his understanding that when a sphere exists inside another sphere, electrical tension is created. Since the negatively charged Earth exists inside the positively charged ionosphere, there must be tension between the two, giving the Earth a specific frequency. Through a series of calculations, he was able to deduce a frequency he believed was the pulse of the Earth-ionosphere space. Two years later, in 1954, Schumann and Herbert König reported reliable and predictable frequencies in the atmosphere that existed in the cavity (or space) between the surface of the Earth and the ionosphere.

Though several frequencies occur between 6 and 50 cycles per second, the fundamental frequency they found to be 7.83 Hz [15] (Figure 4).

Figure 3: EM Pulser wired to Pulse Pad attachment partially inserted into trousers for abdominal relief after surgery, as alternative to pain killers.

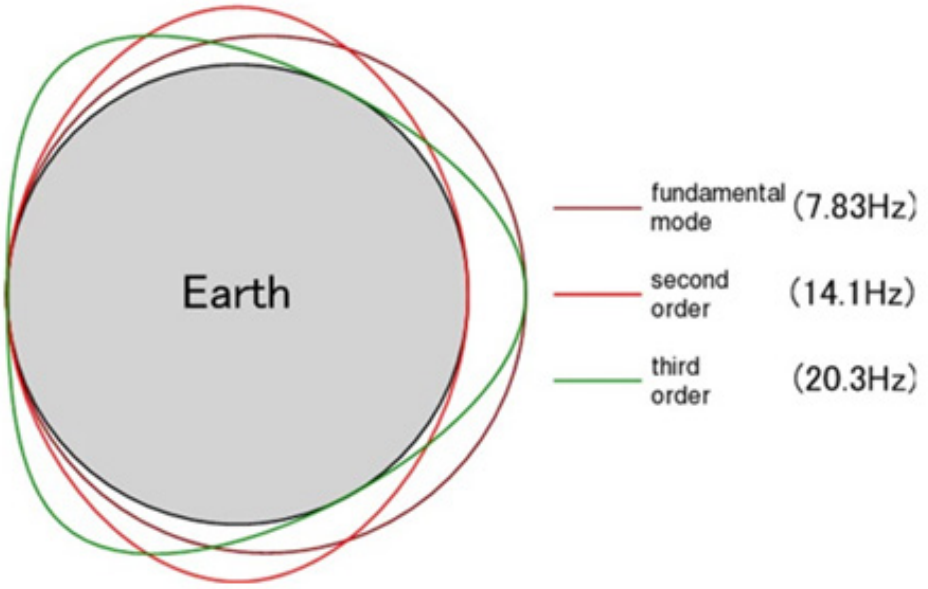

Figure 4: The first three harmonics of the Schumann earth frequencies.

Herbert König, who became Schumann's successor at Munich University, discovered and further demonstrated a clear link between Schumann resonances and brain rhythms. He compared human EEG recordings with natural electromagnetic fields of the environment and found that the so-called alpha waves during brain activity lie in the same frequency range as the first two modes of the Schumann resonance. He speculated that this is possibly no coincidence, but a human adaptation to the electromagnetic environment over the long course of evolution [16].

Another area which seems ripe for a new electrotherapy protocol is Chronic Fatigue Syndrome (CFS). It is a condition that has become quite prevalent in the last 50 years. It is defined as a debilitating lack of vitality that includes symptoms lasting at least 6 months. These symptoms may include:

a) Sore throat

b) Muscle pain

c) Tender lymph nodes

d) Joint pain

e) Interrupted sleep

f) Unexplained persistent and relapsing fatigue that is not alleviated by rest

g) Substantial reduction in previous levels of activity

More women are affected than men are by this syndrome. Even more disturbing, a muscle disorder that also causes weakness, called fibromyalgia, has been found in many CFS patients, according to a study conducted by the Center for Disease Control (*www.cdc.gov*). With more than three-quarters of a million people in the United States exhibiting a CFS-like condition, it is becoming a serious health concern [17]. The causes for CFS are still undetermined. Some studies suggest multiple nutrient deficiencies can trigger chronic fatigue. Therefore, proper nutrition, consisting of a well balanced diet is vitally important.

Fresh fruits and raw foods are especially recommended. Herbs that are helpful include ginkgo, astragalus, red clover, dandelion and short term use of echinacea to help boost the immune system, which is always affected by CFS. To help improve the interrupted sleep pattern, valerian root or melatonin (2 to 3mg) at bedtime is helpful, especially for older people.

Although numerous studies have been conducted to find the underlying causes of CFS, none have succeeded in understanding its physiological or chemical pathways [18]. Some studies have shown that deficiencies of the adrenal or thyroid glands have been found in CFS patients. This has prompted the belief that stress can trigger CFS, whether it is of mental or physical origin. Therefore, energy boosting therapies as well as vitamins and antioxidant supplementation to combat free radical proliferation is often considered to be extremely important.

How do Free Radicals Deplete Cellular Energy?

Free radical proliferation is linked to pathological changes that cause cellular malfunction or mutation (i.e. cancer) as well as protein degradation. Free radicals also play a large role in causing damage to all cells of the body but particularly the immune system. Free radicals also deplete cellular energy by interfering with mitochondrial function and contribute to shortened lifespan, according to studies with animal species [19]. Cellular energy generation in the mitochondria is both a key source and key target of oxidative stress in the cells. Seeking an electron to complete the radical, free radicals cause chain reactions as electrons are ripped from molecules, creating another free radical. Cellular energy generation in the mitochondria is both a key source and key target of oxidant stress in the cell. One can therefore envision a model whereby the inevitable increased production of free radicals compromises mitochondrial efficiency and eventually energy output in a detrimental feedback loop [20].

Antioxidants such as vitamin A, vitamin E, selenium and coenzyme Q10 supply free electrons and are usually prescribed by naturopathic doctors in order to provide limited relief in counteracting free radical ravages, as long as they are taken regularly. However, electronic antioxidants produced by Bioelectromagnetic (BEM) therapy can also satisfy and terminate free radicals, by abundantly supplying the key ingredient usually found only in encapsulated antioxidant supplements…the electron [21]. Indeed, such a pattern of confirmation has been found through our preliminary studies before and after electrotherapy with the Pharmanex BioPhotonic Scanner which tests for carotenoid (vitamin A) levels in the blood. The carotenoid levels of the blood are noticeably higher after high voltage electrotherapy, suggesting that free radical levels have dropped since they are not consuming carotenoids at the same rate as before therapy.

The accompanying bodily feedback to quenching free radicals is a relief of pain as James reported to us: "Your device seems to be healing my damaged knee. I have been using for 2 weeks am & pm. Less pain = can stand and walk better, also in a peculiar way I have more energy and better mood. Been using all nutrition protocols plus pulsed light from 'light force' co. all helped, but your Premier Jr. has already made a huge advance. I am very grateful. You are doing good work. Thank you. I am going to get the book on meditation, thank you over and over."

Another indicator for the body's immune system status and energy storage level is literally the lightning bolt voltage that is maintained across all of its cell membranes! The so-called Transmembrane Potential (TMP), shown in the first illustration slide (Figure 1) of this article, is typically a hundred thousand volts per centimeter, and often found to be much lower during stress and disease states, indicating lower energy levels in the body. In the case of CFS, modern medicine does not offer a chemical supplement or pharmaceutical concoction to provide relief. However, the high voltage electric fields presented to the body by bioelectromagnetic therapy can be reasonably expected to boost the TMP directly [22].

It is known that damaged or diseased cells present an abnormally low TMP about 80% lower than healthy cells [23,24]. This signifies a greatly reduced metabolism and, in particular, impair-

ment of the electrogenic sodium-potassium (Na-K) pump activity and therefore, reduced ATP production. The sodium-potassium pump, within the membrane, forces a ratio of 3Na ions out of the cell for every 2K ions pumped in, for proper metabolism. An impaired Na-K pump results in edema (cellular water accumulation) and a tendency toward fermentation, a condition known to be favorable toward cancerous activity.

Conclusion

A Nobel Prize winner, Dr. Albert Szent-Gyorgi, proposed that cell membranes also rectify alternating currents since structured proteins behave like solid-state diodes [25]. (A diode passes electricity in only one direction.) It is reasonable therefore to conclude, based on these biophysical principles, that an endogenous high voltage EMF potential of sufficient strength will theoretically stimulate the TMP, normal cell metabolism, the sodium pump, ATP production and healing. This far-reaching generalization has already been found in the literature: "TMP is proportional to the activity of this pump and thus to the rate of healing" [26]. Furthermore, "increases in the membrane potential have also been found to increase the uptake of amino acids" [27]. Electromedicine therefore, appears to connect to and recharge the storage battery of the TMP, just as sunlight baths connect to and recharge the storage battery of biophotons in cellular DNA, while helping the body to synthesize vitamins.

IRI has exclusively developed other electrotherapy products, besides the EM Pulser 78 which is a portable, rechargeable magnetic pulse device. We incorporated the same 7.8Hz circuitry into the OsteoPad which is designed to reverse osteoporosis with nightly use that also stimulates cartilage growth as NASA has verified. It uses a patented electrotherapy process that stimulates the exercise-induced, calcium- absorbing, piezoelectric contractions of bone electromagnetically. A further invention of our staff naturopath, Dr. Jacqueline Panting has been patented: "Antioxidant Electric Clothing" (#13/135,140). It addresses a huge potential market for sports body suits to actively quench free radicals during exertion and assist everyday people to experience more stamina and less fatigue. The prototype and commercialized product are still under development.

Lastly, we are also releasing a small EM MiniPulser with a miniaturized version of the same design of the EM Pulser 78, which IRI is licensing for licensing, commercialization and mass marketing. Visit www.BioEnergyDevice.org for more information and for ordering any bioenergy product mentioned in this article, with a 30-day money back guarantee, to ship anywhere around the globe. When a trauma strikes, doctors who use the EM Pulser 78 in the ER say it is a "first response" product to reduce inflammation within about 20 minutes and stimulate HSP70, a chaperone protein that assists tissue repair and healing. In a complimentary fashion, the Premier Junior product boosts the TMP and injects antioxidant electrons directly into the skin and dermal layers for fast quenching of pain-causing free radicals. Both of them are unique products on the market today, offered by a nonprofit research organization dedicated to research scientific integrity in the areas of energy, propulsion, and bioenergy. Become a Member of the institute at *www.Integrity-Research.org* today.

Acknowledgement

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Conflict of Interest

None.

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