

Light, Sound, Vibration for Healing and Stress Reduction

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Dedication

I dedicate this paper to all loving sentient beings that I have had the pleasure to meet. I thank God for bringing you into my life.

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Abstract

The qualitative research study interviewed professionals who used certain light, sound, and vibrational devices for pain or stress reduction. The research on light-only devices included interviews with seven professionals. Four (57%) of the seven professionals responded affirmatively to the devices providing pain and stress reduction and influencing the biofield, chakras, and meridians. The research on light, sound and vibrational devices included responses by nine professionals. Seven of the professionals use the Life Vessel™, and two use Vibroacoustic tables in their practice. All nine (100%) professionals responded affirmatively that these devices influenced pain and stress reduction, along with influencing the biofield, chakras, and meridians. Switching the mindset of the allopathic physicians from focusing only on fixing the body to being open to integrating and helping the patient harness his or her own inner resources could present a powerful healing solution.

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Chapter 1: Introduction

Daily life contains stressful situations for most individuals. When the body is constantly stressed, imbalance in the biofield, chakras, meridians, and the physical body can occur and cause dis-ease. Many individuals do not understand the importance of ensuring that the biofield, chakras, and meridians are flowing smoothly in order for the physical body to maintain homeodynamics. Energy medicine can assist in maintaining homeodynamics in these subtle energy fields. Regarding the scientific study and influence on the energetic systems, Oschman (2000) wrote,

On the basis of what is now known about the roles of electrical magnetic, elastic, acoustic, thermal, gravitational, and photonic energies in living systems, it appears that there is no single “life force” or “healing energy” in living systems. Instead, there are many energetic systems in the living body, and many ways of influencing those systems, both known and unknown, functioning collectively, cooperatively, synergistically. The debate about whether there is such a thing as a healing energy or life force is being replaced with study of the interactions between biological energy fields, structures, and functions. (p. 219)

The purpose of this thesis is to research existing devices that can be used to balance the biofield, chakras, and meridians with light, sound, and vibration for the purpose of promoting healing and stress reduction. The research includes exploring the vibration of thought along with the importance of water in creating wellness. It is scientifically proven that light and sound carry a vibration, and Hermetic philosophy teaches that everything has a vibration. Regarding the Hermetic philosophy of vibration, the Three Initiates (2012) wrote,

This Principle embodies the truth that “everything is in motion”; “everything vibrates”; “nothing is at rest”; facts which Modern Science endorses, and which each new scientific discovery tends to verify. And yet this Hermetic Principle was enunciated thousands of years ago, by the Masters of Ancient Egypt. (p. 17)

The goal of this thesis is to use this information to assist others in understanding a specific aspect of energy medicine and why it works. The purpose is to understand how light, sound, and vibration can balance the biofield, chakras, and meridians in order to promote healing and reduce stress.

The Researcher interviewed professionals who use these devices. She also explored the benefits of a trained professional assisting in the process versus the benefits of putting the devices in the hands of an individual. The ability of individuals to take control of one’s healing process is important; however, there is a theory that the guidance of an expert during the transition could be beneficial. The research includes interviews with operators of light, sound, and vibrational devices.

Problem Statement

The problem is that stressful situations can cause imbalance in the biofield, chakras, and meridians, which can cause stress and/or pain to the physical body. The ability of light, sound, and vibration to bring homeodynamics to these subtle energy fields and the physical body is explored.

Significance of the Thesis

Many individuals may not understand the use of light, sound, and vibration as an energy medicine modality. They may not understand energy medicine and how it works. According to Randall-May (2010), the definition of *energy medicine* is “the art and science of energy healing,

including high sense and intuitive perception” (p. 104). Randall-May’s (2010) definition of *energy healing* is “establishing balance in the subtle energy field” (p. 104). Energy medicine includes a large array of modalities from acupuncture all the way to yoga. To better understand these definitions, one could read what Gerber (2001) wrote:

To extend our understanding of the wider spectrum of known energies, it will be seen that many of the “fringe areas” of medicine are, in fact, applying slightly different principles of “energy medicine.” The energies being applied here, however, are the subtle energies of the life-force itself and its many octaves and harmonics. The key to convincing scientists of the existence and application of these subtle energies may well lie in the considerable problem of rendering them visible for study and diagnosis. (p. 101)

Kirlian photography can show the aura or colored halo of an individual. Gas-discharge visualization (GDV) cameras and software, developed by Korotkov, a professor of physics at St. Petersburg State Technical University in Russia, allows the rendering of these subtle energies on a computer. According to Korotkov’s (2014) website,

The GDV method is based on the stimulation of photon and electron emissions from the surface of the object whilst transmitting short electrical pulses. In other words, when the object is placed in an electromagnetic field, it is primarily electrons, and to a certain degree photons, which are “extracted” from the surface of the object. This process is called “photo-electron emissions” and it has been quite well studied with physical electronic methods. (para. 1)

The GDV camera takes a digital photo of an individual’s ten fingertips, and the software maps the biofield, chakras, and meridians. The use of this in energy medicine is to take a snapshot of the individual prior to a treatment and then after the treatment to show an improvement in the

energy field. Capturing light emitted from the fingertips has been discussed in many peer-reviewed articles; for example, Rubik and Brooks' (2005) study on "Digital High-Voltage Electrophotographic Measures of the Fingertips of Subjects Pre- and Post-Qigong," the purpose of which "was to explore how performing qigong influences certain measurable aspects of the human biofield: namely, various calculated parameters of finger corona discharge patterns produced by high-voltage electrophotography" (p. 245).

Another article using the GDV camera was written by Korotkov et al. (2012) "to assess subjects before and after osteopathy treatment. Virtually all subjects were in a good mood after treatment. Many of them had pain and muscle tension that disappeared" (p. 251).

Theoretical Framework

The research explores the feasibility of using light, sound, and vibration in balancing the autonomic nervous system (ANS) and to bring homeodynamics to the human biofield. In the *Free Medical Dictionary*, *homeodynamics* (2014) is defined as "one of the basic concepts of functional medicine in which the body maintains biochemical individuality by constantly undergoing physiologic and metabolic processes" (para. 3). Regarding the term *homeodynamics* versus *homeostasis*, one can turn to Rubik's (2002) paper wherein she stated,

The term homeostasis, coined in the 1950s by Walter B. Canon, Ph.D., an American physiologist, describes the resistance of the organism to change, along with the maintenance of a stable internal environment, to allow proper functioning of its component cells, tissues, organs, and organ systems by constraining physical and chemical parameters to certain limits. Homeostasis, however, is based on classic physics, not modern biophysics. It is modeled in terms of mechanical feedback cycles similar to that by which a thermostat regulates temperature by switching a heater on and off.

However, it is now recognized that there is no single or ultimate homeostatic balance point in biologic systems because they are self-organizing systems with many more possibilities than a single steady state. They also rely on dynamics other than feedback controls such as strange attractors and innumerable flows of information to regulate themselves. Thus, the concept of homeostasis is limited and is undergoing replacement by a new concept, homeodynamics. A critical aspect of homeodynamics is the capacity of living systems to respond creatively to stressors by developing new dynamic modes. When humans are exposed to environmental stressors or emotional challenges, there is a cascade of signal processing along with resulting physical changes in the body that initiate a response. Homeodynamics emphasizes the ever-adjusting nature of the processes that maintain life functions. Once a new stressor is encountered, the organism never returns to its previous dynamic state but establishes a new dynamic balance appropriate to this newly integrated experience. (p. 707)

The theory is, once the ANS is balanced, the sympathetic and parasympathetic nervous systems allow the body to function with ease. When the ANS is at ease, an individual's breathing is regulated. When an individual's breathing is regulated, the circulation of fluids throughout the body can flow naturally. When the body is regulated and functioning optimally, an individual has the ability to react with resilience when faced with a stressful situation. When an individual is able to reduce stress on the body, the natural healing process of the body can occur. To better understand the ANS process, Freeman (2009) wrote,

The ANS has two divisions that affect the same internal organs, but they have opposite effects. The two divisions are called sympathetic and parasympathetic. The sympathetic division generally stimulates certain smooth muscles to contract or glands to secrete,

whereas the parasympathetic division typically inhibits this action. The sympathetic division mobilizes the body during emergency or stressful situations (e.g., fear, exercise, rage), whereas the parasympathetic division acts to unwind and relax us and to conserve bodily energy. The two divisions counterbalance each other's activities. The ANS controls the Sympathetic-Adrenal-Medullary (SAM) axis, the first pathway. The tissues and organs of the ANS are heavily laced with nerve fibers that provide support for the immune-cell populations, many of which are mobile cells. The motor neurons in the nerve fibers have receptors for neurotransmitters, the brain chemicals we use to send messages throughout the body. Cell traffic into these organs takes place in areas that are supplied with a large variety of nerves using several different neurotransmitters. This action is possible because, although the nervous and immune systems function in different ways, they share common receptors for neurotransmitters and neuropeptides. Immune cells are similar to neurons in that they have receptors to which neurotransmitters and neuropeptides can attach. Once neurotransmitters have attached to immune cells, they can affect the immune cells' ability to multiply, travel, or kill invaders. Because these chemicals are released during times of strong emotion, it follows that emotions may modify our susceptibility to disease. (pp. 5-6).

This immune cell process assists with understanding how the use of positive affirmations to increase calm emotions of love and well-being may be beneficial to one's health.

The use of light for healing has been used throughout the ages. Regarding the ancient use of light, Thomas Saunders (2002) wrote,

The treatment rooms of ancient Egypt were designed to use sunlight to refract light into separate colors of the spectrum so that each patient could be bathed in the appropriate

colored light. Light and color therapy was also well-known in Persia, and the Greeks used various materials in the solaria to change the sunlight color most appropriate to a specific healing process. Orthodox Western medicine has tended to ignore this powerful, naturally therapeutic healing technique, preferring instead to rely on drugs and radical surgery. (pp. 43–44)

Dr. Edward Bach used flowers, water, and sunlight to create flower essences for healing. In 1903, Swiss doctor Auguste Rollier used sunlight therapy to kill off tuberculosis bacteria (Saunders, 2002, p. 44). Bach's Star of Bethlehem flower essence has been known to assist dogs that have been rescued from trauma to recover from the fearful experience. Some skeptics may claim that it is only a placebo effect. However, witnessing a dog that is full of fear recover from the fear after given Star of Bethlehem flower essence in drinking water shows the efficacy of flower essences. When healing of this type occurs – of an animal – the possibility of the placebo effect being responsible is probably very low.

Light-emitting diodes (LEDs) create a red and near-infrared light and have been used in experiments since the 1960s. The red light on the remote control for the television is an LED. Regarding LED research performed by the National Aeronautics and Space Administration (NASA), Whelan et al. (2001) wrote, “LEDs, originally developed for NASA plant growth experiments in space, show promise for delivering light deep into tissues of the body to promote wound healing and human tissue growth” (p. 305).

This study seeks insight into the differences between infrared, near-infrared, far-infrared, and full-spectrum lights. The Researcher investigated the product claims and research that has been performed on a selection of these types of lights.

Sound has been used throughout the ages for many different reasons. Jonathon Goldman (2002) explained the ancient methods of sound healing:

The use of sound as a healing modality is nothing new. It is probably as old as the first sound ever made by a man or a woman. The first humans are believed to have used sounds in sacred and ritualistic ways to promote fertility, to aid at birth, to facilitate the growing of crops, to accept death and for many other occasions. Using sound, they would summon spirits and ancestors to cure sickness and rid the body of disease. (p. 17)

The usual response when an individual stubs a toe is to verbalize with a groaning sound. The ability to make this sound actually releases the pain. Try not making a sound next time you stub a toe and see how long it takes for the pain to subside. Music is used in dentists', acupuncturists', and many other holistic offices to provide a relaxing atmosphere for clients. Certain vibrations of sound can create a calming effect on the mind, body, and spirit.

To better understand the frequency that sound makes, one can turn to what Jonathan Goldman (2002) wrote:

A string that vibrates back and forth one hundred times a second will create a sound that can be measured at 100 Hz (Hertz). This would be its frequency. One that vibrates one thousand times a second would be measured at 1000 Hz. (p. 23)

The *Encyclopaedia Britannica* defines *hertz* (2013) as follows: "The frequency of any phenomenon with regular periodic variations can be expressed in hertz, but the term is used most frequently in connection with alternating electric currents, electromagnetic waves (light, radar, etc.), and sound" (para. 1). Regarding the vibrational aspect of one's body, Gerber (2001) wrote,

Each human being is an organized interweaving of many bodies of differing vibrational frequencies. Through our interconnection to the chakras and our higher frequency bodies

of light, people are able to assimilate energy and information from the highest levels of being. Energy and information originated at the soul level undergoes progressive transformation and translation until it becomes manifest as a conscious personality which must exist in the molecular/cellular vehicle at the level of the physical plane. (p. 325)

The body not only has an electrical system but also contains light. Aboriginal Australians use the sound of the didgeridoo for healing. Everything has a vibration, including light and sound. Acknowledging that everything in the world has a vibration allows an individual to open one's mind and eyes to the possibility of using light, sound, and vibration for healing. Cointreau (2013) elaborated on remedies of energy medicine that use vibration:

Vibrational remedies are energy medicine. They are physical tools that heal and alter the energetic imprint contained within our physical body. The most well-known of these remedies in the West are probably homeopathy and Reiki. However, there are many forms of vibrational remedies, including flower essences, Rife machines, bioenergetic machines, and light therapy.

Some remedies seek to obliterate dis-ease by using its very own energy imprint to weaken it (homeopathics) or finding the specific frequency that will destroy it (Rife, bioenergetics). Others focus on strengthening the body and spirit so that the body can lift itself out of dis-ease (flower and crystal essences). All vibrational remedies shift our energy so that people can feel better. (p. 1)

Research Questions

The research questions addressed in this thesis are

1. How can light, sound, and vibration bring homeodynamics to the biofield, chakras, and meridians?

2. What devices create light, sound or vibration to balance the biofield, chakras, and meridians?
3. What sounds are best for creating relaxation to the mind, body, and spirit?

Limitations and Delimitations

The research for this thesis focused on a few devices that provide light, sound, and vibration to achieve a homeodynamic state in the human body and biofield. The thesis includes a literature search on a list of devices. It includes interviews with practitioners that use these devices for healing. The thesis does not include human research subjects. However, it includes information that has already been published on human research subjects.

The research was limited to the following types of devices that use light for creating healing and balance in the physical body and biofield:

1. Infrared or far-infrared heat lamps
2. Light-emitting diode (LED) lights
3. Full-spectrum light therapy
4. Tesla Energy Lights™

Sound therapies and devices come in several forms, and this Researcher limited discussion of the devices to the three types listed below. The following devices use sound and light for creating changes in the physical body and biofield:

1. Light and sound mind machines
2. Life Vessel™
3. Vibroacoustic therapy

The interviews were conducted with practitioners or operators of the Life Vessel™, vibroacoustic therapy, Tesla Energy Lights™, and the infrared heat lamps. The light and sound

mind machines, LED lights, and full-spectrum lights are not typically used by practitioners but by individual consumers.

Assumptions

The following assumptions are made:

- The existence of subtle energy fields is accepted and understood.
- Previous research on GDV camera and software has been capable of measuring the biofield, chakras, and meridians.
- Software programmed to interpret the biofield, chakras, and meridians may contain biased perceptions of the programmer.
- Light-only devices will not balance the biofield, chakras, and meridians.
- Practitioners of infrared heat lamps, Tesla Energy Lights™, vibroacoustic-therapy devices, and Life Vessel™ have in-depth understanding of these devices.

Definition of Terms

Biofield

“The energy field, which surrounds and interpenetrates the physical body. The biofield is made up of magnetic and electromagnetic energies generated by living cells, as well as subtle energetic fields” (Gerber, 2001, p. 555).

Chakra

“A Sanskrit word meaning ‘wheel.’ These wheels of energy, also called energy centers, run along the midline of the body. The root chakra at the bottom and the crown chakra at the top have just one vortex of energy each. The five chakras between (sacral, solar plexus, heart, throat, and brow) have a vortex at both the front and back of the chakra” (Stone, 2008, p. 310).

Homeodynamics

“One of the basic concepts of functional medicine in which the body maintains biochemical individuality by constantly undergoing physiologic and metabolic processes” (“Homeodynamics,” 2014, para. 3).

Kirlian Photography

“A process that is said to record directly on photographic film the field radiation of electricity emitted by an object to which an electric charge has been applied” (“Kirlian Photography,” 2015, para. 1).

Meridians

“A micro-tubular channel, which carries a subtle nutritive energy (chi) to the various organs, nerves, and blood vessels of the body” (Gerber, 2001, p. 560).

Vibrational

“Subtle or electromagnetic energy in varying frequencies and amplitudes” (Gerber, 2001, p. 565).

Chapter Summary

Perhaps, with time and education, individuals will be able to recognize and understand these unseen energy fields better. When this occurs, the importance of maintaining a balanced flow through the channels that tie these fields to the physical body will be acknowledged. When an imbalance occurs out in the biofield, chakras, and meridians and is not corrected, dis-ease can manifest in the physical body. This process of dis-ease reflects the importance of maintaining balance and energetic flow between these fields for optimum health of mind, body, and spirit. The ability of a device that uses light, sound and vibration to assist in maintaining balance in these energy fields could be beneficial to many individuals to reduce pain and stress.

Chapter 2: Literature Review

Thesis Topic

The literature review reveals the uniqueness of research on how light, sound, and vibration can bring homeodynamics to the biofield, chakras, and meridians. Research has been conducted on these energy fields individually but not combined. The exploration of devices that create light, sound or vibration to balance these fields is an uncommon thesis topic.

The published research on the biofield, chakras, and meridians enables the reasonable expansion of those studies by emphasizing the common bond. Research has been conducted on devices that reduce pain and stress, research which is expanded upon in this thesis. The combination of these devices to optimize these energy fields has apparently not been previously explored. The originality of this thesis lies in its expansion upon the currently published studies while connecting the importance of balancing these energy fields, which is unique.

Shedding Some Light on the Human Biofield

Regarding the human biofield, one can turn to Dr. Beverly Rubik, who first coined the term *biofield*. In Freeman's (2009) book on complementary and alternative medicine, Rubik wrote,

The human body emits low-level light, heat and acoustical energy; has electrical and magnetic properties; and may also transduce energy that cannot be easily defined by physics and chemistry. All of these emissions are part of the human energy field, also called the biologic field, or biofield. However, no agreement has been reached in the scientific community on the definition of the biofield. (p. 556)

Gerber (2001) defined the biofield as "the energy field, which surrounds and interpenetrates the physical body. The biofield is made up of magnetic and electromagnetic energies generated by

living cells, as well as subtle energetic fields” (p. 555). An important part of this definition is the surrounding and interpenetrating of the physical body. What else is defined as surrounding and interpenetrating the physical body? Gerber (2001) defined the aura as “the energy envelope that surrounds and interpenetrates the physical body. The aura is made up of all the different energy shells that compose the physical, etheric, astral, mental, causal, and higher spiritual aspects of the multidimensional human form” (pp. 554–555). Some individuals can see others’ auras as colored hues of light. Regarding this light, Rubik (1996) wrote,

Virtually all organisms give off light say scientific frontier researchers. Is this light merely an insignificant waste product? Or does it mean the existence of what ancient philosophies called “subtle life energies” or “vital force” – an organizing energy field, which communicates within whole organisms? (p. 119)

Schools of Thought on Subtle Energy

Subtle energy is one of the wedges between western and eastern medicine and between scientific frontier researchers, or the “biophysical school,” versus the “biochemical school.” As Rubik (1996) explained,

The “biophysical school,” which sometimes refers to the light as “biophoton emission,” maintains that it is indicative of an endogenous, innate, electromagnetic field pervading the entire organism, which may act as both sender and receiver of the biophotons that are “electromagnetic bio-information” used in regulating life processes.

According to those in the “biochemical school” the extremely low intensities and the broad spectral range of the light are considered as evidence that the phenomenon is biologically insignificant. These researchers maintain that the light emission is due to heterogeneous, localized phenomena in various parts of the cell with different sources of

emission from unrelated processes. (p. 122)

Regarding external electromagnetic fields and their effect on one's physical well-being, a researcher could turn to Saunders' (2003) article "Health Hazards and Electromagnetic Fields":

Biological rhythms, physical wellbeing and mental states are dependent on our electrical brainwave system interacting with the extremely weak electromagnetic fields generated by the Earth's telluric and cosmic radiations. In a single generation, since the evolution of humankind over millions of years, we are exposed to a wide range of powerful, artificially generated electromagnetic radiation which adversely affects the subtle balance in nature's energy fields and has become the source of so-called "disease of civilization." This also includes electromagnetic sensitivity. Generally, there is a lack of awareness and understanding of the impact electromagnetic fields can have upon health and wellbeing. Very gradually, modern allopathic medicine and attitudes are beginning to recognize the extraordinary wisdom and efficacy of ancient traditions such as acupuncture, light, color, and other therapies based on the understanding and treatment of the interaction of a person's electromagnetic subtle body and the immediate environment. These and many other "complementary" therapies may soon become mainstream medical practice. (p. 191)

Differing points of view between allopathic medicine and complementary and alternative medicine will continue as do differing points of view on religion. If the chasm between these two genres of medicine could be closed, the ability to measure and treat physical conditions with less invasive tools and chemicals might occur.

Energy Blockages

When an individual accepts the "biophysical school" of thought and agrees that subtle

energies exist, comprehending the feasibility that energy blockages can occur in these fields is possible. Regarding energy blockages, Gerber (2001) explained,

Energy blockages occur when the natural flow of subtle energy through the human energetic system is interrupted. This often is due to abnormal function in one or several chakras. Patterns of illness occur at the energetic level before they manifest at the cellular level. (p. 557)

This energetic level is the energy envelope that was discussed earlier, which contains energy shells that compose the physical, etheric, astral, mental, causal, and higher spiritual bodies. Acknowledging blockages in the flow of energy through the human energetic system can manifest as dis-ease within the physical body. Ensuring that the flow of energy remains balanced and free flowing is the key to wellness. Homeodynamics in the physical body includes the flow of this energy field inside and outside of the physical body. Rubik (2002) provided an explanation and perfect analogy of the biofield and the homeodynamic process of the living system:

As a holistic property of the organism, the biofield is proposed to regulate homeodynamic processes at multiple levels of organization from the molecular level upward to that of the whole organism. The biofield is similar to a conductor regulating the musicians playing a symphony. In this case, however, the conductor and the symphony are one and the same, because life is a self-organizing system. All the body constituents and their interactions give rise to the biofield, and the biofield in turn directs the functions of all the body constituents. (p. 710)

In summary, the biofield exists partially outside of one's physical body and directs the functions of the physical body. This subtle energy that controls the flow of energy through and

around one's physical body can tend to be influenced by external forces. When one stubs a toe, the physical body feels it and reacts. When the biofield is bombarded with negatively charged energy, the physical body does not always feel it as immediately as the physical body feels the pain of stubbing a toe.

Magnetic Fields and the Human Mind

Becker and Selden (1985), building on research by Friedman and Bachman, "found evidence that 'abnormal natural' fields from solar magnetic storms were affecting the human mind. The evidence was reflected in psychiatric hospital admissions" (p. 276). To further study this evidence, the authors decided to experiment on people:

We exposed volunteers to magnetic fields placed so the line of force passed through the brain from ear to ear, cutting across the brainstem-frontal current. The fields were 5 to 11 gauss, not much compared with the 3,000 gauss needed to put a salamander to sleep, but ten to twenty times earth's background and well above the level of most magnetic storms. We measured their influence on a standard test of reaction time – having subjects press a button as fast as possible in response to a red light. Steady fields produced no effect, but when we modulated the field with a slow pulse of a cycle every five seconds (one of the delta-wave frequencies we had observed in salamander brains during a change from one level of consciousness to another), people's reactions slowed down. We found no changes in the EEG or the front-to-back voltage from fields up to 100 gauss, but these indicators reflect major alterations in awareness, so we did not really expect them to shift.

(p. 276)

People are exposed to many hidden environmental stressors, unaware of the effects on their bodies and on their ability to think clearly. Regarding extremely low frequency (ELF) wave

experiments, Becker and Selden (1985) wrote,

In 1976, a group under J. J. Noval at the Naval Aerospace Medical Research Laboratory at Pensacola, Florida, found the slow stress response in rats from very weak electric fields, as low as five thousandths of a volt per centimeter. They discovered that when such fields vibrated in the ELF range, they increased levels of the neurotransmitter acetylcholine in the brainstem, apparently in a way that activated a distress signal subliminally, without the animals becoming aware of it. The scariest part was that the fields Noval used were well within the background levels of a typical office, with its overhead lighting, typewriters, computers, and other equipment. Workers in such an environment are exposed to electric fields between a hundredth and a tenth of a volt per centimeter and magnetic fields between a hundredth and a tenth of a gauss. (p. 278)

What is the difference between these voltages per centimeter? The weak electric fields that created a slow stress response are as low as 0.005 V/cm. The range of electrical fields in a typical office is 0.01 V/cm on the low end and 0.1 V/cm on the high end, making a typical office environment exposing individuals to electrical fields anywhere from two to 19 times higher than the experiment creating a slow stress response. A skeptic might say that there is a large difference between the size of a rat's or a salamander's brain and a human's brain. The skeptic could continue to say that billions of people around the world are working in these environments every day and do not show signs of stress. However, that individual would question such assumptions should he or she turn to another experiment conducted by Friedman and described by Becker and Selden (1985):

Friedman measured cortisone levels in monkeys exposed to a 200-gauss magnetic field for four hours a day. They showed the stress response for six days, but it then subsided,

suggesting adaptation to the field. Such seeming tolerance of continued stress is illusory, however. In his pioneering lifework on stress, Dr. Hans Selye has clearly drawn the invariable pattern: Initially, the stress activates the hormonal and/or immune systems to a higher-than-normal level, enabling the animal to escape danger or combat disease. If the stress continues, hormone levels and immune reactivity gradually decline to normal. If you stop your experiment at this point, you are *apparently* justified in saying, “The animal has adapted; the stress is doing it no harm.” Nevertheless, if the stressful condition persists, hormone and immune levels decline further, well below normal. In medical terms, stress *decompensation* has set in, and the animal is now more susceptible to other stressors, including malignant growth and infectious diseases. (p. 277)

The ELF's that are in people's everyday environment have an impact on the human body and could be viewed as a hidden stressor. As Friedman discovered after six days, the monkeys no longer reacted the same way to the stressor of the magnetic field. The adaptation to this environmental stressor does not mean that it is not still taking a toll at a hormonal and immune-system level.

Is it possible that a magnetic field can affect the mind? According to Begich (2006), regarding controlling the human mind,

The idea that people can be impacted by external signal generators which create, for example, pulsed electromagnetic fields, pulsed light and pulsed sound signals is not new. The following information demonstrates some of the possibilities and gives hints of the potentials of the technology. On the positive side, researchers in the field of light and sound are making huge progress in a number of areas, including working with learning disabilities, attention deficit disorders, stroke recovery, accelerated learning, drug/alcohol

addiction and enhanced human performance. The research has shown that certain brain states can be influenced in a way, which causes changes within the brain itself. These changes allow individuals the possibility of influencing specific conditions in the mind and body otherwise thought beyond our direct control. The military and others interested in such things have also focused a large amount of research into this area for the purpose of enhancing the performance of soldiers while degrading the performance of adversaries. (pp. 2–3)

From this information, it is evident that pulsed electromagnetic fields can be beneficial, detrimental or neutral to the human mind, physical body, and the biofield.

Heart-Brain Interaction

When an individual approaches life from the heart instead of the egotistical, aggressive mind, the ability to generate positive energy flow occurs. McCraty and Childre (2002) of the Institute of HeartMath and Quantum Intech wrote,

Recent work in the relatively new field of neurocardiology has firmly established that the heart is a sensory organ and a sophisticated information encoding and processing center, with an extensive intrinsic nervous system sufficiently sophisticated to qualify as a “heart brain.” Its circuitry enables it to learn, remember, and make functional decisions independent of the cranial brain. Moreover, numerous experiments have demonstrated that patterns of cardiac afferent neurological input to the brain not only affect autonomic regulatory centers, but also influence higher brain centers involved to perception and emotional processing.

One tool that has proven valuable in examining heart-brain interactions is heart rate variability analysis. Heart rate variability (HRV), derived from the

electrocardiogram (ECG), is a measure of the naturally occurring beat-to-beat changes in heart rate. The analysis of HR, or heart rhythms, provides a powerful, noninvasive measure of neurocardiac function that reflects heart-brain interactions and autonomic nervous system dynamics, which are particularly sensitive to changes in emotional states. (pp. 2–3)

Could this rhythm that binds the heart-brain interaction be similar to the pulsing magnetic forces that can manipulate individuals?

Electricity Within the Body

Conventional science acknowledges the body has an electric current; otherwise, why do so many devices exist to measure the electrical component? To understand this better, it is advisable to read Benor (2004):

Electrochemical reactions in nerve cells create electrical impulses that are used for communication amongst nerve cells, and between nerve cells and the various organs and tissues of the body. The electroencephalogram (EEG) is used to identify the summed fluctuations in electromagnetic (EM) activities of countless brain cells. EEG brainwaves are recorded with electrodes placed on the scalp. When muscles contract, they create EM impulses that can be measured on the surface of the body by an electromyogram (EMG). The electrocardiogram (ECG or EKG) is used to record the contractions of the heart muscle, which produces the most powerful EM activity found in the body. These EM activities have been thoroughly studied over the course of many decades. There are other EM fields within and around the body whose presence and functions have not been studied as thoroughly and are, therefore, not as well understood. They have also been ignored by mainstream science for reasons that are not entirely clear or obvious. (p. 419)

It is interesting that the heart produces a more powerful electromagnetic activity than the brain. As one knows when faced with a sudden fright, one's heart rate will increase, and, once the frightening situation has passed, the heart rate returns to normal. Regarding the power of the heart's field, Surel (2011) wrote,

The heart's electromagnetic field, by far the most powerful rhythmic field produced by the human body, not only envelops every cell of the body but also extends out in all directions into the space around us. The cardiac field can be measured several feet away from the body by sensitive magnetometers. Research conducted at HeartMath suggests that the heart's field is an important carrier of information. (p. 8)

The Autonomic Nervous System

Having heartfelt compassion has the ability to produce a calming communication amongst one's nervous system, which, in turn, interacts with the ANS. To assist with understanding the ANS, one can turn to Patricia Daniels (2014), writer for National Geographic Society:

The body's internal housekeeping tasks – heart rate, digestion, sweating, opening or constricting blood vessels, dilation or contraction of the pupils – belong to the autonomic nervous system. Sensory neurons deep within the blood vessels and the organs monitor and send information to the brain about internal conditions such as blood pressure and oxygen levels.

It is in its output, its motor activities, that the autonomic system is really distinctive. Commanding smooth muscle, cardiac muscle, and some glands, autonomic motor neurons typically are classified as sympathetic or parasympathetic. Generally speaking, the sympathetic division activates the organs in response to strong emotion – it

is the fight-or-flight system – while the parasympathetic division inhibits activity and conserves resources at times of rest. Most organs receive signals from both divisions. In stressful situations, that feeling of an internal tug-of-war is pretty literal. (p. 56)

To better understand this tug-of-war between the parasympathetic and sympathetic nervous systems, Figure 1 provides a breakdown on what each system controls. There are a yin and yang to these two nervous systems, which allow one to see the importance in having a balanced ANS.

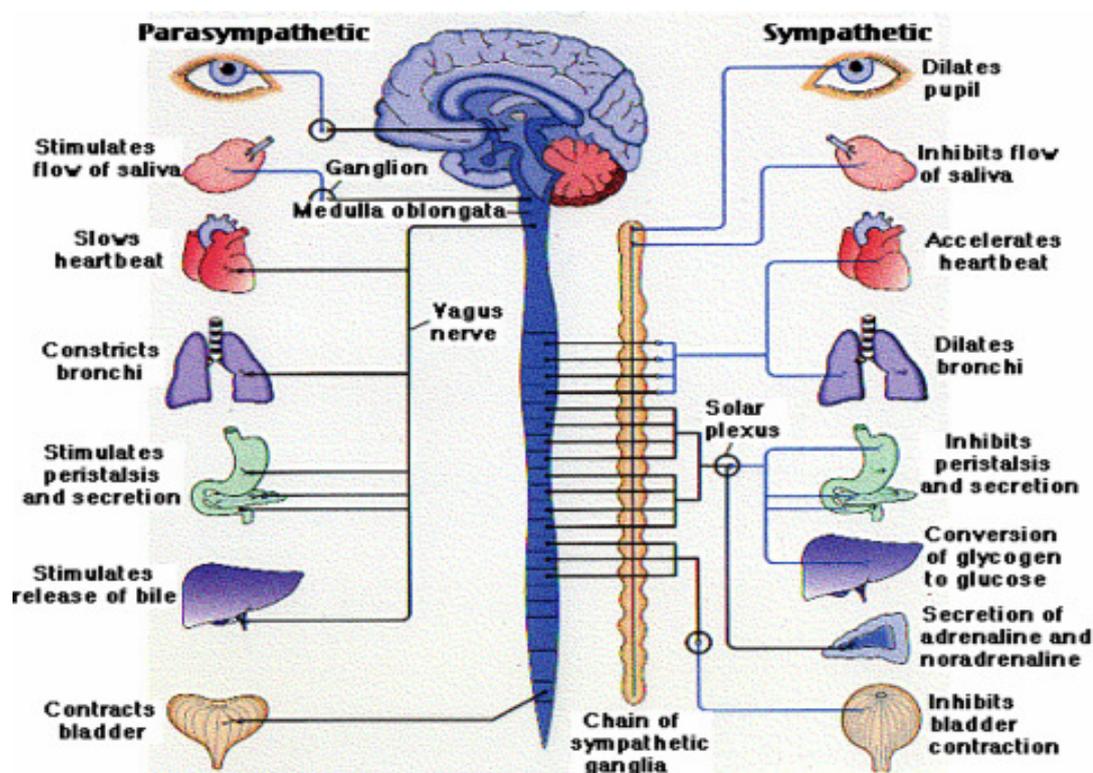


Figure 1. Diagram of the autonomic nervous system showing the actions of the parasympathetic and sympathetic systems.

From “Autonomic Nervous System,” 2015, *Psychlopedia*. Copyright 2015 Tangient LLC. Reprinted with permission.

When the ANS has a cohesive balance between the parasympathetic and sympathetic systems, the organs associated can function as intended. There is no longer a struggle between the organ wanting to contract or expand; a cohesive rhythm takes over, and a synergistic flow occurs.

Meridians and the Light Body

The yin and yang flows that occur in the ANS also occur in the meridians that traditional Chinese medicine (TCM) has acknowledged for thousands of years. Gerber (2001) described the meridian as “a micro-tubular channel, which carries a subtle nutritive energy (chi) to the various organs, nerves, and blood vessels of the body” (p. 560). These meridians are what acupuncturists use to stimulate or diminish the flow of chi to specific areas of the body. There have been several studies on these acupuncture or acupressure pathways. Regarding the meridians, Swanson (2011) wrote,

Overall, a picture is emerging which explains how the body itself, renewing cells year after year, enabling organs and tissue to continue even when their component cells have been completely replaced. At the cellular level, the body blueprints are carried by the DNA, which is an active molecule capable of transmitting and receiving electromagnetic signals of many frequencies. In these signals is coded information about the overall design. This coded information is read and acted on by other DNA. The acupuncture meridian system plays the role of boosting these signals as it carries them throughout the body, maintaining phase relationships (coherence) to preserve the hologram, while performing other functions as well, including the transport of stem cells which can be used to respond to needed tissue repair. This guiding hologram, inside the body primarily, consists of electromagnetic signals, but outside the body another form of

energy plays an important role. This is the torsion field, and it makes up the aura. (p. 171)

The cells in the body are constantly being regenerated. According to the Stanford School of Medicine (2015), our skin will regenerate itself approximately “every 7 days. A cut heals itself and disappears in a week or two. Every single cell in our skeleton is replaced every 7 years” (para. 1). Further understanding of this regeneration process is provided by Swanson (2011):

This holographic three-dimensional pattern of energy is created by the DNA molecules and is also read by them. Every cell in the body has the basic molecular machinery to be any kind of cell. The actions of the DNA cause it to specialize into the type of cell needed at any location in the body, forming a liver cell or a hair cell, for example. The holographic field around and within the body provides the blueprint, which governs this. It tells the DNA in each cell, based on its location within the pattern, how it should specialize. This is an enormously important discovery, which has only unfolded in the last few years.

Biophotons comprise an important part of this picture. Biophotons are quantized packets of light generated by the DNA and other large molecules in the body. The energy they produce is “coherent.” This means the light from one cell travels to many other cells, and stimulates interactions, so waves in one biophoton are actually coupled to DNA in other cells, and to the waves in other biophotons. As a result, the waves tend to vibrate in step with one another, just like light in a laser. This gives each biophoton more power, because it is reinforced by the waves of other photons. When waves vibrate in step with one another, they add together to create an interference pattern, a hologram. It

is a three-dimensional pattern of energy, which serves as the template of the body. (p. 186)

The interaction of the biophotons, or packets of light, creates vibrational waves. This process assists one in understanding that, when this vibrational wave is destroyed or damaged along with the hologram, the cell is unable to reproduce properly. Theoretically, the use of energy medicine to create light, sound, and vibration helps create the proper vibrational wave, which assists in repairing the hologram. Once the hologram is repaired, the theory is that the cell can then be reminded of the proper cell template during regeneration.

The Role of Chakras, Meridians, and Biofield in the Physical Body

The subtle energy fields that surround and interpenetrate the physical body are chakras, meridians, and the biofield. To find evidence of this human subtle energy system, one could turn to more than 40 years of research by William Tiller. Regarding Tiller's research on subtle energy, Kinney (2014) wrote,

Tiller presents information from a number of experimental and/or observational studies that provide indirect evidence or support for the existence of subtle-energy fields or bodies. From these, I selected the following four studies to offer the reader a sample of Tiller's findings and arguments.

1. Phenomena observed in monitoring energy healers
2. Photographic evidence of subtle energies
3. The subtle-energy nature of paranormal phenomena and homeopathy
4. The observations of children used as subtle-energy detectors. (p. 286)

In summarizing the significance of these and a few other experiments, Tiller emphasizes that these results do not constitute proof for the specifics of his theory. But

he believes that, taken as a whole, they offer compelling evidence for his concept of two realms of reality – one of which exists in subtle, nonphysical dimensions. When combined with the scientific evidence and detailed investigative accounts of unusual consciousness-related experience I present in this book, there is much more support for Tiller's hypothesis on the two realms of reality. (p. 289)

Fortunately, physicists like Tiller have paved the road for more subtle-energy research to be conducted in this important field of energy medicine.

Terminology: Lack of Agreement

Looking back in time at how the subtle energy bodies have been described in other cultures, one can turn to the works of Richard Grossinger (1995):

The degrees and types of subtle bodies described throughout the world may well represent series of ripples created by spirit descending into matter: as the outermost zone only the hint of a physical organism tints invisibility, then solidier and solidier sheaths congregate as spirit passes through denser and denser yet still subtle fields into the realm of mind, from there to the nerves and muscles, and finally into bodily fluids and tissues. (p. 319)

The subtle energy bodies described above by Grossinger are now termed the chakras, meridians, and biofield. This description appears to describe the ripples of energy coming from one's higher spirit down through the chakras and biofield to the physical body. Grossinger (1995) continued the flow of this subtle energy:

Elemental medicine does not make a categorical distinction among these different levels of materialization: all are interwoven, their functions interdependent. What is blood at one level is a mixture of fire, water, light at another; spirit at another. In Hindu science,

the physical body is continuously refashioned of elemental components assimilated from food. The mental body is composed similarly of sensations, thoughts, images, emotions, and ideas – forms, which are comparable to foodstuffs at subtler levels and must be digested and assimilated for healthy functioning (the astral body is considered an extension of the field of the mind, not a spiritual body per se). (pp. 319–920)

The above passage discusses how the physical body is constantly regenerating itself and how food assists with this process. Grossinger (1995) also discussed the levels of the biofield and how thoughts, images, and emotions are comparable to the assimilation of food:

The Prana body is closer to pure spirit body. It draws energy directly from the air in the lungs and also stores the Pranic aspect of food digested in the colon. Whereas corporeal substance moves through the channels, nerves, and arteries of the physical body and is assimilated into the flesh and thought, Prana courses “through the ethereal channels called Nadis and their plexuses (chakras). The vital or Pranic body exerts its effects by stimulating the physical channels, which flow in synchrony with its Nadis.” Prana is activated by nerves, fanned by deep, regular breathing, and dispersed through the skin and pores. When these channels become blocked and numbed, diseases originate. Illness can be cured by the practice of yoga and meditation. In Hindu science, the chakras are the reservoirs and activating centers of Pranic energy. (pp. 319–321)

The above passages tie the subtle energy of the chakras, meridians, and biofield to the physical body, breath, and food. Gerber (2001) described Nadis as “the thread-like subtle paths of energy flow from the chakras to the various regions of the body. Meridians have physical components, whereas Nadis are non-physical” (p. 560). The concept of curing illness by the practices of yoga and meditation is healing with thoughts and breath, which brings the higher vibration down

through the biofield, chakras, and meridians.

It would be advantageous for the scientific and energy-medicine communities to come to an agreement on the terminology of the biofield and acknowledge that the biofield contains the human energy field, chakras, and meridians. A valuable point would be acknowledging that the human body is a light-emitting field with magnetic and electrical fields that require care and attention. In order to obtain optimum health, one needs to treat the body as a whole, which includes the energy that penetrates the physical body from the human energy field through to the chakras and the meridians. When the energy flows in the proper directions in and out of the biofield, balance is accomplished and optimum health can occur.

Light

There are many ways to create a higher vibrational rate, and using light is one of them. Sunlight is one way of raising one's vibrational rate, due to the ultraviolet ray of light it provides. The ultraviolet ray of light that the sun provides assists in nourishing the body with vitamin D, which is beneficial for building strong bones. Vitamin D assists with the body's internal biological clock that controls sleeping and waking times. When the body obtains the proper amount of deep sleep, the ability to avoid mental states of depression and to handle stressful situations with ease is accomplished.

Infrared or Far-Infrared Heat Therapy

Infrared or far-infrared heat lamp therapy is used in TCM to warm the body for healing. If an acupuncturist has issues with the smoke and smell of moxibustion, an infrared heat lamp may be used instead. According to Acupuncture Today (n.d.),

Moxibustion is a traditional Chinese medicine technique that involves the burning of mugwort, a small, spongy herb, to facilitate healing. Moxibustion has been used

throughout Asia for thousands of years; in fact, the actual Chinese character for acupuncture, translated literally, means “acupuncture-moxibustion.” The purpose of moxibustion, as with most forms of TCM, is to strengthen the blood, stimulate the flow of qi, and maintain general health. (para. 1)

According to licensed acupuncturist Andrew Rader (2006), regarding far-infrared light,

If an individual likes the warmth of the sun, one has to appreciate far-infrared light. The sun puts out electromagnetic energy that ranges from X-rays and gamma rays on one end to radio waves on the other. Visible light is in the middle, with violet on the X-ray end and red on the radio end. Just beyond visible red is infrared light. The only difference between these forms of energy is the wavelength and frequency. (para. 1).

Rader (2006) continued with the difference between infrared and far infrared:

Infrared light, which is experienced as heat, runs from 0.76 – 1,000 microns in wavelength. Below 1.5 microns are considered near-infrared: above 5.6 is considered far-infrared. The earth radiates infrared rays in the 7-14 micron band. Humans radiate close to nine microns of infrared heat. The army uses far-infrared binoculars to see humans at night. Since people radiate heat at this wavelength, it would make sense that we should absorb it at the same wavelength. (para. 2)

Infrared or far-infrared devices come in lamps that can be positioned at specific areas of the body or in saunas that allow the whole body to be exposed.

Full-Spectrum Light Therapy

According to the Mayo Clinic (2013), “Light therapy is a way to treat seasonal affective disorder (SAD) by exposure to artificial light. SAD is a type of depression that occurs at a certain time each year, usually in the fall or winter” (para. 1). What is the difference between

artificial light in most office buildings and the artificial light used in light therapy? According to Getoff (2011), regarding artificial light,

There is another detrimental aspect to traditional fluorescent lighting – the “flicker rate” of 60 cycles per second (60 Hz) that is produced by many older-style ballasts. This flicker rate not only results in eyestrain but can also be a potential trigger for epileptic seizures, hyperactivity, SAD, suppressed immune function, and even cancer. Full-spectrum fluorescent lighting, when it includes electronic ballasts, eliminates the 60 Hz flicker rate, and this issue is now being addressed in other fluorescent lighting systems, as well. (p. 26)

Where an individual can be in unfiltered sunlight, there would not be a need for this full-spectrum light. However, certain regions do not have access to sunshine year round. Even if there is access to sunlight, an individual may not be able to absorb the light due to one’s work or school schedule. The full-spectrum light boxes or lighting fixtures would resolve the issue.

Sound

Sound therapy comes in many forms: tuning forks, didgeridoo, toning, crystal bowls, and music to name some. There is even an application for mobile devices with music and the repeating of vowel sounds called the “Chakra Tuner” (Goldman, 2002). This application was created by Jonathan Goldman and is provided free of charge. In 2009, the International Association for Music and Medicine (IAMM) was founded and publishes peer-reviewed articles on sound therapy in its *Music and Medicine Journal*.

Verbally using vowel sounds is used to tune the chakras; tuning forks are used for balancing the biofield. In her book *Tuning the Human Biofield: Healing With Vibrational Sound Therapy*, McKusick (2014) discussed healing of the chakras and the biofield. The book includes

a review by Dr. Beverly Rubik:

This book takes the reader by the hand on a quick tour through the “wonderland” of quantum theory, vibrational therapies, the electric universe, biofield science, and other frontier science topics. Autobiographical bits and pieces make for enjoyable and easy reading...a promising new modality to reduce stress and improve energy flow toward greater wellness. (p. ii)

Regarding the definition of sound, McKusick (2014) wrote,

There are essentially two definitions of sound listed below. The first one describes vibrations within the range of human hearing, the second vibrations in general.

1. Vibrations transmitted through an elastic solid or liquid or gas, with frequencies in the approximate range of 20 to 20,000 Hz, capable of being detected by human organs of hearing

2. Transmitted vibrations of any frequency

Frequencies above 20,000 Hertz (Hz) are referred to as ultrasonic, and frequencies below 20 Hz are infrasonic. For example, a 500 Hz tuning fork oscillates 500 times per second. Frequencies produce overtones, or harmonics. A harmonic frequency is a multiple of a fundamental frequency. (pp. 32–3)

Regarding the human voice, McKusick (2014) wrote, “Conscious and intentional use of the human voice in chanting, singing, and toning has been around for millennia, often within a religious or devotional context” (p. 76). Regarding acoustic instruments, she wrote,

Acoustic instruments such as tuning forks, gongs, and crystal or Tibetan bowls are widely used in sound healing. One of the best-known tuning fork practices, called Acutonics, is a system developed by an acupuncturist in which vibrating weighted tuning forks are

used on acupuncture points. Its effectiveness is based on the same premise as acupuncture – that stimulation of these particular areas unblocks stuck or stagnant energy, improving energy flow throughout the body and supporting the body in healing itself. Acutonics is being employed in some hospitals and nursing homes. (p. 76)

Individuals with hypertension, an aversion to needles or needle phobia could benefit from acutonics. For these individuals, the thought of having acupuncture could cause their blood pressure to increase. This Student witnessed this phenomenon during an internship with an acupuncturist. An individual with a fear of needles wanted to try acupuncture to assist with lowering her blood pressure. The acupuncturist was unable to work on the individual because the blood pressure reading was excessively high, and immediate attention from an allopathic physician was necessary.

Vibration

As previously discussed, light and sound both contain vibrational waves. Emoto (2005) discussed a daily routine where he wakes up with a glass of water next to the bed. He holds the glass of water with both hands and infuses it with thoughts of thanks, love, and gratitude. He then drinks half of the water. Still holding the glass with both hands, he gives thanks for all the things that he plans on accomplishing for the day. The intent is to infuse the water with gratitude for the planned items having been accomplished and then drink the water. The purpose of this process is to infuse water with positive thought in order to carry it down to the cellular level in the body. The theory here is that the vibration of intent spreads out through the space-time continuum and becomes reality.

When approaching the day with positive intent, the ability to overcome any type of suffering becomes easier to accomplish. This positive intention includes positive words,

thoughts, actions, and sounds. The pictures and information in Emoto's (2005) book *The True Power of Water* are the proof that individuals need to understand the effects of positive words and thoughts on water. Water is an excellent conductor of electricity. It would make sense that the energy of thoughts and words would also travel through water. As electricity traveling through water can be harmful to an individual standing in that water so can negative thoughts and words. Regarding sound and water within the human body, McKusick (2014) wrote,

The human body is wired to be exquisitely sensitive to sound. The faculty of hearing is one of the first senses to develop in utero and the last to depart before death. In addition to perceiving sound through our ears, we also "hear" the pressure waves of sound through our skin, and the water that makes up approximately 70 percent of us conducts sound four to five times faster than air. (p. 38)

Staying hydrated with clean, positively charged water is imperative for proper cell regeneration. The ability for light and sound therapies to achieve the desired effects depends largely on whether the individual is well hydrated. The importance of maintaining a body containing approximately 70 percent water is crucial for one's health.

Strengths, Weaknesses, and Gaps in the Literature Reviewed

The literature review revealed how the different human energy fields are intertwined with the physical body, even though these subtle energy fields are not easily accepted by allopathic physicians. Researchers such as Tiller, Rubik, Oschman, Radin, and Becker have spent decades proving the existence of these subtle energy fields. The perseverance of these researchers in the field of subtle energies has contributed valuable knowledge and credibility to the field. The reproducible experiments that have been conducted over the years assist in opening the eyes of the allopathic community. Although skeptics continue to degrade these experiments, as more

individuals learn about the strong scientific evidence in these subtle energy studies, the harder it will be to refute the existence of these fields.

The existence of electricity in the body has been strongly proven by mainstream science with the use of EEG, ECG, and electromyogram devices. Basic science has proven that water is an excellent conductor of electricity. The correlation between keeping the body well hydrated with pristine water and ensuring an efficient flow of electrical current throughout the body should be apparent. The use of infusing intention into the water prior to drinking should also be apparent. If more was written about these facts, it might assist in closing the gap that exists between allopathy and complementary and alternative medicine regarding water and electricity in the body.

Another weakness of the literature reviewed is in regard to knowing when the ANS is in or out of balance. The literature is clear on how the sympathetic and parasympathetic systems function. It is also clear that, when these systems are not in cohesive balance, the organs are not able to function as intended. Apparently, there has not been much scientific research in the balancing of the ANS. However, it is clear that, when they are in balance, a state of calm, contentment and deep, restful sleep occurs.

Assumptions Observed in the Literature Reviewed

An assumption observed in the literature reviewed is that a higher vibration is required to bring about homeodynamics in the energy and physical bodies. It might not necessarily be a higher vibration but a vibration that allows these bodies to obtain balance. Depending on the imbalance, a lower, higher or neutral vibration might be required.

Another assumption in the literature reviewed pertains to specific sounds being beneficial to balancing the chakras. There appears to be a slight conflict about which tone is good for

which chakra. The conflict might be due to two different colors being assigned to the same chakra. Every color has a vibration attached to it, and that vibration has a sound.

Understandably, if a conflict exists regarding the color assigned to the chakra, there would be a conflict regarding the sound for that chakra.

A third assumption in the literature reviewed is that anyone in pain or suffering from stress wants to be healed. There are some individuals who do not want to lose the attention or compensation that is bestowed upon them due to their ailments.

Devices that provide light, sound and vibrational therapy have been briefly discussed in this chapter. The devices that were selected for research are discussed further in the next chapter, which deals with the research methodology and design.

Chapter 3: Research Methodology

Light Therapies

Literature review is the methodology used in this thesis to retrieve evidence on the scientific basis of light therapy. In order to obtain actual usage information, interviews were conducted with professionals who use these lights in their practice. The following devices that use light for creating healing were selected for study:

1. Infrared and far-infrared heat lamps
2. Light-emitting diode (LED) lights
3. Full-spectrum light therapy
4. Tesla Energy Lights™

The literature review process gathered data from scientific articles, product research, U.S. Food and Drug Administration (FDA), peer-reviewed articles, and interviews with professionals who use these lights in their practice. The interviews provided further information on product usage and favorable outcomes for the professionals' clients. Professionals in a healing practice do not typically use the LED and full-spectrum lights. The research on the LED and full-spectrum lights was done through a literature review only.

Information gathered was assembled into an attribute data table in order to provide an overview of responses to the interview questions on lights and analyze the qualitative data relating to the different types of lights. The elements compared were

1. Reduction of pain
2. Reduction of stress
3. Influence on the biofield
4. Influence on the chakras

5. Influence on the meridians

The data gathered for this research was concerned only with pain reduction and stress relief.

Light and Sound Therapies

A literature review was the methodology used to obtain the scientific basis of light, sound and vibration healing for pain and stress reduction. In order to obtain actual usage information, interviews were conducted with professionals that use these devices in a healing practice. The following types of devices that use light, sound, and vibration for therapy were chosen for research:

1. Light and sound mind machines
2. Life Vessel™
3. Vibroacoustic therapy

Professionals in a healing practice do not typically use the light and sound mind machines. The research on the light and sound mind machines was done through a literature review only.

From this portion of the research, an attribute data table was created in order to analyze the qualitative data that was gathered on the same five elements listed above under “Light Therapies.”

The two attribute data tables assisted in answering the following research questions:

1. How can light, sound, and vibration bring homeodynamics to the biofield, chakras, and meridians?
2. What devices create light, sound or vibration to balance the biofield, chakras, and meridians?
3. What sounds are best for creating relaxation to the mind, body, and spirit?

This Researcher endeavored to understand the methods used by operators of the Life Vessel™ and vibroacoustic therapy in selecting the particular music and light selections. In order to obtain this information, the Researcher interviewed seven operators from five Life Vessel™ facilities and two vibroacoustic-therapy professionals. The Life Vessel™ interviewees were based at one of the following five facilities:

1. Life Vessel™ of Santa Barbara, CA
2. Life Vessel™ of Newport Beach, CA
3. Thomas Chiropractic, Santa Rosa, CA
4. Life Vessel™ of Colorado, Colorado Springs, CO
5. Cameron Clinic of Oriental Medicine, Wilmington, NC

The following open-ended questions were used to guide the interview:

1. Which model is your facility using?
2. How many different sound and light selections does your device have?
3. What method do your operators use to select the sound and light selection for each treatment?
4. What training or educational background does the operator have in using the device?
5. What is your understanding of how this device works?
6. What are the top three reasons that your clients use this device?
7. What is your perception as to the client's expectations?
8. Are the clients' expectations evaluated? If yes, who does the evaluation and how is it conducted?
9. Have you gathered any measurements pre- and post- sessions for research? If yes, can you share the data and findings?

10. How long has your facility been using this device, and approximately how many clients does that represent?

The reason for an interview guide with open-ended questions was to open up the possibility of asking further questions. According to Audience Dialogue (2004), an interview guide is “a list of topics to be covered in an interview. This list is similar to a questionnaire, but much less structured, and without multiple-response questions. Used mainly in semi-structured interviews and group discussions” (Interview Guide section, para. 1).

These light and sound therapies have an effect on the brain waves.

Studies of rhythms and the brain have shown that a combination of rhythmic light and sound stimulation has the greatest effect on brainwave frequency, although sound alone can change brain activity. This helps explain the significance of rhythmic sound in religious ceremonies. (Saarman, 2006, para. 8)

In order to explain these effects, two tables in Chapter 4 provide details of the different brainwave frequencies, characteristics, and benefits to states of mind.

Light Devices Researched

Infrared and Far-Infrared Heat Lamps

There are many infrared lamps on the market, and the one researched in this thesis is the Huanqiu Heating Lamp CQ-29. The indications for use of the CQ-29 were noted in the *510(K) Premarket Notification Summaries* (2005) for the Huanqiu Heating Lamp K052063:

Huanqiu Heating Lamp . . . CQ-29 . . . is an infrared lamp that emits the infrared spectrum to provide topical heating for the purpose of elevating tissue temperature, to temporarily increase local blood circulation, and to temporarily relieve minor muscle and joint pain and stiffness. The lamp may also help to relieve minor pain associated with

muscle spasms, minor sprains and strains and minor muscular back pain. (Indications for Use section, para. 1)

The infrared lamp model CQ-29 is one of three heat lamps that were released in this premarket notification to the FDA. The model CQ-29 is between the models CQ-27 and CQ67, with the main difference being the inner cover diameter, which is 20 cm versus 12 cm on the CQ-27 and 30 cm on the CQ-67. According to this FDA document, this lamp is manufactured by Lhasa Medical, Inc. These lamps are now sold as “TDP” lamps according to the product information from A & A Medical Supplies (2007):

Different from conventional infrared lamp and microwave therapeutic device, the TDP lamp features a special plate coated with a proprietary mineral formation consisting of 43 elements essential to the human body. When activated by a built-in electric heating element, this mineral plate emits a special band of electromagnetic waves. It coincides with the wavelengths and intensity of the electromagnetic waves released by a human body and is consequently absorbed by the body. (para. 3)

The meaning of *TDP* is found in the product information from Soothe Your Soul (n.d.): “TDP, or TeDing Dian-ci-bo Pu (Chinese for ‘Special Electromagnetic Spectrum’) has been used in clinical application in China and other Eastern Countries for over 20 years” (para. 13). The history behind the manufacturing of the TDP lamp can be found in the *Premarket Notification 510(K) Summary* (2002) submitted to the FDA for item K020851:

The first TDP Lamp invented by Chongqing Silicate Research Institute (CSRI) in 1985. The former president of CSRI presented the TDP lamp at the 1986 Zagreb International Fair and the 1986 Brussels Eureka World Fair for Invention, and won a gold and a silver medal respectively. CSRI submitted a patent application for the technology of the TDP

lamp in 1987. Before Nov. 1996, the TDP lamps marketed in the USA contained the curing plates manufactured by CSRI. After Nov. 1996, CSRI stopped supplying its curing plates to Chongqing Bashan Instrument Factory, which is the manufacturer for most of the TDP lamps marketed in the USA. (Manufactory section, para. 1)

The history of the mineral plate in the TDP lamp can be found in the product literature from Soothe Your Soul (n.d.):

Early in 1970, an odd and interesting phenomenon was noted at a century-old ceramic factory in a rural area in China. This factory had extremely poor working conditions. The workers there stood in the mud for much of the work day, and the new production manager recognized these abject working conditions and became concerned that the workers would be troubled with arthritis and other related ailments. The manager was concerned about health issues due to the employees standing on the cold, sodden floor for long periods of time and decided to investigate. The ensuing investigation disclosed that the side effects of standing in the mud did not create a single case of arthritis among the workers. Upon a full-scale scientific investigation, scientists discovered a single anomaly: an electromagnetic reading in the far-infrared spectrum emanating from the kiln used to fire the ceramics. Analysis of a metallic slag in the kiln, accumulated over years of buildup, showed it was made up of 33 minerals. These minerals happen to correspond with 33 essential minerals in the human body, and when heated sufficiently, radiate far-infrared energy exactly like the human body. Scientists worked feverishly to reproduce the effect in a portable device, resulting in the Far-Infrared Mineral (FIM) Energizer Plate. (para. 5)

Today, the plates in the TDP lamps contain 43 minerals that are found in the human body. The majority of the lamps offered today are far-infrared lamps.

Light-Emitting Diode (LED) Lights

According to Barolet (2008), “Light therapy is one of the oldest therapeutic modalities used to treat various health conditions. Sunlight benefits in treating skin diseases have been exploited for more than thousands of years in ancient Egypt, India, and China” (p. 227).

Regarding the technology of LEDs, Barolet wrote,

LEDs are complex semiconductors that convert electrical current into incoherent narrow spectrum light. LEDs have been around since the 1960s but have mostly been relegated to showing the time on an alarm clock or the battery level of a video camera. They have not until recently been used as sources of illumination because, for a long time, they could not produce white light – only red, green, and yellow. Nichia Chemical of Japan changed that in 1993 when it started producing blue LEDs which, combined with red and green, produce white light, opening up a whole new field for the technology, just like computer processors, and are increasing in brightness, energy efficiency, and longevity at a pace reminiscent of the evolution of computer processors. Emitted light is now available at wavelengths ranging from ultraviolet (UV) to visible to near infra-red (NIR) bandwidth (247 to 1300 nm). (p. 227)

The National Aeronautics and Space Administration performed research on using LEDs to stimulate the healing of wounds. Explaining the use of LEDs to stimulate healing, Whelan (2002) wrote,

NASA LEDs stimulate the basic energy processes in the mitochondria (energy compartments) of each cell, particularly when near-infrared light is used to activate the

color sensitive chemicals (chromophores, cytochrome systems) inside. Optimal LED wavelengths include 680, 730 and 880 nm and our laboratory has improved the healing of wounds in laboratory animals by using both NASA LED light and hyperbaric oxygen. Furthermore, DNA synthesis in fibroblasts and muscle cells has been quintupled using NASA LED light alone, in a single application combining 680, 730, and 880 nm, each at 4 Joules per centimeter squared. Muscle and bone atrophy is well documented in astronauts, and various minor injuries occurring in space have been reported not to heal until landing on Earth. An LED blanket device may be used for the prevention of bone and muscle atrophy in astronauts. The depth of near-infrared light penetration into human tissue has been measured spectroscopically. (para. 1)

The LED Light device that is included in this research is the WARP 75 from Quantum Devices, Inc. (QDI). This device was selected because QDI developed the solid-state lighting system for NASA. According to the product information for the WARP 75 on the Quantum WARP Light Devices (2011) website, the features are

- High intensity 50 mW/cm² illuminated surface [which] produces 4 Joules/cm² dose in 88 seconds
- Large 75 cm² treatment area
- Dose accuracy controlled by an electronic timing circuit (timer) with audible end of cycle alarm
- Remains cool to the touch
- Easy to operate with one hand
- Mounted to articulated arm (upon request)
- Certified wavelength (670 nm) and power output

- AC power. (para. 3)

In order to explain the meaning of these measurements, a figure showing the LED wavelengths was created, which can be found in Chapter 4.

Full-Spectrum Lights

A multitude of products claim to provide full-spectrum light. These product types include bulbs, lamps, and saunas. The effects of full-spectrum lights would not fit into an attribute data table, so a literature review was conducted. To explore the benefits of placing full-spectrum lights in the work place, one can turn to Full Spectrum Solutions (n.d.), who stated,

As more employers implement full spectrum lighting in the workplace, more and more companies will experience the economic success that Control Data in Sunnyvale, CA experienced when they made the switch. Following their \$15,000 investment in full spectrum lighting for their data processing center, Control Data's error reduction rate increased so dramatically after the first year that their profits increased by a significant \$225,000. Other companies report improved employee morale, greater productivity, better quality control, error reduction rate, and reduced absenteeism. (para. 7)

An interview with Dr. H. Thomas, a chiropractor, provided information on the benefits of Spectro-Chrome therapy and the Lumitron Light Stimulator. The information provided led the Researcher to review the literature of Dinshah P. Ghadiali, the inventor of Spectro-Chrome therapy.

A figure showing the progression of the wavelength measurement from ultraviolet light through far infrared is provided in Chapter 4. The near-, mid-, and far-infrared wavelength classifications used by the International Commission on Illumination (CIE) are tabulated in

Chapter 4. The figure and table are necessary for explaining the classifications used by different agencies.

Tesla Energy Lights™

Preliminary research on the Tesla Energy Lights™ suggests that it does not have FDA approval. It was necessary to do further research and an interview with an inventor of this technology to understand why FDA approval has not been obtained. However, this Researcher suspects that obtaining FDA approval for a device that benefits the subtle energy fields might be difficult.

The ability to obtain scientific data that have been documented by the inventors and sales representatives of this device would have been beneficial to this research. Research discovered a YouTube video that showed the use of GDV camera and software that mapped the biofield, chakras, and meridians. Data were captured prior to the session and after the session for one individual. The Researcher interviewed Mr. Goldheart who is on the team of inventors of the Tesla Energy Lights™. Mr. Goldheart (personal communication, September 4, 2015) confirmed verbally that this type of data had been duplicated several times and documented.

Light and Sound Devices Researched

Light and Sound Mind Machines

There are several different manufacturers of light and sound machines, and this Researcher narrowed the field by selecting two different systems to compare. After extensive research, the Nova Pro 100 and MindPlace Procyon Light and Sound Machine devices were selected to provide a comparison of features and claims.

The Nova Pro 100 by Photosonix, which is a registered trademark of Microfirm Inc. located in Signal Hill, California, is a device that uses light and sound technology. This product

was chosen for the longevity of the parent company. According to the Photosonix (2015a) website, “Microfirm has been in business longer than any other light/sound manufacturer. Microfirm’s history is one of growth through innovative product development, quality manufacturing, and excellent customer service” (para. 4).

The MindPlace “Procyon Audio Visual Synthesizer System Light and Sound Meditation Mind Machine” was selected for the longevity of MindPlace. According to the MindPlace (2015) website, the company “is the world’s most experienced and trusted manufacture of Light and Sound Machines. MindPlace has produced trend-setting enlightenment technologies since 1988” (para. 5).

Life Vessel™

The Life Vessel™ is a trademark device developed by Barry McNew in 1998. According to the *510(K) summary document for the Life Vessel™* (2007) submitted to the FDA for item K070690,

The Life Vessel™ is a chamber in which the patient lays flat under the treatment light source and positions the part of the body to be treated under the light source. The system is also used for non-medical relaxation applications and for these purposes includes music and sound components for relaxation. (Device Description section, para. 1)

This document also provides the indications for use as follows:

The Life Vessel™ is indicated to provide topical heating for the relaxation of muscles and relief of muscle spasms, temporary relief of minor muscle and joint aches, pains and stiffness, temporary relief of minor pain and stiffness associated with arthritis, and to temporarily increase local blood circulation. (Indications for Use section, para. 1)

There have been several studies performed on this device in the past 16 years. One of the studies by Vann and Donaldson (2003) was presented by Barry McNew and Valerie Donaldson at the *Science of Whole Person Healing*. The report, titled *Body Core Temperature and the Life Vessel™ Study*, Vann and Donaldson (2003) included temperatures taken before and after Life Vessel™ treatments. This study included “the ANS test to measure the function and balance of the autonomic nervous system” (p. 3–4). This Researcher noted the following information from Vann and Donaldson’s discussion section:

The Life Vessel™ is adjusted for specific patient needs; the music and lights are not chosen randomly. The details regarding the types of light and music used is proprietary information that was not available for inclusion in this study, that information could have possibly provided more insight into both experimental design and data analysis, allowing for more literature research regarding the properties of light and music of certain wavelength and frequency. With more information regarding the specific light and music in use it could have been possible to better predict, explain, and group the observed results. It might be even more informative to have generated a placebo in which the control subjects entered an enclosed chamber in which bogus light and sound was used.

(p. 6)

Vibroacoustic Therapy

During the last few decades, several studies have been conducted using vibroacoustic therapy. Several companies produce these products, and two companies were selected for this research. The SoundWell Corporation was chosen because it is the “official representative of Olav Skille Vibroacoustic Therapy Solutions from Nordic Countries in America” (SoundWell Corp., 2013, para. 1). Regarding Olav Skille (2011) and vibroacoustic therapy,

Olav Skille is one of the main pioneers and innovators of Vibroacoustic Therapy (VAT). Olav has over thirty years of wisdom in applied research collaboration, therapeutic work with disabled children and people with chronic disease, training therapists around the world and creating low sound solutions that correlate with relief of pain, stress and various illness symptoms. Researchers on VAT often quote and base their acquired knowledge on Olav Skille's wisdom. (para. 1)

According to Bill Gochenour (2015) of MindBody Connection, regarding vibroacoustic therapy, Vibroacoustic technology has experienced widespread use in hospitals, healthcare facilities, wellness programs, education, and corporate organizations as well as being used extensively in private settings. Vibroacoustic technologies were first developed in Scandinavia, between 1970 and 1980 independently by Olav Skille and Petri Kehikoinen. The U.S. based Somatron Corporation began distributing designs in 1985. Since then, the technology has continued to evolve with new and more refined designs. (para. 2)

The second company chosen was Somatron®, since its product was used in research conducted by the National Institutes of Health. According to Boyd-Brewer (2003), regarding the use of vibroacoustic therapy for stress and anxiety,

Relaxation and resultant anxiety reduction have been continuously noted, as significant outcomes of VAT, by technology designers and researchers. At the 1994 National Association of Music Therapy Conference, in Los Angeles, CA, George Patrick, Ph.D., Chief of Recreation Therapy at the National Institutes of Health (NIH), presented the theory that VAT triggers the relaxation response and that this state is responsible for many stress-mediated medical and nursing care benefits of vibroacoustics. (p. 260)

Chapter 4: Findings

Introduction

The qualitative research study interviewed professionals who used certain light, sound and vibrational devices for pain or stress reduction.

Light-only devices included in the research were infrared heat lamps, LED lights, full-spectrum lights, and Tesla Energy Lights™. The research uncovered an infrared device that was not included in the initial research but surfaced during interviews. The device is the BioMat, which uses Amethyst crystals to create infrared heat. The first section in this chapter is titled “Devices Using Light for Healing” and explains infrared light and the wavelength spectrum measurements for ultraviolet light, visible light, and infrared light. The differences in how organizations such as the International Organization for Standardization (ISO), NASA and CIE measure or classify near-, mid-, and far-infrared measurements are discussed and tabled. The importance of infrared heat for the body is included with detailed information provided by one of the professionals who uses the infrared heat lamp. The remaining light devices – LED lights, full-spectrum lights, and Tesla Energy Lights™ – are then discussed. The section “Devices Using Light for Healing” concludes with an attribute chart displaying the responses to five of the questions posed to the professionals that use the heat lamp, LED lights, and the Tesla Energy Lights™.

The section “Light and Sound Machines” presents the devices that use light, sound, and vibration for pain and stress reduction. The devices researched were sound mind machines, Life Vessel™, and vibroacoustic therapy. This section begins with information on the brainwave states and binaural beats. A table with the breakdown of different states of brainwaves and the associated frequencies and characteristics is included. Another table displays the benefits

associated with a list of brainwave states. Additional information regarding different brainwave states and precautions is included. The “Brainwave and Binaural Beats” section concludes with an explanation of binaural beats and why they assist in obtaining certain brainwave states. The section on the Life Vessel™ includes information regarding chromotherapy. The final sound and light device is vibroacoustic therapy, the discussion on which includes the research on vibroacoustic chairs and tables. The final diagram is an attribute chart showing the answers to the five questions that were posed to seven Life Vessel™ professionals and one vibroacoustic therapy table professional. The chapter culminates with a discussion of the findings.

Devices Using Light for Healing

Infrared Light and Associated Wavelengths

As mentioned in Chapter 2, “electromagnetic energy ranges from x-rays and gamma rays from one end to radio waves on the other” (Rader, 2006, para. 1). Visible light is in the middle between ultraviolet and infrared. Although ultraviolet light energy wavelength is too short to be seen by the human eye, it can cause sunburn. Infrared light energy wavelength is too long to be seen by humans, but we can feel the heat that it generates. In 1800, Sir Frederick William Herschel discovered that, when passing sunlight through a prism, items beyond the red light would get hot (Hermans-Killam, 2000, pp. 1–2). Light beyond the red is known as infrared radiation.

The *Merriam-Webster Dictionary* describes a *wavelength* as “the distance from one wave of energy to another as it is traveling from one point to another point” (“Wavelength,” 2015, para. 1). Electromagnetic energy is measured in wavelength, and there is a slight difference in classified measurements between the ISO and the CIE. The ISO measures visible light between 0.4–0.78 μm . The CIE measures visible light between 0.4–0.7 μm . Figure 2 contains ISO

measurements that were gathered from Robles-Kelly and Huynh's (2013) book *Imaging Spectroscopy from Scene Analysis* (p. 10). The breakdown on the visible light ranges was obtained from the NASA website (Madigan, 2011, p. 2). The visible light micrometer (μm) measurements are the approximate wavelength for the specific color range. Violet would range from 0.4–0.445 μm , and Red would range from 0.65–0.78 μm .

According to Madigan (2011), "The white light is a mixture of the colors of the visible spectrum, and black is a total absence of light" (p. 1). Full-spectrum light is a mixture of all the colors of visible light.

Ultraviolet light ranges from 0.1–0.4 micrometer (μm)

Ultraviolet	C	B	A
Wavelength (μm)	0.1 - 0.28	0.28 - 0.315	0.315 - 0.4

Visible light ranges from 0.4–0.78 micrometer (μm)

Color of Light	Violet	Indigo	Blue	Green	Yellow	Orange	Red
Wavelength (μm)	0.4	0.445	0.475	0.51	0.57	0.59	0.65

Infrared light ranges from 0.78–1000 micrometers (μm)

Infrared	Near	Mid	Far
Wavelength (μm)	0.78 - 3	3 - 50	50 - 1000

Figure 2. ISO and NASA wavelength spectrum measurements

Near Infrared

Near-infrared light is the closest to visible red light and generates heat. The light used in many restaurants to keep food warm is near infrared. The heat from near infrared can penetrate the skin to a depth of 4 in. (10.16 cm) and might be able to kill cancer. The National Cancer Institute (2011) discussed the use of hyperthermia to treat cancer:

Whole-body hyperthermia is used to treat metastatic cancer that has spread throughout the body, which can be accomplished by several techniques that raise the body temperature to 107–108°F, including the use of thermal chambers (similar to large incubators) or hot water blankets. (para. 12)

Incubators use near-infrared light bulbs. The National Cancer Institute did not mention near-infrared sauna, but the term thermal chamber does describe a sauna. The ability of these lights to increase body temperature has an impact on the sympathetic and parasympathetic nervous system. Regarding near-infrared lamp saunas, Wilson (2013) wrote,

The sympathetic nervous system moves and keeps the blood congested in the internal organs. The sauna powerfully moves blood to the periphery of the body, so that the body can release some heat at the skin, which is a parasympathetic effect. (p. 1)

The constant yin and yang of the sympathetic and parasympathetic nervous system is key to obtaining a balanced ANS. When an individual is stressed, the sympathetic nervous system becomes dominant, and the parasympathetic nervous system becomes passive, creating an imbalance in the ANS. When an individual's sympathetic nervous system becomes dominant, congestion occurs in the blood flow to the organs. According to Dr. M. Tierra (personal communication, May 19, 2015), DOAM,

When people are stressed, 90% of the blood goes to the surface of the body and away from the organs. The infrared heat lamp increases the blood flow, which relaxes the arteries and calms the nervous system down and brings more blood to the internal organs. The fight-or-flight syndrome allowed the body to react to dangers by having the sympathetic nervous system become dominant. The purpose of this dominance was to allow the blood flow to move quickly from the organs to the muscles for quick physical reaction. Besides blood flow moving away from the organs, the body also secretes fluids, and the glands secrete hormones to prepare the body for efficiently running from large predators. In today's society, this physical reaction is not always necessary. However, one's body can reach a fight-or-flight syndrome while being confined to a vehicle, a desk, a line in public, a seat in a theater, and many other situations.

Mid- and Far Infrared

The wavelength spectrum measurement used by ISO and NASA for mid-infrared is 3–50 μm , and for far infrared, 50–1000 μm (see Table 1). According to the *510(K) Summary: K053376* (2006) filed with the FDA by Chung Cheng Electric Heating Co., Ltd., the manufacturer of the Far Infrared Ray Healthful Lamp, the emission spectrum for this lamp ranges 4–14 μm . The manufacturers of these far-infrared lamps are not using the ISO and NASA spectrum measurement to distinguish between mid- and far infrared. Instead, it appears that the CIE classifications are being used.

Table 1

CIE Classification of IR Radiation

Name/Abbreviation	Wavelength	Photon Energy (THz)
Near infrared/IR-A	0.7–1.4 μm (700–1400 nm)	215–430
Mid-infrared/IR-B	1.4–3.0 μm (1400–3000 nm)	100–215
Far infrared/IR-C	3.0–100 μm (3000 nm–0.1 mm)	3–100

Note. Adapted from Vatansever and Hamblin (2012, p. 256).

The FDA regulations do not distinguish between near, mid- and far infrared. The *FDA Physical Medicine Devices Rule* (2014) for infrared lamps states, “An infrared lamp is a device intended for a medical purpose that emits energy at infrared frequencies (approximately 0.70–50 μm) to provide topical heating” (p. 1). It is important to understand that when an individual refers to far infrared, it may not be between 50–1000 μm . Instead, the ISO and NASA would classify 0.78–50 μm as near to mid-infrared. To understand the difference between ISO, NASA, and CIE classifications, see Table 1 for the CIE infrared (IR) wavelength and photon energy breakdown according to Vatansever and Hamblin (2012):

In the IR radiation bands, only far infrared (FIR) transfers energy purely in the form of heat, which can be perceived by the thermo receptors in human skin as radiant heat. Not only is far infrared absorbed by the human body it is also emitted by the body in the form of black-body radiation (3–50 μm with an output peak at 9.4 μm). (p. 256)

Infrared rays are absorbed and emitted by not only the human body but also all things on earth.

Prior to the interviews, this Researcher was not aware of the Biomat, which is a device that uses amethyst stones to generate far infrared. The Researcher learned about the use of the

BioMat during interviews with four of the professionals. Regarding the BioMat device, B.

Gochenour (personal communication, July 4, 2015), a body and soul healer, explained,

NASA figured out in the 1960s that amethyst quartz crystal is the best conductor of far-infrared light. The BioMat goes up to 159°F, it does not hurt the skin, and goes deep into the body. It kills cancer cells because cancer cells cannot live beyond 106°F.

The FDA and the Federal Trade Commission do not allow for advertising the Richway Amethyst BioMat as killing cancer. However, regarding cancer cells and the BioMat, Kehr (2015) of the Independent Cancer Research Foundation, Inc., wrote the following:

Cancer cells favor low body temperature (which means low oxygen levels and high acidity). The BioMat “shines” infrared light through amethyst into your body, which raises your body temperature. After 40 minutes, the human body is able to maintain this heat for up to 8 hours. The heat not only helps build the immune system, but it also leads to oxygen deprivation, which creates an acidic environment around the cancer cells. A two-degree increase in body temperature results in a 40% increase in immunity. Because cancer cells are weak, and cannot regulate their temperature, heat above 109.4 degrees (Fahrenheit) will stimulate the death of the cancer cells. (paras. 6–10)

Further research showed that NASA obtained a technology patent in the 1960s, and, in 1997, this patent became public knowledge. The release of this information allowed Richway International, Inc., to manufacture and sell the Richway Amethyst Biomat. To better understand the Biomat, one could turn to an article by Livhealthy (2014):

The BioMat converts electricity through a computerized control panel, produced with Texas Instruments parts, into Far Infrared Rays (FIR), nature’s invisible light. The BioMat’s Super Fiber materials also generate FIR (6–12 μm) that the human body can

easily absorb. As the FIR passes through the Amethyst crystals, the crystals elongate the wavelength and emit a Long Wave FIR (6–12 μm) that penetrates 5 to 7 inches into the body. (para. 2)

In contrast, the TDP heat lamp uses the ceramic plate to generate infrared 2–25 μm that penetrates 2–3.5 in. (5.08–8.89 cm) into the body. According to the *TDP CQ-27 IR-Heater Lamp (TDP lamp) Instruction Manual* (n.d.), the lamp will provide a therapeutic heating temperature range of 104–113°F. The heating head should not be positioned closer than 8 in. (20.32 cm) to the body; otherwise, a burn may result (p. 4). The TDP lamp infuses a specific area of the body with 33 minerals and heat. The BioMat infuses a larger area of the body with negative ions and heat.

LED Devices

LED devices used in reducing pain and promoting wound healing fall into the visible red or near-infrared wavelength spectrum. These devices tend to produce a wavelength between 0.65 μm (visible red light) and 0.95 μm (near infrared), which is known as low-level light therapy (LLLT). Regarding the use of LLLT, Hamblin (2008), dermatologist at Harvard Medical School, wrote,

Low-power laser therapy is used by physical therapists to treat a wide variety of acute and chronic musculoskeletal aches and pains, by dentists to treat inflamed oral tissues and to heal diverse ulcerations, by dermatologists to treat edema, non-healing ulcers, burns, and dermatitis, by orthopedists to relieve pain and treat chronic inflammations and autoimmune diseases, and by other specialists, as well as general practitioners. Laser therapy is also widely used in veterinary medicine (especially in racehorse-training centers), and in sports medicine and rehabilitation clinics to reduce swelling and injuries.

Lasers and LEDs are applied directly to the respective areas, acupuncture points, and/or muscle-trigger points. (para. 36)

J. Stanford (personal communication, July 19, 2015), an occupational therapist, stated, “When projecting the LED light onto a painful, tight muscle, the blood flow and circulation is increased, which helps decrease the pain and muscle tightness.”

Typically, LLLT uses light from visible red to near infrared. However, visible blue light in the 0.47 μm wavelength range has been studied for wound healing. Regarding a study on blue LED light therapy for wound healing, Adamskaya et al. (2010) wrote,

In contrast to previous studies, we showed that also blue light significantly influences wound healing. Furthermore, our data suggest that light therapy can play an important role in normotrophic wound healing by affecting keratin expression. Illumination would provide an easily applicable, safe and cost-effective treatment of surface wounds. (p. 917)

B. Gochenour (personal communication, July 4, 2015), a mind, body and soul healer, uses red and blue LED lights to stimulate or decrease the flow of chi in the meridians that end or begin at the fingertips. He also demonstrates how the subtle energy feels with these LED lights on the chakras in the palms of the hands.

Full-Spectrum Lights

The use of full-spectrum lights by professionals is not as common as using these lights in a workplace or at home. However, this Researcher interviewed Dr. H. Thomas, who is a Doctor of Chiropractic, Ayurveda, Nambudripad’s Allergy Elimination Technique, and owner/operator of a Life Vessel™. Dr. Thomas has taught and written two books on Ayurveda, and around

1989, she started using Dr. Downing's Lumitron Light Stimulator in her practice. According to Dr. H. Thomas (personal communication, July 13, 2015),

The Lumitron is a crystal and full-spectrum light that has about 15 different colors. A person sits in this little booth, and the practitioner chooses a color that has a frequency depending on the condition being treated. The person looks at either a blinking light or depending on the frequency they may not see the blink because it is going so fast. They look at the light for about 20 minutes, and it has been used for conditions such as schizophrenia, ADD, and specifically for depression. I used the Lumitron for every kind of condition by using Dinshah's first encyclopedia of light that related to conditions.

Dinshah P. Ghadiali wrote the *Spectro-Chrome Metry Encyclopaedia* in 1933 (Dinshah, 2012, p. 12). Spectro-Chrome therapy uses color filters over a light source to project the color onto different parts of the body, depending on the ailment. The Spectro-Chrome color projectors and parts including the filters are illegal to sell because the U.S. FDA has deemed these items to be medical devices. In regard to the FDA's insistence, D. Dinshah (2012), the son of Dinshah P. Ghadiali, wrote,

In 1947, a six-week trial in Camden, NJ, initiated by the Federal Food and Drug Administration, resulted in a fine of \$20,000 and probation for Dinshah for five years, including the stipulation that he dissolves himself from any form of promotion of Spectro-Chrome. He also was ordered to surrender for destruction all books in his possession relating to Spectro-Chrome: their total value may have amounted to \$250,000 (in 1948 dollars). He was permitted to keep one set of his writings for his personal library. (p. 7)

K. W. Baldwin, M.D., F.A.C.S., a proponent of Spectro-Chrome therapy, wrote an article titled “The Therapeutic Value of Light and Color,” which was published in the April, 1927 *Atlantic Medical Journal*. The article was reproduced by D. Dinshah (2012) and stated,

When the spleen, the liver, or any other organ falls below normal, it simply means that the body laboratories have not provided the required materials with which to work. Either because they are not functioning as a result of some disorder of the internal mechanism, or because they have not been provided with the necessary materials. Before the body can appropriate the required elements, they must be separated from the waste matter. Each element gives off a characteristic color wave. The prevailing color wave of hydrogen is red, and oxygen is blue, and each element in turn gives off its own special color wave. Sunlight as it is received by the body and split into the prismatic colors and their combinations as white light is split by passage through a prism. Everything on the red side of the spectrum is more or less stimulating while the blue is sedative. There are many shades of each color, and each is produced by a little different wavelength. Just as sound waves are tuned to each other and produce harmony or discords so color waves may be tuned, and only so can they be depended on always to produce the same result.

(p. 7)

The difference between Dr. Downing’s Lumitron Light Stimulator and Dinshah’s Spectro-Chrome Color Projector is that the Lumitron is used specifically on the eyes instead of different parts of the body.

Tesla Energy Lights™

One of the developers of the Tesla Energy Lights™, Mr. A. Goldheart, agreed to be interviewed for this study. A. Goldheart (personal communication, September 4, 2015) explained the purpose of using these lights:

The Tesla Energy Lights™ are for a person who wants to be supported energetically and multi-dimensionally. Multi-dimension means in any form whether it is physical or not. Emotional, mental, spiritual – it works on all the properties of the person, not just a part of the physical – everything we are it supports energetically.

When asked, “Do the Tesla Energy Lights™ provide pain reduction?” A. Goldheart (personal communication, September 4, 2015) responded,

No, the person does that on his own by the amount of energy that he has. The source of his energy can be in many different sources. The lights are not a healing or a fixation device. The result of exposure to the subtle energy alchemy, such as the Tesla Energy Lights™, turns into a millivolt in the system and, when the system receives millivolts through the alchemy of getting subtle energy, it heals itself. When pain arises, a person can dissipate it based on the amount of energy the person is able to acquire in terms of speed. In terms of the natural capacity of the body to heal itself, it does that in a longer term; the lights actually amplify the natural process that the person has to self-heal. Self-healing is what an individual does when he goes to sleep at night. If I were to answer the question directly the way it was asked, it would jeopardize the integrity of the value of the individual whose body knows how to self-heal.

When asked, “Do the Tesla Energy Lights™ provide stress reduction?” A. Goldheart (personal communication, September 4, 2015) responded,

It is the same answer as given to the previous question. The lights enhance a person's capacity to de-stress because the energies that are put into the Tesla Energy Lights™ are in balance. When one is talking about stress, a person is talking about the difference between the energies of the parasympathetic and the physical. What happens when somebody is in stress? It can become emotional or physical, but, when an individual has a polarity difference, he or she is out of balance. If a person gets into balance, his/her stress has the appearance of being reduced and this reduction can be measured.

Therefore, one would say this device provided an individual with less stress when that is impossible because the person who gets on the Tesla Energy Lights™ to reduce stress is choosing to look for assistance. When an individual drives a car, the gas does not tell the person where to go. The person directs and manages what he or she is going to do with that gas. Where is an individual going to go with the gas is the question? The energy from the Tesla Energy Lights™ is about what an individual is going to do with the energy. How is she or he going to direct it? The question truly is: Does the Tesla Energy Lights™ fuel an individual? The answer to that question is absolutely yes. The experience and the results are up to the individual.

When asked, "Do the Tesla Energy Lights™ have any influence on the Biofield? A.

Goldheart (personal communication, September 4, 2015) responded,

Absolutely; the biofield is an energetic property that is a field in itself as we know, and the lights create a field. So, when they merge, now that influence has a direct aspect to the person experiencing what it feels like to have balanced energies in this experience. Then, on a multi-dimensional level, it will work in different ways of perception; because of the multiple ways in which we operate consciously or unconsciously an individual is

going to have a variety of different influences. When an individual is within the influence of the lights, all of a sudden, he or she has an integral part that has a timeline of influence. Even though the energies are not in the air when an individual leaves, the energies are in the individual. So, now, the individual's blood, water, and biofield have a resonance that that individual did not have before. He or she carries this resonance with him or her like a mood. If an individual gets in a good mood, and he is in a great place, he can carry that with him the rest of the day. It is very similar to carrying a mood, except it is more on an energetic basis with a balance. Now individuals feel, think, and believe differently. Therefore, they are not challenged by less than they are; they are supported by more than they are. Then in this state they can move forward to whatever it is they want to do with their mission or their life or relationships.

Goldheart agreed that the Tesla Energy Lights™ absolutely influence the chakras and meridians in addition to the biofield. There have been numerous studies using the Tesla Energy Lights™ and GDV to measure the chakras and biofield. In regard to these measurements, A. Goldheart (personal communication, September 4, 2015) stated,

From a scientific standpoint, the GDV can measure the chakras and biofield. I have measured thousands of people that have experienced the Tesla Energy Lights™, and there is a shift almost every single time. The exception to that is when the person is already in alignment with him or herself and then what might change is the volume.

Attribute Chart for Light Devices

The Tesla Energy Lights™ do not provide pain and stress reduction. However, the body does respond to the frequencies provided by the Tesla Energy Lights™ to reduce pain and stress.

In actuality, none of the devices provide pain and stress reduction; it is the individual's body that responds to the device with the body's innate ability to heal itself.

Table 2 indicates that all four professionals agreed the heat lamp has an influence on the biofield and meridians of the human body. Three of the four professionals who use the heat lamp agreed that there is an influence on the chakras. The fourth professional's statement was, "I do not know; it is not something that I have studied, so I am not sure" (HL4, personal communication, August 4, 2015). This individual is a third-year student of acupuncture.

Table 2

Responses to Interview Questions on Lights

Device	Reduction of pain	Reduction of stress	Influence on the biofield	Influence on the chakras	Influence on the meridians
Heat Lamp 1	Yes	Yes	Yes	Yes	Yes
Heat Lamp 2	Some	Yes	Yes	Yes	Yes
Heat Lamp 3	Yes	Yes	Yes	Yes	Yes
Heat Lamp 4	Not Seen	Yes	Yes	Not Known	Yes
LED 1	Yes	Yes	Not Known	Not Known	Not Known
LED 2	Yes	Yes	Yes	Yes	Yes
Tesla Energy 1	No	No	Yes	Yes	Yes

Light and Sound Machines

Brainwaves and Binaural Beats

Two light and sound mind machines selected to compare features and claims were the Nova Pro 100 by Photosonix and Procyon by Mindplace. These two mind machines are very similar, and both use AudioStrobe for the glasses. The Photosonix (2015b) website describes AudioStrobe:

AudioStrobe signals are recorded on a music CD at a high, inaudible frequency, to control the lights in a light/sound system. An AudioStrobe decoder detects these signals and uses them to drive the lights of a light/sound system absolutely in sync with the music. (para. 3)

D. Topp (2013), an associate of Mind Sciences Network, wrote a review comparing the Procyon and the Nova Pro 100 and noted,

The Procyon sessions do not allow for the selection of just one color; those glasses constantly change color in all sessions. That is not to say an individual will not get a majority of blues and greens in more meditative sessions with the Procyon. It just means that one does not have the control of pure color should one eventually desire it. With the ColorTrack Glasses, not only does an individual have the ColorTrack option where a full palette of colors is delivered during any session, but also has the option of selecting only a certain color. (para. 3)

The ColorTrack Glasses are an optional feature over the standard glasses. The ability to select a solid color would be similar to the Lumitron, which has particular colors or frequencies to look at in the booth for 20 minutes. Figure 3 shows the corresponding frequency tracking from the *ColorTrack Glasses Owners Manual*.

Frequency	Color
Delta	Blue
Theta	Aqua
Alpha	Green
SMR	Orange
Low Beta	Red
High Beta	Indigo
Gamma	Magenta

Figure 3. Brainwave frequency and associated color.

Adapted from Photosonix (2006, p. 8).

The acronym SMR stands for sensorimotor rhythm, which is an EEG frequency from 12–15 Hz that is associated with an alert, attentive state coupled with calm or silent motor activities (Fisher, 2009, para. 1).

Visible light has a frequency, and, when looking at a particular color, it is possible to affect the brainwaves. Table 3 charts the brainwave categories, frequency ranges, and characteristics of that brainwave.

Table 3

Brainwave Frequencies and Characteristics

Brainwave	Frequency	Characteristic
Delta	0.5–3 Hz	Low frequency and deep penetrating like a drumbeat; deepest meditation and dreamless sleep
Theta	3–8 Hz	Occur most often in sleep but are also dominant in deep meditation
Alpha	8–12 Hz	Dominant during quietly flowing thoughts, and in some meditative states; resting state for the brain
Low Beta	12–15 Hz	Dominant waking state can be thought of as a fast idle
Mid Beta	15–22 Hz	Dominant waking state can be thought of as high engagement
High Beta	22–38 Hz	Dominant waking state can be thought of as highly complex thought, high anxiety, or excitement
Gamma	38–42 Hz	Fastest and high frequency like a flute relate to expanded consciousness and spiritual emergence

Note. Adapted from Brainworks (n.d., p. 1).

Crossthwaite (2013), author of *Change Your Mind: An Explanation of Brainwave Entrainment*, provided an explanation of brainwaves and light goggles:

Brainwave entrainment or “brainwave synchronization” is the process of changing his or her brain’s electrical activity to match a form of sound or light stimulation. To entrain brain waves, people usually use binaural beats, Isochronic tones, Monaural beats, or in other cases, a mind-machine. Light goggles can be utilized for light stimulation though this method is typically not as effective as sound stimulation. A combination of light and sound entrainment can also be used. Brainwave entrainment is most often used to help

people either relax or focus, but there are many other uses as well. People interested in meditation or stress relief will find this technology to be an extremely valuable tool. It will not only help an individual reach deeper levels of relaxation but will also help train an individual to enter those levels by him or herself. (p. 5)

Table 4 displays Crossthwaite's list of benefits associated with the different brainwave states.

Besides the benefits provided by the different brainwave patterns, Fannin (2015), a psychologist, offered additional information:

Delta brainwaves are not only abundant in those who are in deep meditation. They are also abundant in newborn infants, young children, people with A.D.D. or A.D.H.D., people who have had near-death experiences, or people who have experienced head injuries. (p. 7)

Depression is quite common with people that have large amounts of theta brainwaves, and if this is the case with an individual, it is important to be very cautious about symptoms he or she exhibits. For example, if an individual has a loss of appetite, becomes highly impulsive or stops finding joy with the activities he normally enjoys, he should consult a professional. However, there are so many benefits, which for many people, it is worth improving the amount of theta brain waves one currently has. Playing video games can shut down the beta brainwaves and switch one's brain to a visual of thinking which can produce a creative, theta activity on a regular basis. Meditation can drastically help to lower one's brain waves, especially when done on a regular basis. It does not matter whether an individual meditates, plays video games or indulges in more artistic activities to increase their theta brain wave activity; it all contributes to more productivity, creativity and the improvement of one's memory. (pp. 9–10).

Table 4

Brainwave Benefits

Delta	Theta	Alpha	Beta	Gamma
Release of anti-aging hormones	Emotional connection	Slowing down a mind that is typically racing	Alert and awake	High-level information processing
State of empathy	Advanced intuition	Disappearance of anxiety and tension	Logical thinking	Boosted memory
Extreme bliss	Subconscious connection	Disappearance of stress and nervousness	Adults have more	Enhanced perception of reality
Advanced healing of body and mind	Peak levels of creativity	Enhanced problem-solving skills	Children and teens have less	Increased compassion
Human growth hormone release	Advanced problem-solving skills	Enhanced learning, focus, and creativity		Natural antidepressant
Connection with unconscious mind	Lower anxiety, stress, and neurosis	Deeper sleep		Advanced learning ability
Deepest level of mind and body relaxation	Bridges the spiritual connection	Stronger immune system		Intelligence increase
Perfect intuition	Ability to program subconscious mind	Sense of well-being		Positive thoughts
Connecting with the spiritual body	Paranormal experiences			Higher energy levels
Paranormal experiences	Boosted immune system			High level of focus
Boosted immune system	Improved long-term memory			Improved perception/consciousness
Emotional baggage	Ability to hyper focus			
Extremely unfocused mind	Healing body and mind			
Extreme sleepiness				
Hyperactivity				

Note. From *Change Your Mind: An Explanation of Brainwave Entrainment* (pp. 18–27), by M. Crossthwaite, 2013, www.scribd.com.

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When an individual has too much beta activity in his brain his ability to problem-solve shuts right down. Stress causes clutter in an individual's thought process, and the solution is to produce more alpha waves. If an individual ever gets writer's block or gets stuck on an important task, then getting the "aha" moment of creative inspiration is possible when he learns how to switch on his alpha mind and get back into his state of "flow." (p. 10)

Though gamma brainwaves are usually not correlated with stress and anxiety, they can be. When a person mostly displays high amounts of beta brainwaves in combination with gamma on an E.E.G., the individual probably has very high levels of anxiety. Though gamma brainwaves usually decrease when a person is under stress, the dopamine released from gamma brainwaves can actually cause him to feel overanxious, nervous, or tense. It is best not to increase both gamma and beta brainwaves at the same time. Depending on his current brainwave state, it is important to recognize that though he is usually safe with increasing gamma, overdoing training time or frequency of training may make him feel unpleasantly anxious. (pp. 18–19)

Getting a good night's sleep is important for staying healthy, and keeping a healthy, powerful brain. Gamma brainwaves are increased the moment an individual wakes up from sleep. Though he or she is in the theta brainwave for most R.E.M. (rapid eye movement) sleep, the gamma brainwave is present along with the theta. Most non-dream deep sleep is linked to an increase in delta brainwave activity, whereas dream-sleep is mostly linked to gamma and theta brainwave activity. (p. 19)

Sleep is an important time for the body to rest and relax and attempt to find a balance between the sympathetic and parasympathetic nervous systems. A daily practice of meditation allows the

training of the brainwaves to reach low-frequency brainwave patterns and higher frequency gamma states during waking hours. This training allows the brain to seek these frequencies on a regular basis to promote relaxation and a sense of well-being. These states assist the body to rest, relax, and repair.

Sound and light mind machines typically use binaural beats to alter the brainwave patterns. To understand how binaural beats work, one can turn to Lane, Kadian, Owens, and March (1997), who offered an explanation in their article “Binaural Auditory Beats Affect Vigilance Performance and Mood”:

When two pure auditory signals of similar frequency are mixed together, the phase interference between their waveforms produces a composite signal with a frequency midway between the upper and lower frequencies and an amplitude modulation that occurs with a frequency equal to the difference between the two original frequencies. For example, mixing tones of 100 Hz and 110 Hz yields a signal with a perceived frequency of 105 Hz that rises and falls in amplitude with a frequency of 10 Hz. The amplitude-modulated composite signal is called an auditory beat. A similar phenomenon occurs when auditory signals of similar frequency are presented separately to the left and right ear through stereo headphones. Although each ear hears only one of the frequencies, the listener perceives the middle frequency and the amplitude modulation, even though the auditory beat does not exist in the physical space. This phenomenon, called a “binaural auditory beat,” and described more than 25 years ago, is created by the brain’s processing of the two separate auditory signals at the level of the olivary nuclei of the brainstem. (p. 249)

The importance of the headphones is that the input of one frequency is received by the left side of the brain, and another frequency is received by the right side of the brain, which causes the brain to lock onto the difference between the two frequencies. When the frequency difference is 10 Hz, the brainwave frequency pattern falls into the alpha state.

Life Vessel™

The Life Vessel™ is an FDA-cleared, Class II medical device that has five U.S. patents and employs the therapeutic modalities associated with vibration, sound, and light.

Additionally, it utilizes an infrared light source to facilitate an increase in both blood circulation and oxygen levels to the cells, while change to cells, the simultaneous combination of vibration, light and sound delivers the ultimate experience in relaxation therapy. Relaxation provides benefits to the body that include: higher energy levels, improved sleep, stronger cognitive abilities, an enhanced immune system and the ability for an individual to reduce stress. (Life Vessel™, n.d., para. 2)

An interview was conducted with T. Strane, who owns the Life Vessel™ of Newport Beach and is part of a team that owns the rights to manufacture and sell the Life Vessel™. There are two light sources in the Life Vessel™: one is infrared, and the other uses chromotherapy with colors of blue, yellow, and red. The light bulb painted blue, yellow, and red is surrounded by a hexagonally formatted mirror. According to T. Strane (personal communication, March 16, 2015), “The hexagonal format is critical, because that is how the eye best perceives the light and bringing it in from the different angles.”

An article by Yousuf Azeemi and Moshin Raza (2005) found on the U.S. National Library of Medicine, National Institutes of Health website titled “A Critical Analysis of Chromotherapy and Its Scientific Evolution” stated, “Chromotherapy is a method of treatment

that uses the visible spectrum (colors) of electromagnetic radiation to cure diseases. It is a centuries-old concept used successfully over the years to cure various diseases” (p. 481). The authors went on to say,

Chromotherapy is a narrow band in the cosmic electromagnetic energy spectrum, known to humankind as the visible color spectrum. It is composed of reds, greens, blues, and their combined derivatives, producing the perceivable colors that fall between the ultraviolet and the infrared ranges of energy or vibrations. These visual colors with their unique wavelength and oscillations, when combined with a light source and selectively applied to impaired organs or life systems, provide the necessary healing energy required by the body. Light affects both the physical and etheric bodies. Colors generate electrical impulses and magnetic currents or fields of energy that are prime activators of the biochemical and hormonal processes in the human body, the stimulants or sedatives necessary to balance the entire system and its organs. (p. 482)

The irony of this article, originally published in *Evidence-Based Complementary and Alternative Medicine Journal* and posted on the U.S. governmental website, is that it references the work of Ghadiali. Dinshah Ghadiali is the individual who was persecuted by the FDA in 1947. The courts ordered the burning of all his books and documents on Spectro-Chrome. Yousuf Azeemi and Moshin Raza (2005) stated, “Ghadiali discovered the scientific principles that explain why and how different color rays have various therapeutic effects on the body. His *Spectro-Chrome Encyclopaedia* is considered to be the first published book to explain the complete doctrine of chromotherapy” (p. 483).

To further describe what the Life Vessel™ is and what it does, Dr. H. Thomas (personal communication, July 13, 2015), a chiropractor and owner of the Santa Rosa Life Vessel™ said,

Every single time a person goes in the Life Vessel™, it oxygenates the tissue, it de-stresses the body, it regulates the blood pressure, and it boosts the immune system. The Life Vessel™ provides therapeutic relaxation. It is based on the idea that a person lies down on a certain kind of density foam and, underneath the foam, there are 30 or 40 speakers. Inside, there are two full-spectrum lights and an infrared device. There are 33 tracks of music that use the speakers to create a wave that goes from the feet up and from the head down with this music. When the body is lying down with the legs, hands, and cranium flat on the dense pad, the vibration of the music on the bones triggers the piezoelectric effect. The music goes through the bones, and it is very melodic, and it is designed to slow everything down but fill the body with sound waves. Of course, we know bone conducts sound waves, and so the bone conducts the sound wave and it arcs the piezoelectric effect and it has an immediate effect on slowing the fight-or-flight brainwave pattern down. When the brainwave pattern slows, then the fight-or-flight syndrome slows down and allows for rest and digest to occur.

The Life Vessel™ has undergone several studies of clients using the heart rate variability (HRV) monitor developed by the ANSAR Group (T. Strane, personal communication, March 16, 2015).

The ANSAR Group is the innovator of noninvasive real-time digital autonomic nervous system (ANS) monitoring. An MIT patent, to which ANSAR holds the exclusive license, establishes the constants for our heart rate variability (HRV) methodology. The frequency method uses spectral analysis, the only HRV method to quantify both branches (sympathetic and parasympathetic), of the autonomic nervous system. (ANSAR, 2005, paras. 1–2)

In regard to the data collected by the HRV machine, T. Strane (personal communication, March 16, 2015) stated,

The reason we stopped doing the pre- and post-HRV testing was because it was 15 minutes pre- and 15 minutes post-sessions. I have filing cabinets full of these, so we have all the data we need; we are taking more of the client's time, and it was confusing them. Honestly, we had nine out of 10 clients that would see improvement. The only reason the 10th did not typically show improvement was because there was always room for someone who is on medication. The HRV could not be adjusted for that.

While lying in a wooden enclosure, 30–40 speakers underneath the client provide sound waves through the bones, stimulating a piezoelectric effect throughout the body and balancing the meridians, chakras, and biofield. The procedure includes being under an infrared light, which assists with moving the stagnant blood in the organs to provide optimum circulation throughout the body. In addition, the eyes are positioned under one of the two colored lights providing a form of chromotherapy. The sound, light, and vibration allow the ANS to come into balance. The dominance of the sympathetic system will wane, and the diminished parasympathetic system will wax to find the perfect balance.

Vibroacoustic Therapy

Vibroacoustic therapy consists of headphones playing music, glasses that flash colored light (chromotherapy), and speakers in a table that provides vibration. There are many different types of tables, chairs, and pillows that contain speakers connected to a music system to vibrate the body. The pillows are placed on the front of the body while the back is resting on the table or in the chair. Chairs are typically in the zero-gravity position that NASA discovered. NASA (n.d.) explains the zero-gravity chair:

Measurements recorded in orbit by NASA astronauts have shown, in its most unstressed and relaxed state, the human body assumes a trunk-to-thigh angle of 128 degrees. The zero gravity posture was found to place the musculoskeletal system in its most rested condition. Specifically, this natural posture fosters a non-stressed muscle system, correctly aligned vertebrae, better breathing, improved digestion, and enhanced circulation. (para. 2)

When the body is placed in the zero-gravity position, it automatically relaxes. The body knows that when it is placed in a horizontal position, it is time for rest, relaxation, and restoration.

Individuals that consistently have difficulty sleeping could benefit from a vibroacoustic therapy session in the zero-gravity position rather than the horizontal position. Once an individual begins sleeping soundly, for the proper amount of hours, in the horizontal position, the body remembers how to rest, relax, and restore.

There are many different types of vibroacoustic chair and table designs, patents, and manufacturers. After much research, one table, which appeared unique and supported by scientific research, is the Dr. Thompson Neuroacoustic Sound System. The difference between Thompson's system and the others is that, by using sound, the left and right side of the brain are being synchronized. The table or chair has transducers on the right and left sides and a barrier in the middle to prevent vibrational bleed from one side to the other. The lights in the glasses are in sync with the music and are controlled by the left and right sides. Three senses – hearing, seeing, and feeling – are synced between the left and right sides of the brain to create a balance between these two hemispheres. Thompson (2015), a chiropractor, explained further:

The obvious stress reduction benefits of listening to relaxing music have been proven through numerous research projects in hospitals, universities and private clinical practices

over the course of many years. Normally, hearing involves sound waves pushing air pulses against the ear drum, moving mechanical joints of the middle ear bones which amplify these vibrations to the inner ear, which pushes fluids into wave pulses, moves tiny nerve endings, fires signals through the 8th cranial nerve directly into the Temporal lobe of the brain and which interprets these impulses as “sound”. When delivering these sound frequencies through the body directly, an entirely different system of the body, the spinal cord and areas of the brainstem and brain, are brought into play, offering the possibility of a much deeper whole body response. Direct stimulation of living cellular tissue using sound frequency vibration has shown marked cellular organelle response with a corresponding measurable increase of cellular metabolism and, therefore, a possible mobilization of a cellular healing response. Since the human body is over 70% water and since sound travels five (5) times more efficiently through water than through air, sound frequency stimulation directly into the body is a highly efficient means for total body stimulation, especially at a cellular level.

Sound frequency pulse waves played directly into the body also have a profound effect on the nervous system. The entire posterior one-third (1/3) of the spinal cord consists of nerve tract bundles whose sole purpose is the transmission of vibration sense data to the Brain Stem, Cerebellum, Pons, Medulla, Hippocampus/Limbic System, which are the emotional processing areas, and various areas of the Cerebral Cortex. (paras. 9–10)

When using any healing modality, the importance of being well hydrated can never be overstated. Besides having the water as a conductor of the sound and electrical response, it assists with the flushing of the dead cells and toxins.

In regard to Thompson's Neuroacoustic system and technique, L. Voss (personal communication, September 25, 2015), an owner of a Neuroacoustic system and trained by Thompson, stated,

Dr. Thompson's technique is to find the individual's exact frequency that will bring about homeostasis [this Researcher prefers the term homeodynamics]. What Dr. Thompson does in his generic CDs is he actually spans all the frequencies. So, at some point an individual is hitting his or her frequency in all the music that Dr. Thompson has composed.

To understand an individual's frequency, one can turn to author and director of Globe Sound and Consciousness Institute, D. Gibson's (2013) explanation of the home note:

In music, the home note is the key of the song. In jazz music, they will often try and avoid the home note. In Sound Healing music, we go to the home note often. When a person plays an instrument that is only one note, like a crystal bowl, it automatically becomes the home note. Most sounds have multiple frequencies in them called harmonics. However, even though a single sound is made up of multiple notes, our brain focuses only on the home note. In sound, it is called the root or fundamental tone within the overall conglomeration of harmonics present in the sound. Even if the fundamental is missing in a sound, our brain will actually make it up! So, again, we are very focused on the home note. In Sound Healing, the home note is an important key to bringing us into a state of peace. In fact, it is the key to much of the physical, mental, emotional, and Spiritual healing process.

Physically, every single cell, organ, and part of the body has a home note. In physics, it is called the resonant frequency of the object. Research has shown that every

cell in our body has its own home note; even our heart and every organ in the body, has their own home note. When we are in tune with our own home note, we feel more grounded. When we go to the home note in our voice people believe we are sincere. Moreover, when truly feeling and expressing love, most individuals will go to the home note of the key of their voice. Emotionally, we are always trying to come back to the home note in our thoughts and emotions. In fact, the definition of a stuck emotion is a frequency that has never resolved to the home note. Mentally, when the home note is apparent in our thoughts, they are much clearer. Our thoughts resolve to a place of peace instead of anxiety and stress.

Spiritually, when we are in touch with the ultimate home note, Our Soul, we are at complete peace no matter what happens. When we are resonating with the home note of higher emotions like Unconditional Love, we feel tremendous amounts of peace and equanimity. Stillness does not ensue from any of the other notes as it does when we come home to ours. (pp. 19–20)

Dr. Thompson claims his method to ensure that every frequency is included in his music generates a sense of peace for the listener. The importance of finding one's home note can assist one to stay in peace and harmony when in the middle of chaos. Gibson also noted the importance of the home note to the healing of the biofield.

Attribute Chart for Light, Sound and Vibration Devices

Table 5 presents the summary of the interviews conducted with professionals who provide the Life Vessel™ and vibroacoustic devices to individuals for relaxation. As previously noted, the devices provide an environment for the body to find balance in the ANS that then

allows the individual to choose to allow his or her body's innate ability to heal and obtain a homeodynamic state in all the systems.

Table 5

Responses to Interview Questions.

Device	Reduction of pain	Reduction of stress	Influence on the biofield	Influence on the chakras	Influence on the meridians
LV1	Yes	Indirectly	Clients Claim	Clients Claim	Clients Claim
LV2	Yes	Yes	Yes	Yes	Yes
LV3	Yes	Yes	Yes	Yes	Yes
LV4	Yes	Yes	Yes	Yes	Yes
LV5	Yes	Yes	Yes	Yes	Yes
LV6	Yes	Yes	Yes	Yes	Yes
LV7	Yes	Yes	Yes	Yes	Yes
VIBRO1	Yes	Yes	Yes	Yes	Yes
VIBRO2	Yes	Yes	Yes	Yes	Yes

Note. LV = Life Vessel™; VIBRO = vibroacoustic device.

Discussion of Findings

Nine Professionals who provide Life Vessel™ or vibroacoustic therapy claimed that there is an influence on the biofield, chakras, and meridians. Expanding on the influence the Life Vessel™ imparts to an individual, S. Badasci (personal communication, March 18, 2015) reiterated a comment from a Shaman after experiencing the Life Vessel™. The Shaman stated

that the Life Vessel™ session thoroughly balanced all the bodies; the physical, emotional, mental and spiritual in a way that she had never experienced before.

Fourteen Professionals were interviewed, and 12 (86%) declared that the devices had an influence on the biofield, chakras, and meridians. The two professionals who did not declare their devices had any influence on these areas were responding to the questions on the heat lamp and the LED lights. One hundred percent of the professionals interviewed about the Life Vessel™ and vibroacoustic therapy declared that these devices had an influence on the three areas in question. Two of the 14 professionals interviewed responded to all of the light-only, light-sound, and vibrational devices. The influence of these devices on the biofield, chakras, and meridians is discussed further in Chapter 5. The Researcher is unaware of any previous research conducted on devices that use light, sound, and vibration to influence the biofield, chakras, and meridians.

Chapter 5: Conclusions

Response to Research Questions

Research Question 1: How can light, sound, and vibration bring homeodynamics to the biofield, chakras, and meridians?

Light uses chromotherapy, sound uses brainwave entrainment, and vibration creates the piezoelectric effect. When the ANS reaches a homeodynamic state, the sympathetic and parasympathetic systems become balanced. When these two systems are balanced, the body can function with ease and an individual's breathing is regulated. When an individual's breathing is regulated, the circulation of fluids throughout the body can flow naturally. The natural flow of the bodily fluids includes the proper flow of the meridians. When the meridians are properly flowing, the ability for the chakras to open and function properly occurs. With the chakras open, the biofield can expand and become strong, allowing an individual to remain grounded and balanced. When an individual reaches a homeodynamic state, the ability to "surrender to the flow of life and the ability to remain in the zone" occurs (Thibodeau, 2007, p. 22). When the body is regulated and functioning optimally, an individual has the ability to react with resilience when faced with a stressful situation. When the body is in a homeodynamic state, it is able to activate the innate ability to heal itself and then healing occurs in the physical body and the subtle energy fields of the biofield, chakras, and meridians.

Research Question 2: What devices create light, sound, and vibration to balance the biofield, chakras, and meridians?

The interviews confirmed that the Life Vessel™ and the vibroacoustic table or chair were devices that balanced the biofield, chakras, and meridians. There are several vibroacoustic therapy devices, and the research behind Dr. Thompson's devices is extensive. These devices

balance both hemispheres of the brain by using two different frequencies to the left and right sides of the body through the ears, eyes, skin, and bones. The ability to see and feel what a person is hearing is an important factor in assisting the mind and body to reach a homeodynamic state.

Research Question 3: What sounds are best for creating relaxation to the mind, body, and spirit?

Gibson (2013), a leading scholar in the field of sound healing and therapy, wrote about every individual having a home note:

When we are in tune with our home note, we feel more grounded. When we go to the home note in our voice people believe we are sincere. Spiritually, when we are in touch with the ultimate home note, Our Soul, we are at complete peace no matter what happens. When we are resonating with the home note of higher emotions like Unconditional Love, we feel tremendous amounts of peace and equanimity. Stillness does not ensue from any of the other notes as it does when we come home to ours. (p. 20)

Every organ has a vibratory note, and every note has a frequency. When these frequencies are vibrated in the body, the organs feel their note and carry on the vibration. Two violins playing together in perfect harmony act similarly: When one string is plucked on one violin and the vibratory wave reaches the respective string on the other violin then that string on the other violin begins to spontaneously vibrate. If the body has an organ out of tune, then the memory in the cells is reminded of the proper vibratory note when the organ feels its original note. The memory triggers the organ to reproduce the original healthy cells. The concept of the cells finding their home note and once again reproducing healthy cells explains why the light,

sound and vibratory therapies continue to work several days after a treatment. The Life Vessel™ protocol is to have four sessions within three to four days and repeated four to five weeks later.

Summary of the Research

The research is broken down into two categories: light-only devices and light, sound and vibrational devices. The light-only devices included research on heat lamps, LED lights, full-spectrum lights, and Tesla Energy Lights™. Interviews were conducted with four professionals regarding their use of heat lamps, two professionals on the use of LED lights, and one of the inventors of the Tesla Energy Lights™. Full-spectrum lights were not included in the interviews because these devices are not typically being used in a professional therapy setting.

Light, Sound and Vibrational Devices

This category consisted of sound and mind machines, Life Vessel™, and Tesla Energy Lights™. In this category, interviews were conducted with seven professionals regarding the Life Vessel™, and two professionals regarding vibroacoustic therapy. Sound and mind machines were not included in the interviews because these devices are not typically used in a professional therapy setting.

Two attribute charts were created to display the responses of the professionals interviewed. The first attribute chart contains seven responses pertaining to light-only devices: four heat lamps, two LED lights, and one Tesla Energy Light™. The second attribute chart displayed the responses of nine professionals who use light, sound and vibrational devices. The responses collected were from seven Life Vessel™ and two vibroacoustic-therapy professionals. The two attribute charts provide a diagram to the responses of the following five questions:

1. Does the device provide pain reduction?

2. Does the device provide stress reduction?
3. Does the device have any influence on the biofield?
4. Does the device have any influence on the chakras?
5. Does the device have any influence on the meridians?

Seven professionals who use the light-only devices in their practice answered the five questions. Four (57%) of the seven professionals responded affirmatively to all five questions. If the first two questions had been phrased differently, the interviewee for the Tesla Energy Lights™ would have answered affirmatively. The point was made that a device does not have the ability to provide pain or stress reduction, but a device can be used to influence an individual's innate ability to heal to reduce pain and stress. The interviewee stated that, if the question had been asked differently, he would have responded with a yes, bringing the total responding affirmatively to the five questions for light-only devices to 71%.

The second attribute chart pertained to responses of professionals that use light, sound and vibrational devices in their practice. All nine professionals (100%) responded affirmatively to the five questions. The nine professionals agreed that their light, sound and vibrational therapy influenced pain and stress reduction in the body. Their therapy also influenced the biofield, chakras, and meridians.

A total of 14 professionals were interviewed. Two of the professionals had devices in the light-only and the light, sound vibration categories. Combining the two categories and rephrasing the first two questions brought the number of devices to 16 and the number of affirmative responses to 14. Fourteen of the 16 devices (88%) were declared to reduce pain and stress and balance the biofield, chakras, and meridians.

Light-Only Devices

Typically, the heat lamps under discussion are used in conjunction with acupuncture. Heat lamps do not cover the whole body with infrared heat, only designated areas. During the interviews, four professionals discussed the use of the BioMat. The BioMat uses infrared heat, and, depending on the size of the mat, it either covers the torso or the whole body. The BioMat heats amethyst quartz crystal to create the infrared heat. The use of infrared heat improves blood circulation, moves the stagnant blood in the organs, and assists in balancing the sympathetic and parasympathetic nervous systems.

The LED lights are typically applied to painful areas and meridians. B. Gochenour (personal communication, October 25, 2015), a mind and body healer, provided the following statement about LED light therapy:

The red L.E.D. has been proven by the U.S. Navy to enhance healing of surface wounds, cuts, scars, trigger, and acupuncture points and is effective in treating infections.

Energetically speaking, it grounds, or reconnects, the body to the earth, increasing the flow of negative ions up the legs into the body. Pain decreases as the increase in neural and enhanced blood flow in the tissues occurs. Stress reduction is a byproduct of the red light: As the body grounds, the muscles relax, and stress decreases. The biofield expands as the body comes out of a survival situation. It contracts when the body is under attack. The color red directly stimulates the root chakra, creating a uniformed grounding effect that has a positive effect on all the other chakras. All parts of the body, including the meridians, function with higher efficiency when mind and body are effectively grounded, relaxed, and present.

B. Gochenour's explanation on how the red LED light influences the body to reduce pain and stress and balance the biofield, chakras, and meridians is compelling. The importance of obtaining higher efficiency in all areas of the body when the mind and body are grounded, relaxed, and present is an extremely important point he has made.

The Mayo Clinic (2013) has conducted studies using full-spectrum light therapy in the treatment of seasonal affective disorder. Research on the full-spectrum lights led to a device called the Lumitron and to Spectro-Chrome therapy. Shining colored light on specific parts of the body describes Spectro-Chrome therapy, which was first taught in 1920 by D. Ghadiali. The Lumitron is used in the same way but is designed for an individual to look at with his or her eyes shut. These colored lights have also been used to charge water or other liquids to be consumed for healing purposes.

Inventors of the Tesla Energy Lights™ have done numerous before-and-after measurements using GDV to measure the biofield and chakras. Time after time, these measurements showed improvement in the biofield and chakras after a Tesla Energy Lights™ session.

Summary of Findings

Light and sound mind machines provide colored lights and sound to change the brainwave frequency. The colored glasses are similar to the Lumitron, and the different colors are associated with different brainwave frequencies. The use of light and sound to entrain the brain allows an individual to synchronize his or her brainwaves to a particular pattern. The brainwave synchronization allows one to acquire a level of deep relaxation, meditative state or the ability to focus on a situation.

The Life Vessel™ uses two different light sources. One light source is infrared, and the other source is an incandescent light bulb painted with blue, yellow, and red. Mirrors surround the incandescent light bulb creating a geometric pattern of the blue, yellow, and red lights. The geometric pattern of different colored lights provides chromotherapy. Sound and vibration is provided by the speakers and music, which triggers the piezoelectric effect. Vibration on the bones creates the piezoelectric effect of firing electrical charges in the body. Ensuring the body is well hydrated with pure water allows the electrical charges to be carried throughout the body. The brainwave pattern becomes synchronized to a deeply meditative and dreamless sleep state. Reaching a delta brainwave state allows the mind and body to relax and balances the ANS. When the sympathetic and parasympathetic nervous systems are in balance, the yin and yang of the ANS allows the body to reach a homeodynamic state. When the body reaches the state of homeodynamics, the ability to reduce pain and stress – along with balancing the biofield, chakras, and meridians – is a reality.

Vibroacoustic therapy using Dr. Thompson's table or chair uses light, sound, and vibration to provide the same effect as the Life Vessel™. However, it does not have the infrared light. It uses binaural beat music to balance the right and left hemispheres of the brain. The light glasses use a modulator to translate the frequencies of the soundtrack in order to synchronize the flashing lights with the music and the vibration of the table or chair; in this way, different frequencies are provided to the left and right side of the eyes and body. There is a barrier down the middle of the table or chair to prevent vibrational bleeding to either the left or right side. Dr. Thompson's vibroacoustic therapy connects an individual's senses of hearing, seeing, and feeling, so that what one is hearing, one is simultaneously seeing and feeling. The light, sound, and vibration allow the brain to reach a delta brainwave pattern for a deeply meditative and

dreamless state. This result is similar to the Life Vessel™: When the brainwave pattern slows, the ANS comes into balance, and the biofield, chakras, and meridians reach a homeodynamic state.

Light, sound, and vibration assist in jump-starting the healing process and balancing the ANS, biofield, chakras, and meridians. There is more to the healing process than just balancing these fields. One of the additional benefits is to ensure that, whenever energy medicine is involved, the individual is drinking enough pure water. Electricity travels without restriction through water, and these subtle energy fields process the electricity. When we are startled or scared, the electrical impulses created put the body into a fear mode and a sympathetic nervous system becomes dominant. Maintaining positive, loving thoughts along with drinking pure water and eating healthy foods must be included along with the light, sound and vibrational therapy. These criteria are necessary to provide the body, mind, and spirit with a solid foundation to assist the body's innate healing process. Adding to these necessary items, acupuncturist N. Cameron (personal communication, July 6, 2015) eloquently stated,

If we do not work on what I consider to be the “three free therapy [items, mentioned below]” –

1. What we put in our mouth
2. Movement and activity and also breathing because most people are chest wall breathers, not abdominal breathers
3. Sleep, rest, relaxation, meditation

– a person could do everything fancy with different devices, but . . . they do not have a good foundation. I tell my cancer patients if you are too tired to exercise, put on your most favorite album or record and sing as loud as you can because you are going to be

breathing and releasing endorphins. The purpose of exercising is to release endorphins, and singing is a different way of getting someone to breathe and release endorphins. The Life Vessel™ or energy medicine in and of itself is not the complete answer to healing if the “three free therapy” is not included. People have to have a good foundation, and our checking account is the nutrition and the quality of the nutrition we take, but if we are not getting things moving and shaking we are not going to heal either. It is critical to include the “three free therapy” items together with energy medicine.

The three free therapy items of eating healthy foods and drinking pure water; exercising and deep abdominal breathing; and proper rest, relaxation, and meditation provide a strong foundation for the body, mind, and spirit.

Positive mental attitude is extremely important in creating a strong foundation for healing. To look at how the brain influences the physical body, one can turn to Dispenza’s (2015) study conducted with men in their 70s and 80s:

They began their retreat by holding a very clear intention: to pretend they were young again (using physical and mental rehearsal, because both change the brain and the body) and to make it as real as possible. As they watched the movies, read the magazines, and listened to radio and television programs from when they were 22 years younger, without modern-day interruptions, they were able to let go of the reality of being in their 70s and 80s. They actually started living as though they were young again. As they experienced new thoughts and feelings about being younger, their brains started firing neurons in new sequences, new patterns, and new combinations – some of which had not been fired for 22 years. Because everything around the men, as well as their own excited imaginations, joyfully supported them in making the experience feel real, their brains could not tell the

difference between actually being 22 years younger and just pretending that they were. So the men, in a matter of days, were able to start signaling the exact genetic changes to reflect who they are being. In doing that, their bodies produced neuropeptides to match their new emotions, and when the neuropeptides were unleashed, they delivered new messages to the cells in their bodies. As the appropriate cells allowed those chemical messengers in, they ushered them straight to the DNA deep inside each cell. Once they arrived there, new proteins were created, and these proteins looked for new genes according to the information they were carrying. When they found what they were looking for, the proteins unwrapped the DNA, switching on the gene that was lying in wait and triggering epigenetic changes. These epigenetic changes resulted in the production of new proteins that resembled the proteins of men 22 years younger. If the men's bodies did not happen to have the necessary parts to create whatever the epigenetic changes required, the epigenome simply called upon stem cells to make what was needed. (p. 120)

This experiment took place in a monastery. The men who had shuffled in one week earlier were different men when they danced their way out of the monastery gates (Dispenza, 2015, p. 121). It is amazing that when a clear intention is set, the right environment is provided; the mind, body, and spirit fall into place to allow an individual to fulfill their soul purpose and become productive human beings at any age.

Conclusion

The possibility of other researchers delving further into devices that influence the biofield, chakras, and meridians would assist in shedding light onto these subtle energy fields. Further research on setting intention and using light, sound and vibrational therapies for healing

and stress reduction would assist in opening the doors of allopathic physicians who would consider using complementary and alternative therapies together with allopathic therapies. The ability to bridge the gap between the allopathic physicians and complementary and alternative practitioners would be advantageous to the patients that require help in harnessing their bodies' innate ability to heal. In order to bridge this gap, it is necessary to understand the two factions. To better understand these two factions, one can turn to the work of P. Fraser, a 33-year researcher of the energetics of the human body-field, and H. Massey, cofounder of Nutri-Energetic Systems®. Fraser and Massey (2008) wrote,

Allopathic physicians work within the domain of biochemistry and see themselves as healers. They have acquired the knowledge to attempt to fix what has gone wrong in the body; their main tools are surgery and pharmaceuticals and other synthetic compounds that can supply the body with what it lacks. Complementary health professionals, for the most part, would deny that they are healers. They consider the patient the healer of his or her own body. Complementary practitioners see themselves more as facilitators, helping patients to harness their bodies' own inner resources. These inner resources are fundamentally consciousness-based and/or energy-based. Moreover, complementary practitioners are not focused only on the body but also on the whole patient, including that person's lifestyle, emotional state, environment, hopes and dreams, relationships, and everything that goes into being a full and productive human being. (p. 39)

Allopathic physicians focus on fixing the body; switching to a more open mindset that includes integrating and helping the patient harness his or her own inner resources could present a powerful healing solution. In turn, the complementary practitioners must scientifically prove to the allopathic physicians that the balancing of the biofield, chakras, and meridians could be

critical for the physical body to heal. Further research to scientifically prove the existence of these subtle energy fields would help in bridging the gap between these two factions.

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