

**EFFECTS OF SPECIFIC EDEN ENERGY MEDICINE TECHNIQUES
ON PAIN PERCEPTION AND THE HUMAN BIOFIELD:
A COMPARATIVE STUDY**

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ABSTRACT

“Effects of Specific Eden Energy Medicine Techniques on Pain Perception and the Human Biofield: A Comparative Study”

PURPOSE

Healthcare in the United States costs more than any other developed country, while its health outcomes are some of the poorest. Chronic pain management utilizes a significant portion of healthcare expenditures and currently involves additional expense for patients in terms of travel to other healthcare providers' settings, and costs for visits and/or treatment and pharmaceutical management. A new source of patient-performed preventive healthcare practice for chronic pain management is necessary.

The purpose of this study is to determine whether patient performed energy medicine techniques can reduce the perception of pain in subjects with chronic low back pain. Likewise, an additional purpose is to determine whether performance of these exercises can improve the robustness of the biofield.

MATERIALS

Materials used were the VAS Pain Scale, the McGill Pain Scale, the BioWell GDV camera, the Daily Energy Routine and Zone Tapping techniques.

METHODS

IRB approval was obtained. A pilot study of eleven subjects were studied. All participants verbally reported reduction of pain to varying degrees and all had pain reduction on the McGill Pain Scale from beginning to end of study, with statistical significance of $p = 0.0006$. Significance was not found with either the VAS scale or all BioWell parameters.

SIGNIFICANCE

Successful reduction of pain by participants utilizing energy medicine techniques suggests a new source of preventive healthcare practice with cost-saving potential. This would require further study with larger groups of subjects.

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CHAPTER ONE:

INTRODUCTION

Introduction

United States healthcare is prohibitively expensive, with continued rising costs projected, and no real solution on the horizon. Is it time to examine this problem from a different perspective? Should we be looking at some of the ancient healing methods that have continued through the centuries for insight and answers? Is there another little known potential area of preventative healthcare practice that holds promise and the real possibility of healthcare cost reduction? Can viewing an old problem through a different, critically-specific lens shed new light? These questions have serious merit and should be addressed. Hitherto overlooked or unconsidered sources of preventive healthcare may offer possible solutions to the complex problem the United States now faces regarding healthcare utilization, delivery and cost to its citizens.

Pain, and its treatment, then, turns out to be the most expensive portion of our healthcare costs, at an estimated \$560 – \$635 billion, which is larger than the cost of the rest of the nation's priority health problems put together (Gaskin, 2012). What we are currently doing to manage the problem clearly isn't working. One need only look at the opioid epidemic to realize we need to provide more efficient, cost-effective, safer, and ethical pain management protocols.

Background of the Problem

It is no secret that healthcare costs in the United States are expensive and rising at an alarming rate each year. This is evidenced by the frequency of healthcare cost-related articles appearing in newspapers, on television, online, and in popular journalistic publications. And recent governmental legislation regarding possible repeal of the Affordable Care Act versus an overhaul of the system mandates our close attention to this critically important matter. An important concept of cost control and/or reduction that has received little attention is that of an innovative use of an energy medicine modality to help mitigate chronic pain, specifically chronic low back pain. This paper is an exploration of the background of chronic pain, use of an experimental research study to address this, and limitations, findings, and conclusions.

A sobering fact is that the United States spends a larger portion of its Gross Domestic Product (GDP) on healthcare than any other of the major developed and industrialized countries (Squires & Anderson, 2015, p. 1). In fact, the estimated total paid for healthcare received by the civilian, noninstitutionalized population of this country was \$1.401 trillion in 2013, (Stagnitti, 2016, p. 1). These authors state the reporting of the expenses represent the various payments to hospitals, physicians and other healthcare providers and were gathered from information collected in the Medical Expenditure Panel Survey (MEPS) Household Component and payment data and Medical Provider Components. In addition, the expense estimates include payments made by individuals, private insurance, Medicare, Medicaid, and the Children's Health Insurance Program

(CHIP) (p. 1). A breakdown of the distributions of expenses for services revealed the following facts and relevant figures.

Nearly 30% of total healthcare expenses were as a result of inpatient hospitalization, and prescribed medicines accounted for more than 20%. The population comprised of those under age 65, the uninsured, and those with any type of private insurance had a larger proportion of their healthcare spending on ambulatory services such as office-based visits, outpatient hospital care and emergency room visits, than did those who were publicly insured. In the elderly population, those with Medicare and private insurance had a larger percentage of their healthcare spending accounted for by ambulatory services than did those covered by Medicare only, or Medicare and other public insurance. Private insurance paid for 40.6% of total expenses, Medicare covered 25.3%, individuals and family members paid for 13.8%, Medicaid/CHIP paid for 12.4 %, and other sources were responsible for 7.9% (p. 2-3).

Delving further into an examination of the problem, specific figures add additional important perspective. A report from the Centers for Medicare and Medicaid Services provides the following data in its NHE Fact Sheet:

National health expenditures grew 4.3% in 2016, to \$3.3 trillion. This breaks down to \$10,348.00 per person and accounted for 17.9% of the GDP.

At this rate of growth, the projected NHE is estimated to grow at an average rate of 5.6% per year for 2016-25, and 4.7% per year on a per capita basis. As a result, health spending is projected to grow 1-2% points faster than the GDP resulting in the health share of the GDP to rise from 17.8% in 2015 to 19.9% in 2025. From the 2016 to 2025

projection period, the growth in NHE is driven by projected faster growth in medical prices. These prices were historically low in 2015 at 0.8% but are projected to be 3% by 2025. This faster-expected growth in prices is partially offset by the projected slower growth in use and intensity of medical goods and services (CMS).

Finally, another component related to healthcare costs is the burden posed by chronic disease. According to the CDC's Chronic Disease Overview fact sheet, chronic disease is the leading cause of death and disability in the United States. Indeed, 86% of the nation's \$2.7 trillion annual healthcare expenditures are for people with chronic and mental health conditions (CDC). Seven of the top ten leading causes of death in 2014 were chronic diseases; the top two together – heart disease (number one) and cancer (number 2) – account for nearly 46% of all deaths. The fact sheet identifies health risk behaviors that cause chronic disease, which include lack of physical exercise or activity, poor nutrition, use of tobacco, and alcohol abuse. Looking more closely at these risks, in 2015, 50% of adults 18 years of age or older did not meet the recommended guidelines for aerobic exercise, and 79% did not meet recommendations for strength training. In addition, in this same year, more than 37% of adolescents and 22% of adults reported eating less than one serving of fruit and/or vegetables per day. 15% of the population admitted to smoking cigarettes; cigarette smoking accounts for more than 480,000 deaths per year (p. 3). It is certainly a possibility that those with chronic pain face limitations in trying to follow these guidelines.

What is chronic pain, exactly? It has been variously described as pain that persists for 3-6 months but, in particular, longer than would be expected for “normal” healing for an

injury or surgery, etc. (NIH NCCH “*Chronic Pain in Depth*, 2017). It can be the result of aging, underlying disease or a specific health condition, an inflammatory problem such as rheumatoid arthritis or carpal tunnel syndrome, or a non-specific “neuropathic” pain in which the cause is not well understood or even known (p. 2). Various professional medical associations, such as the American Family Physician, list specific guidelines for the treatment of chronic pain conditions such as low back pain, for example (Herndon, Zoberi & Gardner, 2015, p. 6-11). Low back pain is a very common problem said to affect at least 80% of individuals at some point during their lives and is the 5th leading cause for all physician visits in the United States (Patrick, Emanski & Knaub, 2014, p.1). A certain percentage of those afflicted go on to develop a chronic problem. Low back pain is a leading cause of activity limitation, creating work absences not only in the United States but throughout much of the world, creating a significant financial impact on individuals as well as their families, communities, affected industry and governments (p. 1).

Osteoarthritis is also a leading cause of chronic pain, often affecting the hands, hips, and knees. The American College of Rheumatology (2012) recommends both nonpharmacological and pharmacological treatment modalities which include assistive devices such as splints, walkers, canes etc., as well as pharmacologic agents (Hochberg, Altman, April, Benkhalti, Guyan. McGowan, Towheed, Welch, Wells, & Tugwell, 2012. p. 469). Lifestyle changes, weight loss as needed, and movement therapies are also specifically recommended for osteoarthritis of the hand, knee and hip. Pharmacologic agents range from topical capsaicin to topical and oral NSAIDs (nonsteroidal anti-

inflammatory drugs as well as injectable corticosteroids (p. 471). Hip arthritis can lead to low back pain for some patients. Management of osteoarthritis in this fashion still requires regular clinical follow-up, particularly if any prescription medications are prescribed.

In terms of disability, the chronic pain of arthritis is the most common cause of disability, with a high percentage of those diagnosed stating that they have trouble with activities of daily living as a result of their arthritis (CDC, 2018). According to the CDC's statement, "*Cost Statistics: The Cost of Arthritis in U.S. Adults*" (2018), the cost of arthritis in U.S. adults is two-pronged. Medical costs, which include prescriptions and ambulatory care visits were \$140,000 billion in 2013. Earnings losses, due to arthritis-attributable lost wages, were \$164,000 billion in 2013 as well (p. 1). In 2008, about 100 million adults in the United States were affected by chronic pain, to include joint pain or arthritis, according to MEPS (Gaskin 2012, p.1). Pain, then, is another significant factor impacting the cost of healthcare in the United States.

It can be seen, then, that a significantly high contributor to the cost of healthcare in the United States stems from chronic diseases and disability, many of which appear to have a strong foundation in lifestyle choices. While an overview of the problem has been provided, what are some solutions? It could be argued that preventative health practices could, or should, have a significant impact on reducing these rates. How well do current preventative screenings work? How well are they utilized, recommended or followed? While a specific examination of these concepts is beyond the scope of this paper, according to the CDC these chronic diseases can be largely preventable or detected early

enough to make a difference, through appropriate screenings (“*CDC: Preventive Healthcare*,” 2018). However, many Americans go without preventive care due to a number of reasons, most often financial. Frequently, high copayments and deductibles deter people and their families from obtaining recommended screenings and/or immunizations. While the ACA has made many of these preventative services covered without cost-sharing, under-utilization persists (p. 1).

A concept of preventative care that deserves careful consideration is a modality that does not involve ambulatory care visits, injections, or invasive-type screenings. And that is the field of energy healing. Similar to the recommendations of getting regular exercise and improving dietary choices, another preventative care modality could be based on the body’s innate ability to heal, given the right support. In addition, the modality should be easy, painless, cost-effective, able to be done at home and also accessible to those with disabilities such as low back pain and osteoarthritis. It would also be something that could be done in a short period of time that could show an overall improvement in energy, vitality, quality of life and possible reduction of pain. So much of the current healthcare system in the United States involves patients following the recommendations of others, placing their power in the hands of healthcare professionals. In other words, the locus of control is externally driven. Is it possible that self-care techniques performed by patients, that result in improvement in their symptomatology – things like increased energy and pain reduction, for example – might be a motivational force for health that deserves further examination? Is there a relationship factor here between mind, body and spirit as well?

The nursing profession, and in particular holistic nursing, has long recognized the importance of the connection between body, mind and spirit in healing. In looking at the issue of pain, for example, at its most basic level, it is a signal from the body that something is amiss and needs to be addressed. However, today's modern advertising bombards society with any number of medications to control pain; in other words, treating the symptom, but not necessarily the root cause. The foundations of the nursing profession began with the efforts of Florence Nightingale, who was responsible for fundamental changes in how patients were cared for. Therapeutic communication and touch, using the hands, was a foundational piece of this. Caring for the whole person, then, involves the physical care of the body as well as appropriate mental, emotional, and spiritual support as needed. A nursing paradigm pioneer, Martha Rogers, (1914-1994), promulgated her theory of the Science of the Unitary Human Being. To her, a person was not a singular entity but rather a "unitary human being" which she defined as an "irreducible, indivisible, pan-dimensional energy field identified by pattern and manifesting characteristics that are specific to the whole and which cannot be predicted from knowledge of the parts." (Dossey & Keegan, 2016, p. 467). She further defined this energy field as "the fundamental unit of the living and non-living. Field is a unifying concept. Energy signifies the dynamic nature of the field; a field is in continuous motion and is infinite." (p. 467). Rogers further described the person and environment as "open systems", believing that there is a constant interaction and exchange of energy and matter within these systems, with the implication that *all* of who we are – everything, to include our behavior, thoughts, emotions, consciousness and the unconscious parts of us are

continuously interacting with everything and everyone in that environment (p. 467). Modern nursing today has developed a nursing diagnosis “imbalanced energy field” as well, and while not yet published in the NANDA (North American Nursing Diagnosis Association) directory, it was approved by them in February of 2017 (Press Release, AHNA, 2017). The energy field balancing technique of Healing Touch, for example, is a popular and widely used form of energy healing and used frequently by nurses with their patients in hospitals and other healthcare settings in the United States (Healing Touch International website, 2018). Indeed, the American Holistic Nurses Association (AHNA website, 2018) embraces a model of whole person wellness based on the concept of a “partnership” between nurse and client. This partnership arises from a recognition of the reciprocal importance of nurturing self and client. The AHNA was founded in the 1970s by Charlotte “Charlie” McGuire as a result of her concern over the current healthcare paradigm valuing profit over healthcare quality or working conditions for nurses. She and other like-minded nurses saw the need for the “nurturers to be nurtured.” The system was broken, resulting in a sick healthcare system, with sick healthcare providers (AHNA.org, 2018). Sadly, it is not difficult to see parallels with today’s healthcare system.

Other forms of energy healing involve Reiki, Pranic Healing, Therapeutic Touch, Body Talk and Eden Energy Medicine, to name a few.

Donna Eden, pioneer of Eden Energy Medicine, is a clairvoyant, teacher and author (Eden, 2018, p. 7). As a result of significant health problems that she suffered in her early thirties, she relocated to Fiji for a time in order to try to heal. A lifestyle that was supportive to healing included a locally-sourced diet free of chemicals and other

residue of industrialization, daily ocean swims, no exposure to electronic media or devices and adequate quiet and restorative time. While dealing with a severely compromised immune system, she received successful treatment for a poisonous insect bite from the local village's shamans, which had an impact on her eventual desire to help others (p. 7). Upon returning to the United States she was introduced to Touch for Health. Finding that the training awoke a familiar knowing in her, she found that the program gave her a structure that allowed her to balance her intuitive nature for working with the subtle energies that she could not only see but intuit. She relates that she went on to be trained in massage therapy in order to have a license to touch other people and thus opened a practice. Using her own experiences blended with the training from Touch for Health, she was able to help her clients balance their own energies in order to heal their ailments (p. 9). As a result of this, she developed a series of simple, yet profound exercises that are designed to bring balance to the body's energy field, or biofield. Titled: "The Five Minute Daily Energy Routine," it is a series of movements designed to help build positive habits into the person's energy field (pp. 72, 73). Part of the movement techniques involve tapping on various areas of the body. The significance of the tapping is that they involve tapping on acupuncture meridian points. Church (2007) brings important perspective with his work in Emotional Freedom Tapping to this concept. Piezoelectricity, involved in tapping, is an important and fascinating concept that is critical to the understanding of healing with subtle energy. When tissue has pressure applied to it, it causes a phenomenon called piezoelectricity; in other words, it can polarize into positive and negative electrical poles and generate electrical fields

(Oschman, 2016, p. 162). This has profound relevance to working with the subtle energies of the biofield to promote healing.

In the article, “Six Pillars of Energy Medicine: Clinical Strengths of a Complementary Paradigm” (Feinstein & Eden, 2008), provide a convincing argument supportive of the six properties of energy medicine that could augment the current biochemical model that is the dominant structural foundation of conventional medicine (p. 44). These six strengths are: 1) reach, 2) efficiency, 3) practicality, 4) patient empowerment, 5) quantum compatibility, and 6) holistic orientation. The authors discuss the various ways that energy medicine supports these strengths in the following descriptions:

“Energy medicine can: 1) address biological processes at their energetic foundations (reach), 2) regulate biological processes at their energetic foundations (efficiency), 3) foster health and prevent illness with interventions that can be readily, economically, and noninvasively applied (practicality), 4) include methods that can be used on an at-home, self-help basis, fostering a stronger patient-practitioner partnership in the healing process (patient empowerment), 5) adopts non-linear concepts consistent with distant healing, the healing impact of prayer, and the role of intention in healing (quantum compatibility) and strengthen the integration of body, mind, and spirit, leading not only to a focus on healing, but to achieving greater well-being, peace, and passion for life” (holistic orientation) (p. 44).

Finally, energy medicine requires no special tools or ambulatory visits to healthcare providers. These are important as well as intriguing concepts to consider when examining realistic methods to rein in spiraling medical costs, particularly in the area of chronic pain. Eden and Feinstein (“Energy Medicine: Balancing Your Body’s Energies for Optimal Health, Joy and Vitality,” 2008) define the term “energy medicine” in the following manner:

“In energy medicine, energy is the medicine. Medicine is an agent that is used to heal or prevent disease. Your body’s energies know how to mobilize themselves to respond to all manner of illness and threat, bringing the purest and most natural elixir that exists to care for your maladies. Energy gives life to the body. (p. 4).

In energy medicine, troubled energies are the *patient*. The energy systems that attempt to adapt to a world of stresses, pollutants, and information overload unknown to your ancestors become overwhelmed and confounded, settling for imperfect compromises, and requiring significant re-patterning if you are to fully thrive. Energy medicine is able to bring about such repatterning.” (p. 4).

Purpose of the Study

The purpose of this study is to determine if the performance of specific energy medicine exercises of the Daily Energy Routine, as well as a specific pain technique for low back pain known as Zone Tapping, produce change (the perception of pain) at a rate higher than significant in an active group. Pain perception will be measured using the McGill Pain Scale and the Visual Analog Scale (VAS). An additional purpose is to examine the integrity of the biofield pre- and post-exercises initially and then again in 30 days. Biofield integrity will be examined utilizing the BioWell GDV camera.

To date, there has been no empirical research on the use of patient-performed specific energy medicine/healing techniques as a potential modality to alter their perception of pain or to assess their overall sense of well-being. This research study would help to investigate this.

Design of the Study

As initially stated, the purpose of this study is to determine if performance of the specific energy medicine exercises of the Daily Energy Routine as well as a specific pain technique for low back pain known as Zone Tapping produce change (in the perception of pain) at a rate higher than significant in an active group. An additional purpose is to

examine the integrity of the biofield pre- and post-exercises initially and then again in 30 days. This will be accomplished by using the BioWell camera. Initially, subjects will complete the Daily Energy Routine (hereafter known as the DER) exercises first; then they will tap on the outside portion of the ankle of the legs for 10 seconds. This will be timed using a clock, stopwatch, or cell phone, etc. After waiting 10 seconds, they will tap again for 30 seconds. They will perform this sequence once daily for a minimum of 28 days. When they return again after 28 days, this whole sequence will be repeated.

Specific Aims of the Study

- 1) To determine if performance of specific Eden Energy Medicine techniques makes a difference in pain levels.

- a) **Hypothesis One:**

Performance of the specific Eden Energy Medicine techniques known as the DER and Zone Tapping will reduce low back pain on the McGill Pain Scale at a level of $p < \text{or} = 0.05$.

- b) **Hypothesis Two:**

Performance of the specific Eden Energy Medicine techniques known as the DER and Zone Tapping will reduce low back pain on the VAS Scale at a level of $p < \text{or} = 0.05$.

- 2) To determine if there is a strengthening of the subject biofield after performance of specific Eden Energy Medicine techniques.

- a) **Hypothesis One:**

Performance of the specific Eden Energy Medicine techniques known as the DER and Zone Tapping will result in an increase in overall robustness across the body from pre- to post-measurement at a level of significance.

b) Hypothesis Two:

Performance of the specific Eden Energy Medicine techniques known as the DER and Zone Tapping will result in a more robust initial biofield measurement after being performed daily for 30 days at a level of significance.

Limitations of the Study

- 1) Small sample size
- 2) No control group
- 3) No medical testing of pain changes, i.e. serum cortisol levels, etc.
- 4) Short study period
- 5) No longitudinal follow up
- 6) Sample of convenience

Summary

As stated in the introduction of this paper, healthcare in the United States is increasingly expensive, and innovative ways of cost-cutting, as well as methods of patient empowerment, are considerations for helping to mitigate or reduce these costs. The purpose of this study is to examine whether a cohort of people with chronic low back pain, performing the DER and Zone Tapping on the legs, will have both a reduction in pain as reported on normed pain scales, and whether there will be positive changes in

their biofield parameters as measured by the BioWell camera. Reasons for doing this study are that, to date, no patient-performed techniques for pain control and its resultant effects on the biofield have been studied. Patient-performed pain management techniques that are simple and easy to do can be a source of motivation for people to adopt them in their daily tasks. In addition, positive changes in the biofield measurement have the potential to also motivate people to continue to make supportive behavioral and lifestyle changes, similar to that found when positive lab results indicate the successful adoption of these same things.

CHAPTER TWO

Opening Statement

As outlined in the previous chapter, healthcare costs in the United States are too expensive, with a cost ceiling or containment nowhere in sight for the foreseeable future. It is also the most expensive healthcare of the developed countries in the world, with chronic disease expenses consuming the largest portion of health-related expenditures and 17.9% of the GDP in 2013 (Squires & Anderson, 2015, p. 2). Current healthcare prevention guidelines are failing to make a difference in reducing costs. It has been said that continuing to do the same thing while expecting a different outcome could be construed as a definition of insanity. While there is disagreement as to who can actually be credited with this quote, the message is the important part. What we are currently doing is not working and continuing to follow this current path has the very serious potential to strain our nation's healthcare resources and funding sources to a dangerous breaking point. As outlined in Chapter 1, the goal of this research project is to ascertain whether patient-performed energy healing techniques can reduce the severity of chronic low back pain as measured using the McGill Pain Scale and VAS. In addition, another goal is to see if there is a measurable effect on the subject's biofield pre- and post-intervention using the energy medicine techniques as measured with the BioWell camera.

Current State of the Knowledge

In spite of recommended preventative screenings and modification of health behaviors, chronic disease care and their management are consuming the highest percentage of healthcare dollars. Currently, heart disease is the leading cause of death in the United States. The U.S. Preventive Services Task Force (USPSTF), Center for Disease Control (CDC), and the American Heart Association have recommended that clinicians screen their clients for heart disease risk factors since 2009 using the Framingham risk calculator, as well as consideration of screening for nontraditional risk factors such as coronary artery calcium, homocysteine levels, etc. The recommendations at that time found no benefit in adding these other screenings to the current considerations of age, family history, smoking history, activity, weight, etc. (USPSTF Final Recommendations, p. 1). In 2016, the USPSTF recommended the addition of statin therapy as a preventive medication for adults ages 40-75 with no history of CVD (cardiovascular disease), 1 or more risk factors for it, and a calculated 10-year risk of a CVD event of 10% or greater in addition to dyslipidemia screening (p. 2). Statins are believed to confer protective effects against coronary events due to their ability to reduce the biosynthesis of cholesterol (Stancu, 2001, p. 379). However, their use is not without risk; indeed, statin use has been linked to myopathy, rhabdomyolysis, hepatotoxicity, nephrotoxicity, diabetes mellitus, neurologic manifestations, release of proinflammatory markers, ophthalmological manifestations such as diplopia, etc., increased prostate cancer risk and erectile dysfunction in men, dry mouth, oral pruritus and cough (Grover, Luthra & Maroo, 2014, p. 894). A curious consideration here, however, is that while most

myocardial infarctions are believed to be caused by blocked coronary arteries due to plaque rupture or coronary embolism, recent acknowledgment of a medical condition theorized to be triggered by extreme physical or emotional stress has been identified which bears further examination. Known as “Broken Heart Syndrome”, or Takotsubo cardiomyopathy, it appears to affect primarily postmenopausal women though has been documented in men and younger women. The name is derived from changes seen on cardiac imaging wherein there is a reversible “ballooning” of the left ventricle that is similar in appearance to Japanese octopus pots called “TakoTsubo” pots; hence the name. (Roshzmir & Showkathali, 2013, p. 193). Found to be a unique form of reversible cardiomyopathy or enlarged heart, it is believed to be activated by a neurogenic stunning of the myocardial muscle tissue (Therkelson & Stronach, 2015, p.345). These authors state in their article “Broken Heart Syndrome: A Typical Case” that upon investigation, both ECG and cardiac markers show minimal change as well as no myocardial arterial blockage (p. 345). Since significant emotional or physical stress is an apparent trigger, and heart disease is the leading cause of death in women, preventive treatment with a statin is likely to be of little benefit to this group. This poses the question as to whether preventive recommendation guidelines for heart disease need to be augmented or revised to include stress identification and reduction modalities as a preventive approach, rather than treating all people with the current one-size-fits-all approach. Perhaps all preventative guidelines should be examined from this same perspective.

Another consideration from which to view the apparent failure of preventive guidelines are the results of an NCHS data brief from 2016. This brief correlated a

relationship between patients having insurance being more likely to have a usual place for their healthcare, a relationship with a healthcare provider, received a flu vaccine and were less likely to have an unmet medical need due to cost (Villaruel & Cohen, 2014, p. 1). Lack of insurance coverage was more likely to result in the least use of health services which was also seen as a hindrance to the opportunity for exposure to and discussion regarding preventive health services. The USPSTF's recommendations for preventive health screenings are targeted to age and risk factors that are updated periodically (USPSTF Recommendations for Primary Care Practice, 2016). These screenings include screenings for specific cancers, obesity, hypertension, cardiovascular disease, mental health and many others. The terms preventative, or preventive are essentially interchangeable words meaning the same thing. For example, Merriam Webster dictionary defines the term as "something that prevents, especially something used to prevent disease." (Merriam Webster, 2016, p. 569). An interesting consideration here, however, is the word "screening." Screening, according to Merriam Webster, is "the act of doing a test on a person, or person's blood, urine, etc. to look for evidence of disease, or illegal drugs, etc." (Merriam Webster.com/medical dictionary, 2018). The key word here is "evidence," which means the disease process being screened for is already there, albeit possibly in an early, potentially more treatable form. So, are preventive screenings really preventing disease, or preventing a disease that has already manifested from becoming a bigger health problem? Are there other considerations to keep in mind when using the term, "preventative"? Might it be considered within the context of truly "preventing" disease from it actually manifesting?

These sobering statistics regarding the incidence of chronic disease, unfortunately, strongly suggests that some of our current preventive screening guidelines are failing to do what they were tasked to do: prevent disease. We need to reformulate our definition as well as the concept of true prevention of disease. It is time to look at this issue from a different perspective.

In terms of chronic disease cost, treatment of pain is the most expensive. It is very clear there currently exists an opioid crisis in this country as evidenced by regular headlines regarding this fact in news publications, medical and nursing journals. Rigorous new guidelines and prescribing restrictions have been and continue to be developed in order to govern healthcare practitioners' prescribing choices for their patients. While this conceivably has been developed in order to curb the amounts of opioids prescribed with the hope that this will result in the reduction of opiate abuse, and overdose, it does little to address the resultant deficit in choices for pain management for both patients and clinicians. The NIH (National Institutes of Health) is pursuing an Opioid Initiative in partnership with public and private organizations to identify areas of opportunity where the NIH, academia, and biopharmaceutical companies could combine efforts and resources to "accelerate the development of better pharmacologic treatments for pain and opioid use disorder." (NIH Initiative to Help End the Opioid Crisis, 2018). Again, however, the focus here continues to be on pharmaceutical management. Because medications often provide limited relief and cause unwanted side effects, many individuals have been, are, and will be turning to CAM (Complementary and Alternative)

therapies such as massage, acupuncture, chiropractic manipulation, tai chi, yoga, etc. (Nahin, Boineau, Khalsa, Stussmand & Weber, 2016, p. 1).

The nature of pain itself, and the real mechanisms behind it, particularly with chronic pain, still remain unclear. Ligon, et al. (2016) provide an overview of current pain theory. Categorized into somatic, visceral or neuropathic pain classifications, the sensation of pain is believed to be the result of activation of primary nociceptors in the periphery with a resultant stimulus traveling to the dorsal horn of the spinal cord. (Ligon, Maloney & Greenwood-VanMeerveld, 2016, p. 1) The authors describe the mechanism as the signal is then transmitted across the midline to the anterolateral tract of the spinal cord, traveling to the thalamus. From here, a signal reaches the somatosensory cortex for localization; while ascending nociceptor signals travel up pathways in the spinal cord which in turn activate the limbic system structures such as the amygdala. This creates an emotional response to the pain as well (Ligon, et al.). In their article “Targeting Epigenetic Mechanisms for Chronic Pain: A Valid Approach for the Development of Novel Therapeutics,” (2016), Ligon, et al. present an intriguing case for insights into the epigenetic processes that may be involved in chronic pain, and its mediation. They argue that the precise mechanisms behind the transition from acute to chronic pain are not well understood but do appear to involve adaptations in numerous structures of the pain pathways such as peripheral neurons, dorsal root ganglia, spinal cord neurons and the brain (p. 2). These are intriguing concepts to consider as to the nature and treatment of chronic pain, with the recognition that we need to perhaps rethink how we manage chronic pain.

The scope of this problem involves many components, but a recent area of promise in terms of prevention concerns the study and manipulation of the biofield in the promotion of health as well as reduction of pain. Acupuncture, for example, has become a mainstream treatment modality for many types of pain and is frequently covered by patients' insurance. Ancient healing traditions of the east have always relied on an understanding and manipulation of the energy field, or biofield, through modalities such as acupuncture, acupressure, herbs, and specific application of heat, etc. Acupressure, for example, can be employed by practitioner and patient alike, simply by holding, pressing or tapping on acupoints. Zone Tapping, a form of pain mitigation described and taught by Donna Eden, can be understood as an application of acupressure as it involves tapping on specific "zones" in the ankles and wrists where several acupoints can be found (Eden, 2008, pp. 308-309). Western thought and conventional medicine in particular, however, have struggled with the understanding of these concepts until recently, as scientific discoveries have proven the existence of these energy fields as well as specific pathways within these fields (Rubik, Muehsan, Hammerschlag & Jain, 2015, p. 2). Vodyanoy, et al. (2015) discuss the findings of Dr. Bong Han Kim in 1965 with his discovery of the nodes and vessels of the acupuncture system. Dr. Bong Han Kim found it was clearly different from the vascular system, but did not keep adequate records, rendering his work obscure until 2002, when Korean researchers were able to validate his results. Named the "Primo Vascular System," these researchers found evidence of the existence of this system through the use of a specialized dye that outlined these structures in detail, supporting the

concept of the acupuncture system well known to ancient healing practitioners.

(Vodyanoy, Pustovvy, Globa & Sorokulova, 2015, p. 1).

A number of cultures have been able to describe the existence of a web or matrix of subtle energies that is key to shaping and supporting the physical body in addition to providing a life force that helps it to move and function. Eden points out that there is an apparent intelligence to these energies, which are frequently not well understood by the general human mind. These energies are called a variety of names, depending on the culture, which include *Chi* or *Qi* in China, *Ki* in Japan, *Prana* in Indian and Tibetan Yoga traditions, *Ruach* in Hebrew, *Baraka* by the Sufis, *Wakan* by the Lakota, *Orenda* by the Iroquois and *Holy Spirit* in the Christian faith (Eden, 2008, p. 18). Indeed, this concept of an intelligence to these energies is shared by other respected researchers and contributors to our understanding of subtle energies such as Bruce Lipton, Candace Pert, and Thornton Streeter, to name a just a few.

Dr. Bruce Lipton, cellular biologist, is the author of “The Biology of Belief”. This seminal book is derived from his work in cellular biology and stem cell research, and he makes a very strong, credible argument for the wisdom of our cells, and how powerfully their function is affected by our thoughts. Our thoughts can be viewed as the “collective voice” of the organism that results from the banding together of these cells. He believes we can learn much about ourselves as a result of seeing our cells as teachers; that they will follow this collective voice, even if it dictates self-destructive behavior. When a primary emotional stimulus first comes in, our behavioral response is the reactionary pattern that is set down on our “hard drive” or subconscious mind. We will respond to

this stimulus the same way in the future unless the program can be rewritten. He discusses the science of Epigenetics, and how this programmed response can be changed or rewritten by engaging the wisdom of our cells and the profound relationship between mind and matter (Lipton, 2005, p. 135).

In “Molecules of Emotion”, Dr. Candace Pert leaves a unique legacy of important work regarding the biomolecular basis for our emotions. She was responsible for the discovery of the opiate receptor on the cellular membrane, which she was able to measure, and therefore prove its existence (Pert, 1997, p. 21). Her work has been pivotal to our understanding of mind-body medicine, and the effects of emotions on health.

Nearly 5000 years ago, ancient Chinese healing practitioners concluded that everything in the universe is made of the same substance, which they called “Qi” (Johnson, 2005, p. 3). Johnson wrote that the expected human experiences of birth, aging and death all occurred as a result of Qi in its different transformations. It was believed that all things in Heaven and Earth, to include the wind, clouds, rain, thunder, water, mountains, forests, deserts, oceans, humans, animals and insects are a result of different manifestations of Qi and that all things are connected (p. 3). While this energy may appear to take on many different forms, in reality, all of the things found in nature as well as the universe are inextricably woven together, resulting in each entity truly being one with the whole (p. 3). These ancient practitioners maintained that this vibrational energy needed to be balanced in order for one to exist in a harmonious manner within its environment, or Earthly Qi, as well as the universal, or Heavenly Qi. They developed techniques that helped to accomplish this (p. 3). According to Johnson, when viewed

through the lens of Qi Gong, for example, a physician who practices Chinese medicine sees the patient first through the perspective of the currents of life force traversing the physical body. Qi is stored in the form of energetic pools within the body, which in turn give rise to the energetic matrix of the internal organs (p. 3). This energy then flows in the form of energetic rivers and streams, giving rise to the body's collateral systems (p. 3). These ancient practitioners understood this very well and applied these concepts when working with their patients. Working to achieve balance in these fields of energy surrounding the denser physical body could have the effect of helping to possibly mitigate the manifestation or effects of physical disease by understanding the conceptual framework of all of life being connected.

Modern physics has been able to substantiate that matter and energy are interchangeable, with matter simply being a different formation of energy that is vibrating in wave forms or particles (p. 3). An understanding of this life force energy is absolutely key in formulating a diagnosis, treatment regimen and appropriate therapy for a patient (p. 45). Chinese medicine, for example, understood the critical importance of the patient's whole environment – internal and external – to its health and wellbeing, with the focus truly being on the restoration of balance in all areas. While this concept of the human body having an energetic foundation, or biofield, is relatively new to Western thought, which primarily focuses on the physically tangible body and reductionist practices, it is time that this ancient but thoroughly appropriate viewpoint be given the respect and attention that it deserves. It is time for a closer, more discriminating look.

Evidence for the existence of the biofield is well documented. An early pioneer in this field was Dr. Harold Saxton-Burr, a professor of the Yale University School of Medicine. From both his early research on the development of the nervous system as well as what was being revealed by molecular genetics, he was convinced that there were organizational fields that were in charge of directing the actual “blueprint” of an organism into its unique assemblage of parts (Oschman, 2016, p. 69). Visitors to his home, Mansewood, in Lyme, Connecticut would notice a variety of trees hooked up to voltmeters (p. 278), (Saxton-Burr, H/NIH.gov). Burr was intrigued with his study of how the trees’ electrical fields would change as harbingers of manifestation of different weather patterns and other atmospheric phenomena (Oschman, 2016, p. 278). Similar to ancient Chinese medicine philosophy, he believed that life here on Earth was part of the larger forces of the universe and was not separate from it. The fields of the body were closely linked to the larger fields of the Earth itself as well as other celestial bodies; indeed, it is well documented that such events as sunspots and cycles of the moon affect the currents of the ionosphere and geophysical fields, which then, in turn, end up affecting the human energy field as well (p. 279).

In “Biofield science: current physics perspectives,” researchers Kafatos, et al., (2015) provided a review of the biofield hypothesis and supporting scientific literature (p. 1). Intriguing concepts are presented that bear additional study and scrutiny (Kafatos, Chavalier, Chopra, Hubacher, Kak, Subhash & Theise, 2015, p. 1). The authors state that the biofield does exist, and while current theoretical foundations are being developed to support it, it must be viewed from the perspective of physical science in order to

recognize a common body of knowledge. In addition, this could provide a basis to evaluate possible underlying principles of origin for the biofield (p. 1). The authors believe that the properties of this field could be based on electromagnetic fields, coherent states, the presence of biophotons, quantum and quantum-like processes and ultimately, the quantum vacuum (p. 2). They define the biofield as: “a field of energy and information, both putative and subtle, that regulates the homeodynamic function of living organisms and may play a substantial role in understanding and guiding health processes.” (p. 2).

They argue that while current biological thought focuses on molecular processes, this reductionistic approach continues to rely solely on understanding the whole organism by reducing it to its parts and then analyzing how these parts fit together. They believe this approach fails to address an organism from a holistic perspective, however, and therefore biology needs to undergo the same type of revolution that caused physics to be reevaluated over the last 100 years (p. 3). Quantum physics is able to provide a plausible theoretical entry point for an explanation of the biofield and how it is believed to interact with the body; in addition, many quantum theorists believe there is an important role for the observer in this paradigm, according to the authors (p. 8). They go on to discuss the recent work of Hubacher, one of their authors, on the “Phantom Leaf Effect” experiments. In this work, the coronal discharge of a leaf as seen through Kirlian photography reveals the intact pattern of a leaf even after part of it has been severed. (Hubacher, 2015, p. 88). The Phantom Leaf Effect is the photographic recording of an apparently whole, intact leaf image after a large portion (up to 60%) is cut away. Corona

discharge imaging or Kirlian photography is used to capture the images. Hubacher, in his original research paper, asked what the physical properties of this phantom are, and postulated that the phantom effect may be representative of a true field, either classical or quantum. He believes that the structure at least has the property of conductivity, similar to many small organized wires (pp. 88-89). The relevance of this research is that from the images obtained, the authors state that it is electron flux that creates the image, pointing to the existence of an intact, integral, and conductive system permeating the original leaf. (p. 89). A leaf is a living system, as is a human being. This, of course, lends important perspective to the phenomenon of “phantom limb pain.” Phantom limb pain is characterized by painful sensations in a limb that has been removed from a human body, most often as a result of trauma. Effective treatment has remained largely elusive as there is still not a consensus as to the actual origin of the pain. Perhaps viewing this pain from within the context of the existence, and possible manipulation of this system can offer some new directions for therapy.

In “Resonance Modulation: Biofield Basics” (2014), Connor presents a clear description of the biofield, based on contemporary science, physics and biological processes (p. 11). She describes it as a field made of gases that extend beyond the physical body (p. 11). These are gases, well known in the scientific and medical literature; such as water, nitrogen, carbon dioxide, hydrogen, methane, ammonia, methanol, ethanol, propanol, formaldehyde, acetaldehyde, isoprene and acetone and are emitted through the breath as well as the skin (p. 11). In addition to these gases, she wrote that the biofield is also comprised of a number of fields: magnetic fields, electrical fields,

minute amounts of both gamma and x-ray emission, photon emission and radio frequency emissions. Connor states that all of these fields can be affected by temperature, pressure and other stimuli present within the environment (p. 11). Particulate matter can be expressed by the body as well. Each of these different chemicals, gases and particulate matter given off by the body have different densities, giving rise to different frequencies or combinations thereof. What this means is that they can have different wave lengths and can either travel or actually dissipate at different rates as they exit the body (p. 11). Connor wrote that the end result of this process is that the external field surrounding the body is therefore in layers, with the body being the densest, and the subsequent layers having a decrease in their density as they travel farther from the body. She explained that the controversy surrounding these processes make sense in terms of our understanding of ordinary physics but runs into resistance simply due to the fact that this layered corona around the body cannot be seen with the naked eye (p. 12).

While some people such as Donna Eden, etc. are able to clearly see the corona around the body known as the “aura,” the vast majority of the population cannot, which contributes to the disbelief regarding its existence. Eden said the density of the aura will fluctuate within an individual person, which has much to do with their “state of health, excitement, or comfort.” (Eden, 2008, p. 189).

In “Wheels of Light”, (1994) Bruyere expands on this concept. “Those who have the ability to see auric color may do so by speeding up the normal process of visual perception.” (pp. 63-64). She goes on to clarify that when energy is described as having a color, this refers not only to the visible light spectrum but the nonvisible frequency bands

as well, such as X-rays, gamma rays, ultraviolet, infrared and microwave bands are included. She concludes with the comment that when clairvoyants see the auric field, in actuality they may be “reading” one or more of these frequency bands (p. 64). While some may feel discomfort in the abilities of others to “see” these frequencies, modern physics – both contemporary and quantum, offer sound support for these processes.

In “An Overview of Biofield Devices” (2015), authors Muehsam, et al., describe an array of different therapeutic and diagnostic devices that have been developed in an attempt to provide measurements of the biofield processes. They explain in their overview, that they emphasize the devices that have solid, peer-reviewed evidence to support them (Muehsan, Chevalier, Barsotti & Gurfein, 2015, p. 1). Some of these devices’ utility can be comfortably accepted as they function according to mechanisms that are well understood and accepted in mainstream healthcare, such as the EEG, or the ECG-heart rate variability. Other devices seem to operate through mechanisms that are “novel or incompletely understood.” (p. 1). The authors believe, however, that there is sufficient promise for the possible efficacy of these devices that further research should be done to determine the foundational mechanisms of action for them. They provide an overview and the current general state of knowledge regarding these devices. A full description of each of these devices is beyond the scope of this paper, but a general description of each follows.

An area of biofield activity that has produced substantial information is the study of biophoton emission which is also known as ultraweak photon emission (p. 3). Biophoton emission, or BE, is the spontaneous emission of light that emanates from all

living things, including human beings (p. 3), (Ives, van Wijk, Bat, Crawford, Walter, Jonas & van der Greef, 2014, p. 1). Because the human body has been shown to have sensitivity to light therapies to treat such conditions such as seasonal affective disorder, or deficiencies in Vitamin D, for example, this has led to therapies utilizing infrared light for tissue repair such as wounds and bone, and the growing use of low level laser therapy for several diseases (Muehsan, Chevalier, Barsotti, & Gurfein, 2015, p. 2).

IRT, or Infrared Thermal Imaging, or Infrared Thermography, allows for measurement of small changes in temperature in the body due to changes in muscular and metabolic activity, blood flow and perspiration in areas of the body. This technology, while still controversial, shows high specificity and is currently in use for a variety of assessments of disease states such as inflammatory conditions, cardiovascular disease, and breast cancer, etc. (p. 2).

According to these authors, modalities using nonthermal electromagnetic fields appear to work on the premise that interactions between electromagnetic fields and electric currents which are created by ions in the body are essential in supporting critical biological functions such as membrane electric potential, activity of the nervous system, cell migration, embryonic development, and the healing of wounds (p. 4). This has led to significant development of a variety of therapeutic applications and devices to treat disease, with the PEMF (Pulsed Electromagnetic Field) devices being the most commonly utilized (p. 4). A frequent use for this device is for nonunion of bone fractures in addition to the treatment of osteoarthritis, pain and inflammation (p. 4).

TMS, or Transcranial Magnetic Stimulation, is a form of pulsed magnetic field therapy that utilizes rapidly changing magnetic fields in order to induce electrical fields that will affect nerve activity; several clinical studies are underway to evaluate possible treatment with these devices for such diseases as Parkinson's, dystonia, spasticity, etc. (p. 4).

Modalities using magnetic fields, electrical currents, voltages or potentials; those using vibration/sound; mechanical and physical interactions such as acupuncture or acupressure; and modalities based upon human intention continue to offer intriguing insights into new methods of healing based on promising research studies in these areas. Indeed, several contemporary energy healing techniques such as Energy Medicine, Healing Touch, or Reiki, for example, are believed to employ a combination of these ways of working with the biofield.

Modalities utilizing gas or plasma known as Gas Discharge Visualization, or GDV are showing the importance of the use of plasma in biofield science (p. 7). Based on the Kirlian theory, a high frequency, high voltage field is used to stimulate weak photon emission, which is then captured through the application of specific modern optical equipment, electronics, and computer processing to form visible images of these weak photon emissions (p. 8). According to authors Muehsam, et al., ("An Overview of Biofield Devices", 2015), this technique dates back to the 1930's and has variously been called electrography, electrophotography, corona discharge photography, bioelectrography, GDV, electrophonic imaging, or EPI, and Kirlianography. The authors go on to state that these GDV/EPI techniques are used in a diagnostic fashion as a result

of the findings of the characteristics of the images of the fingertips, often with “proprietary” means of correlating the findings with either the acupuncture system or other means of assessing the biological state of the subject (p. 8). They comment that nearly 1000 papers on this subject have been published, mostly in Russian, as well as a few hundred in the West. The authors mention that a recent review of GDV research suggest that the information gleaned from this system of biofield measurement may have utility for gaining a deeper understanding of disease states as well as helping to guide both practitioners and their patients in directions designed to support improved health and wellness (p. 9).

Konstantin Korotkov, the developer of the GDV camera, further explains its function as follows:

“Specific structural-protein complexes within the mass of the skin provide channels of heightened electron conductivity, measurable at acupuncture points on the skin surface.” (Yakoleva & Korotkov, 2013, p. 12). Korotkov goes on to say that stimulated impulse emissions from the skin are then measured via high voltage impulses which cause optical emissions that are amplified in the gaseous discharge and then captured by optical sensors in the GDV apparatus (p. 12). Findings from the GDV device have been shown in increasing numbers of clinical studies to correspond with health conditions measured by standard medical diagnostic equipment as well as assessment methods used in a number of complementary medicine situations (p. 11).

Rubik, et al., (2015) provide an additional excellent overview of the actual concept of the biofield in, “Biofield Science and Healing: History, Terminology and

Concepts.” (p. 1). These authors discuss the current paradigm change that is occurring in our conventional biomedicine model which outlines the transitional nature of medicine. According to these authors, it needs to both redefine itself and even regroup as the need for an expanded, integrative medical model that emphasizes both healthcare and illness care emerges. In addition, this new model must treat people within a framework of holism. Treatment of the whole person instead of just treating the person’s disease allows for the emergence as well as the integration of several therapeutic approaches that embrace old and new models of care. These authors point out that this emerging model questions the entrenched biomedical paradigm of molecular reductionism that firmly and persistently clings to a belief that complex health systems can be best understood by reducing their components down to genes, proteins, and molecules, etc. (p. 1). However, continuing to focus on understanding the structure of a human being simply by identification of all the inherent parts completely misses the bigger picture, which is an integrative model that sees the complete framework that gives rise to the complexity of our biology, as these authors go on to point out (p. 2). They discuss the contributions of psychoneuroimmunology and psychosocial genomics in helping to form this expansive medical model (p. 2). This model also utilizes the concept that in addition to biochemical signals, living systems generate and respond to energy fields as part of their regulatory dynamics. Many spiritual traditions describe modes and pathways of energy that circulate within, and also surround the physical body; many current CAM therapies utilize various techniques that invariably involve the “laying on of hands” in order to help engage with and improve these energy flows (p. 4). Energy flows are routinely assessed in current

western biomedicine via examining the heart's electrical field through an electrocardiogram, for example, and the brain via electroencephalogram (p. 2). Neither of these is new technology; rather they present a way for conventional western medicine practitioners to view these individual organs as a part of the larger biofield that makes up an individual person. In other words, it offers a new perspective. In addition, research by the Institute of HeartMath has shown that the heart is the most powerful source of electromagnetic energy in the human body; with its electrical field 60 times greater in amplitude than the electrical activity that is generated by the brain (McCraty, 2015, p. 36).

An important consideration to remember during this time of paradigm change is that a lack of understanding, and a focus on differences rather than similarities, often contributes to an inability by some to accept a new model or a new way of doing or thinking about something. A key point to keep in mind would be to emphasize the commonalities between biomedicine and the biofield, rather than the differences. Kuhn, in "The Structure of Scientific Revolutions", says we must remember the following conceptual background framework to consider when bringing forth change:

"Examining the record of past research from the vantage of contemporary historiography, the historian of science may be tempted to exclaim that when paradigms change, the world itself changes with them. Led by a new paradigm, scientists adopt new instruments and look in new places. Even more important, during revolutions scientists see new and different things when looking with familiar instruments in places they have looked before. It is rather as if the professional community had been suddenly transported to another planet where familiar objects are seen in a different light and are joined by unfamiliar ones as well (Kuhn, 2012, p. 111)."

Kuhn's words definitely have applicable and important merit.

The actual taxonomy for CAM came forth as a result of the findings of the Office of Alternative Medicine at the U.S. National Institutes of Health. (IOM report on CAM use in US, 2005), (Rubik, Muehsam, Hammerschlag & Jain, 2015, p. 1). During this initial meeting of this new office in Chantilly, Virginia, significant decisions were made regarding the current knowledge of Bioelectromagnetic Fields (BEM's), their application, future research opportunities, clinical use, and identification of key issues. These key issues or controversies surrounding BEM had evidently inhibited progress in this field which fell into distinct categories: medical controversy, scientific controversy, barriers, and other issues (pp. 12-15).

Medical controversy included several historical treatment modalities and/or devices that had “black box” warnings on them. While some of these were legal and others not, there was an apparent tendency to lump them together simply because it was not well understood as to how they operated. These devices included radionics devices, Rife machines, Orgone energy devices, violet ray tubes, and others (p. 13). There were at least six alternative explanations for how each of these devices worked, leading to confusion and apprehension as there were no sound agreements, explanations or results of clinical trials to demonstrate effectiveness. Scientific controversy stemmed from the concern of some physicists that the low-intensity, non-ionizing EM fields have no bioeffects other than heating the tissue; arguing that “measurable nonthermal effects” are “impossible” and would require a “new physics” (p. 15). However, in contradiction, Hufford, et al., in “Barriers to the Entry of Biofield Healing into Mainstream Healthcare,” (2015) stated that numerous independent experiments reported in the refereed-journal

research literature established conclusively that nonthermal bioeffects of low-intensity EM fields do exist; with most researchers feeling that these bioeffects will become better understood by developing more sophisticated measuring devices based on known physical laws (Hufford, Sprengel, Ives & Jonas, 2015, p. 4).

As with any paradigm shift, change and acceptance of new information happen at different rates for different populations. Medicine and science often struggle with the adoption and inclusion of new information into established practice parameters, sometimes due to historical factors such as mentioned previously, or distrust and even apprehension regarding new ways of doing things. Hufford, et al., (2015) assert that biofield healing is not yet a fully developed paradigm but rather at the pre-paradigmatic stage. It is at that place where it is characterized by repeatedly seen “interesting observations”, with the same ground being covered repeatedly (p. 7). They go on to explain that there are several issues of concern regarding full acceptance of biofield healing as a sound modality: allegations of pseudoscience, public acceptance prior to scientific acceptance, and what they believe is the biggest problem: the spirit problem (p. 7). They argue that biofield therapies run contrary to conventional paradigms because they lack a conventionally recognized biological mechanism, making this an “enormous” obstacle (p. 7). They go on to assert that such techniques as Reiki, for example, appear to look very much like the religious practice of “laying on of hands.” Since spirituality is felt to be a personal relationship with transcendence, this means that for nearly all humans there is an orientation to the world of spirits, which is nonmaterial, and “contrary to materialism and conventional biological mechanisms.” (p. 8). Further problems are

“life force,” or vitalism, which these authors find problematic due to an emphasis on various types of energy that is ubiquitous within the complementary and alternative healing modalities. These authors describe the problem being that of vital energy; which is in contrast with the conventional view that life processes can all be reduced to very complex forms of the very things found in non-living things, such as chemicals and molecules (p. 8). As modern medicine and biology evolved, the concept of vitalism was cast aside. While it blended well with religion and healing, it found no place in the emerging paradigm that has become modern medicine. For this reason, the authors describe how the history of perceived obsolescence of vitalism compared with the strong connection of a vital force with CAM therapies in general, and biofield healing, in particular, has likely contributed to discomfort, confusion, skepticism and outright disbelief by many in conventional science (p. 8).

In addition, these authors assert that lack of a broad academic support for the biofield domain is a significant obstacle to support for it as an accepted healing modality. Healing researchers apply the accepted standards of scientific research that have evolved from science, bioethics, medical sociology and anthropology as well as mainstream medicine but discover that their work gets little notice (p. 8). These authors believe this is likely the result of the same bias found in conventional scientists being then resistant towards these therapies simply because most have not paid any attention to their potential as any kind of a modern healing modality (p. 8). Development of a solid academic infrastructure to support grounded theory and practice must be a goal of complementary and alternative therapies. It is important to point out here, for example, that research into

this area as well as human consciousness has been done, and continues in the Human Energy Systems Laboratory at the University of Arizona (Arizona.edu). Harvard University has also been conducting research into Reiki, Healing Touch, Effects of Spirituality on Healing, and other energy-based modalities as well (Harvard.edu).

Finally, Hufford, et al. (2015) point out that conventional science often struggles with accepting that things exist that currently we are unable to measure or observe directly. In addition, science relies on observations that can be replicated by anyone who uses the proper technique. Modern medicine moved away from vitalism to a more mechanistic view that grew as a result of discoveries in bacteriology, anesthesia and antiseptic practices in surgery, paving the way for a physical and chemical foundation for medical practice (p. 10). From this vantage point, conventional allopathic medicine was able to move into a view based more in materialism, allowing allopathic medical science to retain all that was effective and discarding that which did not fit the reductionistic biomedical model. Indeed, that which didn't fit was relegated to the realm of folk medicine and quackery (p. 10). Another consideration in this area of biofield healing is that of competition with what is already established in mainstream medicine: the culture of funding, patients, prestige and status. These authors present a plausible and critical commentary as they discuss the fact that when the emotional investment into mainstream belief is challenged; i.e. the belief held by doctors and scientists, it can produce strong defenses and resistance to change in established paradigms (p. 11). They also discuss the concept of "Peer Review", a process designed to ensure that decisions about scientific research findings are made by true experts. The problem with this, say the authors, is that

in the mainstream scientific realm, this process works relatively well due to a built-in seniority system that allows theory to enhance the expertise of the reviewers, which is problematic due to the creation of inertia by confirmation bias (p. 12).

The authors recommend that solid, rigorous, and systematic research must continue in the biofield realm in order for it to move forward and claim its rightful place as a healing modality (p. 13). This is imperative in order to respond to the entrenched barriers erected by mainstream science and medicine, which still continue to adhere to the biomolecular, reductionist viewpoint of life. According to the authors, the public is just as eager for biofield research as conventional science and medicine are resistant to it, and they recommend the biofield healing research community be “bold and innovative” as they bring meticulous, scrupulously produced, and supportive research forward (p. 13). These authors have provided a clear and thoughtful overview of the barriers inherent in bringing these modalities based on ancient wisdom but increasingly supported by solid scientific research.

Connor, (2014) comments in her book, “Advanced Body Reading”, that resistance to the concept of energy healing can be a result of a broader community sense that this is pseudoscience (p. 17); in other words, it exists on the fringe of standard accepted medical practice. She takes logical exception to this categorization of biofield healing as pseudoscience, stating that to the best of her knowledge, the scientific method was carefully followed in every study that she quotes (p. 17). Furthermore, she asserts that most of the studies she has used in support of the material for this book are considered main-stream studies. Those who would dismiss a topic as being non-scientific simply

because it conflicts with their viewpoint exhibit their lack of training or knowledge in this area, she writes. Perhaps it is feigned ignorance, stubbornly clung to as a result of a threat to their worldview and what it could mean for society should energy healing move into the mainstream. As Connor succinctly puts it, “The reader or reviewer may not like the data results, but the data are the data.” (p.18) She points out that every scientific study has problems, which does not automatically negate the findings; rather it provides an opportunity for theories to evolve and change (p. 18). As the current healthcare paradigm continues to undergo necessary directional shift, and growth, we are all tasked with keeping this critical perspective in mind.

Chronic low back pain is the 5th leading cause of visits to ambulatory healthcare centers (Patrick, Emanski & Knaub, 2014, p. 777). How are we currently treating chronic low back pain aside from standard pharmaceutical remedies? Is it important to look at other treatment modalities for this problem? Is the placebo effect, or the issue of intention necessary to look at? Is there a place for client performed techniques to reduce pain and provide or improve a sense of well-being? Would a strengthening of the client’s biofield post technique, as evidenced by the photographic biofield images, provide an impetus for client participation in a way similar to that of receiving improved lab results after making positive dietary and lifestyle change?

Gaps in Knowledge

The previous section provides not only sound support for the biofield but a critical overview of the challenges in bringing biofield healing into mainstream healthcare. The goal was to look at recent research done using biofield modalities for low back pain. A

literature search was performed using search strings as follows: energy healing, energy healing for low back pain, biofield healing, biofield therapy, complementary and alternative medicine, energy medicine. There are numerous published studies on the effects of Reiki, Healing Touch and the Brennan method to name just a few; with applications to a variety of pain types, cancer symptom management, and anxiety, for example.

In “Non-pharmacological Approaches to Pain Management in Residential Aged Care: A Pre-Post-Test Study” (2017), the authors describe a project evaluating non-pharmacological approaches to pain management at five residential aged care facilities in Australia (Ellis, Wells & Ong, 2017, p. 1). The study included 95 participants with an average age of 83 years. Standard deviation was 7.6. 38% of the participants were men, 62% women; 56 of the total group had dementia. Treatment methods 4 times per week performed by a physiotherapist included massage therapy, TENS (Transcutaneous Electrical Nerve Stimulation), exercises and stretching, or a combination of these. Each session lasted ten minutes; residents’ pain levels were recorded using a 5 point scale before and after each treatment. The period of time for the study was 8 consecutive weeks. Data analysis showed a small but statistically significant decrease in the number of requested PRN (as needed) medications as well as a decrease in pain from pre-post session. Pain ratings decreased from 2.4 (some to moderate pain) to 1.1 (a little pain). Of note, the residents who had dementia received lower pain ratings than those who did not have it. Type of pain was not specified, i.e. osteoarthritis, etc. The authors concluded that a blend of nonpharmacological interventions may be effective in reducing pain and the

reliance on medication. They recommended that staff caring for residents in these settings be provided with training in pain assessment and management, with specific attention being paid to those with dementia (p. 5). This is a well-done study that provides some basis for CAM therapies' benefits in the reduction of pain. A limitation is that the term "pain" is used in general without a specific breakdown as to type, and that over half the participants had dementia which may interfere with their cognitive responses. A further limitation is that these therapies all needed to be provided to the clients by a trained professional, rather than something that they could perform for themselves.

Ghildayal, et.al. (2016), in "Complementary and Alternative Medicine Use in the U.S. Low Back Pain Population" studied data from the 2012 National Health Interview Survey, Alternative Health Supplement. The purpose of the study was to measure both the prevalence and perceived benefit of CAM (Complementary and Alternative) use within the U.S. LBP (Low Back Pain) population by limiting vs nonlimiting LBP and to evaluate the odds of past year CAM use within the LBP population (Ghildayal, Johnson, Evan & Kreitzer, 2016, p. 1). A representative sample (N = 9665 unweighted) of U.S. adults was examined using multiple logistic regression in order to estimate the odds of past year CAM use (p. 2). The most popular therapies were listed as herbal supplements, chiropractic manipulation, and massage. Results showed that the majority of the LBP population used CAM specifically for treatment of their low back pain and that 58.1% perceived a great deal of benefit. In addition, those who dealt with limiting back pain were more likely to use provider-based therapies such as acupuncture, massage and chiropractic manipulation, while therapies requiring movement such as yoga, tai chi, or

qigong were used by those with non-limiting LBP (p. 6). Findings also included that those with lower self-reported health used CAM therapies less than those who considered themselves to have higher health status (p. 6).

This was a well-done study in terms of sample size as it could be shown to be representative of the national use of CAM therapies by the U.S. adult population with LBP (p. 7). The authors assert that it could be important for policymakers to consider methods of improving CAM access for individuals in poor health due to its potential for noninvasive, low-risk options to manage their health. Reported limitations of the study include the use of self-reported questionnaires that were hindered by the survey respondents' willingness and ability to report CAM use and LBP status accurately (p. 7). In addition, self-reporting allowed for the potential for recall bias, which could affect the accuracy of reports due to an underestimation or overestimation of respondents' CAM use and limiting LBP status (p. 7). The authors also point out that their intake question regarding functional limitations combined neck and low back pain, therefore raising the possibility that a certain percentage of their population was limited due to neck pain rather than back pain. In addition, the perceived benefit outcome for LBP was subjective; those who answered the questions likely being the ones who responded most favorably to CAM treatment (p. 7). The NHIS alternative health supplement is collected only every 5 years and a single year of their data restricts sample sizes for some subgroup analyses. For this reason, they were unable to include individual Asian race/ethnicity subgroups due to small sample size; instead, they had to create an aggregate Asian group. Finally, the NHIS information does not differentiate between the types of LBP: subacute, acute,

and chronic. The authors' analysis, therefore, focused on differences of CAM use by limiting vs nonlimiting LBP (p. 7). Since the use of CAM therapies is becoming an important part of care for those with LBP the authors point out the importance of continued large trials of CAM therapies, as well as understanding the patterns of CAM use. They assert this useful information can help healthcare professionals make more client specific as well as tailored decisions regarding care and can also help policymakers develop improved policy implementation as well as guide future back pain related treatment investigations (p. 10). A final limitation of this study, however, is that it is based on the clients' need to travel elsewhere to receive these services by someone else, rather than something they can perform for themselves.

In "Nonpharmacologic Therapies for Low Back Pain: A Systematic Review for an American College of Physicians Clinical Practice Guideline" (2017), authors Chou, et al., present their findings of a systematic review of RCT's (Random Controlled Trials) and systematic reviews published through February 2016 of nonpharmacologic treatments for low back pain, with updated searches performed through November 2016 (Chou, Deyo, Friedly, Skelly, Hashimoto, Weimer, Fu, Dana, Kraegel, Griffin & Grusing, 2017, p. 1).

Included were randomized trials of exercise, spinal manipulation, acupuncture, massage, mind-body interventions (listed as yoga, tai chi, mindfulness-based stress reduction), psychological therapies, or multidisciplinary rehabilitation vs sham treatment, waitlist, or usual care as well as comparisons between one therapy and another.

Outcomes were listed as both long-term, (more than a year); and short-term (less than six months) pain, function, return to work, and harms (p. 3).

Findings and conclusions were supportive of this new evidence for the effectiveness of mind-body interventions for chronic low back pain (p. 15). Since the current guidelines do not include this, the authors recommend that these findings have relevance for inclusion in clinical practice. Limitations included the inability of the authors to review all of the primary literature due to the large number of interventions. While they did not update meta-analyses that were reported in systematic reviews, they qualitatively evaluated the consistency of results from new trials against pooled estimates (p. 15). In addition, they excluded non-English language articles and did not search for abstract only publications. They discuss their limited ability to assess for publication bias due to the small numbers of trials for most comparisons, methodological limitations and heterogeneity of the studies (p. 15). Other nonpharmacologic interventions included education, advice to remain active, mattresses, shoe insoles or a comparison between nonpharmacologic therapies with surgical or interventional procedures (p. 15). Because mindfulness-based stress reduction, found to be as effective as CBT (Cognitive Behavioral Therapy) is currently not included in the clinical practice guidelines, the authors believe their findings have implications for inclusion in these guidelines (p. 15).

This was a well-designed and performed study in which current conventional medical treatment options were outlined and studied. However, the majority of the listed treatment modalities require that clients must travel elsewhere for services. In addition,

there is cost involved, either in the form of insurance billing or out-of-pocket cost, instead of being something they can do for themselves.

Qaseem et al. (2017) performed a systematic review of randomized, controlled trials and systematic reviews published through April 2015, with updated searches through November 2016 (Qaseem, Wilt, McLean & Forciea, 2017, p. 1). In their study, “Noninvasive Treatments for Acute, Subacute and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians”, they used the American College of Physicians’ (ACP) grading system upon which to base their recommendations (p. 2). Evaluation of clinical outcomes included the reduction or elimination of low back pain, improvement in both work disability as well as return to work, overall improvement, total of back pain incidents, or time between these incidents, patients’ satisfaction and adverse effects (p. 2). The population studied were adults with acute, subacute or chronic low back pain. They note that due to the large number of interventions they included systematic reviews of randomized trials, selecting the most recent, relevant, and comprehensive systematic review of the highest quality based on a validated assessment tool (p. 3). Study selection criteria were clearly described as was their database search criteria, usage and findings. They did exclude non-English language articles and abstract-only publications.

The initial recommendations for low back pain were exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction, tai chi, yoga, motor control exercise, progressive relaxation, electromyography biofeedback, low-level laser therapy, operant therapy, cognitive behavioral therapy, or spinal manipulation. Gradings

of the first four therapies were based on moderate quality evidence, while the rest were based on low-quality evidence (p. 3). A further recommendation was that for those patients with chronic low back pain not responsive to these noninvasive therapies that drug therapy should be considered. While this study also appears to be well designed and carried out, similarities to the prior study include benefit found in mindfulness-based stress reduction as well as the Eastern philosophically based practices of Tai Chi and yoga. Because all of these practices involve a mind-body connection, this is a direction for further research that needs to be considered. Pharmacological treatment continues to carry a significant risk of harms due to numerous side effects well documented in the medical literature and is beyond the scope of this paper. In addition, techniques that patients can do easily for themselves in a short amount of time should be included in directions considered for study in the future.

In addition to the mind-body continuum, other methods that purport to affect the biofield include Therapeutic Touch, Healing Touch, Johrei, Reiki, and external Qigong. In “Nontouch Biofield Therapy: A Systemized Review of Human Randomized Controlled Trials Reporting Use of Only Nonphysical Contact Treatment” (2014), authors Hammerschlag, et al., discuss findings of their study (Hammerschlag, Marx & Aicklin, 2014, p. 881). They examined the findings of 90 RCT’s of the above-listed biofield therapies that examined their effectiveness and found that 28 of these trials met their criteria (p. 881). The initial aim of this review was to identify and examine RCT’s of biofield therapies that reported only the use of nonphysical contact procedures; in other words, the practitioners clearly used non-contact treatment. The authors point out that an

additional 9 of the total studies had to be excluded as their conclusions were unclear as to whether the treatment involved an on-the-body style, off-the-body style or a combination, which underscores the importance of avoiding ambiguous language when describing key variables in the description and outcome of the intervention (p. 881). An interesting exclusion of this review was that in which trials of BFT (Biofield therapies) were taught to participants for subsequent self-care (p. 882).

The authors thoroughly discuss the limitations of this study, such as the difficulty of accurately identifying RCT's that used solely non-touch methods. Another limitation was the decision to use only human subjects; they report that a sizable number of studies have been done with plants, animals, cell cultures and cell-free systems that involved no physical contact between the practitioner and recipient (p. 889). An additional limitation was the study size; nearly all of the 28 acceptable studies were in the pilot study category; the mean group size was 27 participants. They go on to point out that while a few trials were designed as partial replications, none of these were follow-up studies with increased sample size as required for a phase 2 or 3 RCT, with an outcome conclusion that a systematic review of a group of pilot studies cannot be considered robust (p. 889). The authors discuss the need for better design and reporting of future RCT's as well as consideration for a three-arm trial that examines "verum treatment, mock treatment, or standard care." (p. 889). In addition, they assert that future research must improve the reporting of quality assessments as described in their review; in other words, three important potential confounders must be explored. These confounders include using "creative approaches" to calibrate practitioners' abilities to generate a "healing presence"

as well as to perform BFT, calibrate healing space in regard to initial conditions and possible persistence of field effects, assess experimenter/observer effects as positive or negative effectors of trial outcome (p. 889). This was a well done and critically evaluated systematic review with important recommendations listed for future research. While this systematic review did involve non-touch techniques performed by practitioners for the client, it did not include an examination of client-performed techniques, which again requires participants to seek these treatments from others.

Baldwin and Trent, in “An Integrative Review of Scientific Evidence for Reconnective Healing” (2017), present a paper that provides a summary and critical review of five current, published, peer-reviewed research papers that examine and assess whether RH (Reconnective Healing), a biofield therapy, provides a consistent physiologic outcome between each of the studies (Baldwin & Trent, 2017, p. 593). Using selection criteria that included English-language papers published in peer-reviewed journals; those designed to investigate the physiologic effects of RH on human subjects – healthy, unhealthy, or on RH practitioners; designed to investigate the effects of RH on groups of people; controlled or uncontrolled trials and case studies involving patients receiving RH. Studies that lacked measurement of the effects of RH on human subjects were excluded (p. 593). Data were reported from a total of 197 individuals, which also included a class of an unspecified number of participants across the five included studies. In addition, two studies involved participants with health issues, and three studies involved participants without any stated health problems; one of which, according to the authors, focused on the RH practitioners themselves. Finally, only two of the five studies used independent

control groups (p. 594). Using a set of 18 scoring criteria, the studies were then scored. Different biomarkers were used in the studies; one used AMI (Apparatus for Median Identification), two used the GDV (Gas Discharge Visualization) camera, one used HR (heart rate) and HRV (heart rate variability), and one used ROM (range of motion), and pain level using VAS (visual analog scale) (p. 594). While each of the five research studies showed a measurable change in the participants after RH using different biomarkers, the studies were markedly different from each other. The authors identify a limitation to this study as the group being assigned to the rest group knowing they were in that group; therefore, likely introducing a certain amount of bias (p. 597). They list further limitations as the inferences drawn from the results should be confined to those seen in a single ten minute treatment session with no follow-up, and that further studies are needed to evaluate such issues as the time-course of the effect of Physical Therapy, Reiki, and RH and subsequent outcome on both disability and function (p. 597). Further study recommendations are those designed to determine whether RH consistently alleviates specific disorders; they state that such studies would be stronger if they included both conventional and biofield-related endpoints rather than basing conclusions on measurements from the GDV and AMI as these measures have not been adequately validated or tested (p. 598). An interesting and relevant point that the authors also make is that a common finding from the three published nonclinical RH studies is that exposure of healer or healee to RH, either directly or indirectly, amplifies their autonomic physiologic arousal and increases their energy as shown by both the GDV and AMI. Furthermore, the authors state that the two GDV studies performed in a group context

appear to show that the autonomic responses of individuals in each group to RH appear to be synchronized, which is consistent with the claim that Reconnective Healers can access environmental fields that influence their own biofields, with these resultant changes passed on to the client biofield by entrainment (p. 598) As a result, the authors make a final recommendation regarding the above claim. A more specific intervention, they say, is to measure both the galvanic skin responses (GSR) and heart rate variability (HRV) of pairs of healers and healees before and during the healing process. In addition, simultaneously measure the GSR and HRV of individuals in a group with and without the presence of a non-RH motivational speaker or a Reconnective Healer who is engaged in the healing process and is also monitored (p. 598). They believe that experiments such as this would be more indicative of whether the previously observed changes in the biofields of Reconnective Healers were passed onto their patients by entrainment, leading to a better understanding of the RH process (p. 598).

This was a carefully done study with valid observations, limitations and conclusions. A final limitation with this one is similar to prior ones; i.e., that RH is done to, or for clients, rather than it being a method that they can perform for themselves.

Biophoton emission is another biomarker that deserves attention within this examination of subtle energy healing modalities. In “Effects of Intention, Energy Healing, and Mind-Body States on Biophoton Emission”, (2017), Rubik and Jabs conducted three pilot studies in order to investigate whether biophoton emission could be influenced by intention, extraordinary mind states, and human interaction (Rubik & Jabs, 2017, p. 227). Their four research questions concerned whether there was a change in

biophoton emission from the hands of both biofield practitioners and their patients immediately before and after an energy healing session; whether these biophotons could be measured during the session inside a dark chamber; whether energy healing performed by a biofield practitioner affects the emission from the forehead, heart and abdominal regions of patients, and finally whether biophoton emission of a practitioner increases from a specific area of the body upon the practitioner's intent to increase it (p. 230). Using a photomultiplier tube, and specific electronics, other hardware, and a computer, they designed and carried out a very detailed and specific protocol for gathering their biophoton data, which is beyond the scope of this paper (pp. 232-232). Five sessions were evaluated, using five energy healers and three patients who were unknown to each other; biofield therapies ranged from Reiki, external *qi*, and other modalities (p. 233). In addition, the patients had acute or chronic pain. Patients completed an exit survey to determine their level of relaxation, wellness and satisfaction with the session; post-session findings were high on the Likert scale, indicating that patients found the treatment sessions to be relaxing and satisfying (p. 233). In their conclusions, the authors found that biophoton emission, 1) diminished significantly post-session from the healers' hands and in particular from the dominant right hand used to send energy, 2) showed unique temporal patterns during some but not all of the energy healing sessions, 3) exhibited no clear pattern or trend when measured from the head and trunk pre-post energy healing for a small number of diverse patients, and 4) was altered in specific ways in extraordinary mind-body states that correlated with the intention to increase biophoton production (p. 233). They point out that their study was not large enough for a meaningful statistical

analysis but do underscore the need for larger studies for confirmatory findings and further extrapolation of the data gathered. Because the actual source of biophotons and the specific information they carry is still very unclear, much more study is needed in this realm. This was a clearly designed and well-done study that definitely has merit in terms of directing the need for larger studies. In addition, it would be worthwhile to compare specific pre-and post-session pain scales. Finally, a limitation to this study as well is that the patients received treatments from others, rather than self-applied subtle energy healing modalities.

As can be seen from this review of the literature there are many excellent and well-done studies strongly supportive of biofield healing; however, there is not, as yet identified, specific research that compares client reported low back pain pre-and post-client performed techniques. In addition, measurement of the biofield using the BioWell camera pre- and post-session with these clients has the potential to yield useful information that also can direct further research. Thus, this study has merit and should be done.

Definition of Terms

Acupoints: particular bodily locations that allow practitioners to balance clients' qi to affect therapeutic changes with acupuncture or acupressure. (Mosby's, 2005, p. 8)

Acupressure: a finger massage of those points on the body stimulated in acupuncture. (Merriam Webster, 2016, p. 8)

Acupuncture: an original Chinese practice of inserting thin needles through the skin at specific points especially to cure disease or relieve pain. (Merriam Webster, 2016, p. 8)

Aura: energies that are believed to surround the surface of an object, reflecting the life force that permeates all living things. (Mosby, 2005, p. 40)

Biofield: subtle energy fields that permeate the living body. (Mosby, 2005, p. 54)

Chakras: according to Tantric philosophy, the seven centers of energy that constitute our energy system. The chakras act as valves or conduits for energy from consciousness through the endocrine and nervous systems to different parts of the body. (Mosby, 2005, p. 76)

Chiropractic manipulation: a system of therapy based on manipulation of body structures. (Merriam Webster, 2016, p. 126)

Electromagnetic fields: three-dimensional areas that represent the mutual interaction of magnetic and electric forces. (Merriam Webster, 2016, p. 136)

Energy: the capability to do work or produce an effect. (Merriam Webster, 2016, p. 140)

Energy healing: energy that has a beneficial effect on the health of an organism. (Merriam Webster, 2016, p. 140)

Energy medicine: a group of medical approaches that use biological, psychological and spiritual “energy” for diagnosis, treatment, and to promote health and well-being. The term *energy* in energy medicine is understood in different terms depending upon the context; therefore, energy medicine includes many different modalities. (Merriam Webster, 2016, p. 248)

Energy work: techniques originating from ancient traditions and recent discoveries that are used to manipulate the bioenergy of the patient with the goal of restoring harmony or removing blockages from within the body. (Merriam Webster, 2016, p. 141)

Epigenetics: the study of the chemical modification of specific genes or gene-associated proteins of an organism. Epigenetic modifications can define how the information in genes is expressed, and used by cells. (Britannica.com, 2018, p. 1)

Gas Discharge Visualization (GDV): the appearance of images of the fluorescence (and some argue the biofield or aura) that surrounds living tissue after it has been exposed to a high-intensity field of electricity. The term describes both the technique and the device used. Also called bioelectrography, biological emission and optical radiation stimulated by electromagnetic field amplified by gas discharge with visualization through computer data processing, Kirlianography, or Kirlian photography. (Merriam Webster, 2016, p. 167)

Healing: the process of repair, recovery and restoration; return to wholeness. (Merriam Webster, 2016, p. 180)

Healing Touch: a non-touch therapy that employs an energy-based approach; also known as “HT.” (Merriam Webster, 2016, p. 180)

Johrei: a healing art from the Japanese tradition. It is a form of energy healing similar to the “laying on of hands” practiced in other cultures. (Merriam Webster, 2016, p. 212)

Kirlian Photography: a technique named after Seymon Kirlian, which involves photographing subjects in a high-frequency, low-amperage electrical field, which display bright emanations usually around the fingers or toes. (Merriam Webster, 2016, p. 217)

Massage: the application of diverse manual techniques of touch and stroking to muscles and soft tissue to achieve relaxation and to improve the client’s well-being. (Merriam Webster, 2016, p. 242)

Meridian: in acupuncture, the lines of energy that connect acupoints and are conduits for qi. (Mosby, 2005, p.253)

NANDA: NANDA International, formerly the North American Nursing Diagnosis Association. (NANDA.org, 2018, p. 1)

Prana: vital energy as articulated in the spiritual and healing systems of India. Similar to the Chinese *qi*, Japanese *ki*, and the Greek *pneuma*. (Mosby, 2005, p. 322)

Pulsed Electromagnetic Field Therapy (PEMF): a healing technique in which a small, electronic device that delivers weak pulse signals is used to speed healing. (Mosby, 2005, p. 332)

Qi: the body's life force. In Chinese philosophy, qi is the force that flows through channels in the body and enlivens all living things. An imbalance in qi is believed to cause illness. (Mosby, 2005, p. 334)

Qi Gong: the cultivation of qi. The general term for all Chinese techniques of breathing, visualization and (often) movement, the purposes of which is the promotion of balanced qi flow. Hundreds of forms exist, many of which overlap with martial arts practices, such as Taijiquan, or spiritual/meditative disciplines. Qi gong can be divided into internal qi gong, in which the practitioner uses these techniques for self-care, and external qi gong, wherein a master practitioner identifies and releases the energetic blockages of another. Also called *Chinese energy medicine*, *chi gong*, *chigung*, *qigong*, *qi gung*, *qigung*, or *traditional Chinese qigong*. (Mosby, 2005, p. 334)

Quantum: an elemental unit of energy. (Merriam Webster, 2016, p. 589)

Quantum Mechanics (aka Quantum Physics): the application of quantum theory to statistical mechanics to explain the properties of matter when examined at the subatomic level. (Merriam Webster, 2016, p. 335)

Quantum Theory: a theory of physics based on the idea that radiant energy (as light) is composed of small packets of energy. (Merriam Webster, 2016, p. 588)

Reiki: a system of spiritual healing/energy medicine developed by Japanese physician Dr. Mikao Usui. (Merriam Webster, 2016, p. 334)

Subtle Energy: the modern term for *vital energy* or the substance which permeates the environment and all living things. (Mosby, 2005, p. 141)

Tai Chi: in traditional Chinese medicine, a family of health-promoting exercises that provide benefits for the body, mind, and soul by maintaining balance between the yin and yang components. Developed in the fourteenth century, these exercises comprise flowing movements that imitate the motion and form of animals, all of which share fundamental elements rooted in qi gong. Such elements include continuous, fluid movements; alternation between yin and yang principles (e.g. empty and full, open and closed) and deep, conscious breathing. Tai chi (or Taijichuan) is practiced to relax, improve balance, to promote the flow of qi, and as an interior martial art. One may practice it either as the form (solitary) or as push hands (with a partner). (Mosby, 2005, p. 400)

Therapeutic Touch: a technique in alternative medicine that involves passing the hands over the body of the person being treated and that is held to induce relaxation, reduce pain and promote healing. (Merriamwebster.com, 2018)

Yoga: a family of mind/body disciplines that share the goals of the integrated body and mind or the union of the self with the divine. Yogic systems are manifold, but all aim at nurturing the body through breath and posture and cultivating the mind through meditation. (Mosby, 2005, p. 463)

Zones: in Reflexology, areas of the body through which innate energy flows before ending in the hands or the feet. (Mosby, 2005, p. 466)

Zone Therapy: a therapeutic scheme that divides the body into ten vertically interconnected segments, or zones, with an understanding that tension or blockage in one part of the zone is reflected in the zone as a whole. (Mosby, 2005, p. 422)

CHAPTER THREE

Introduction

As previously discussed in this paper, the United States spends a larger portion of its GDP on healthcare than any other of the major developed and industrialized countries in the world. Current spending projections show a continuing and concerning upward trend. Chronic disease costs pose the biggest burden to healthcare spending. Encompassed within chronic disease is chronic pain, with low back pain and osteoarthritis being leading causes of disability. Current preventive guidelines do not appear to be that effective in terms of disease prevention in this realm. An area of prevention that has received little to no scrutiny is that of patient-performed energy medicine techniques to reduce pain. This study will address that concept and will compare a pilot study group in terms of reduction of pain and effect of the techniques on the biofield.

To review, the purpose of this study is to determine whether patient-performed energy medicine techniques can reduce the perception of pain in subjects with chronic low back pain from a statistically significant standpoint. In addition, the study will determine whether there is measurable significant change in biofield parameters prior to, and after doing the specific techniques.

Materials and Methodology

Population

This study is a pre-post pilot study with a sample of convenience. It is comprised of a group of self-referred subjects who have met the criteria for having chronic low back pain and are interested in trying a non-pharmaceutical, non-invasive method of treatment. This pilot study was developed and constructed by the principal researcher and author of this paper.

- 1) Number of persons accepted into the study:** Twelve
- 2) Age range:** 18-75
- 3) Gender:** Both
- 4) Ethnicity:** Any, no special effort was made to recruit subjects. No vulnerable populations were admitted, such as children, pregnant women, prisoners, cognitively impaired subjects or populations at risk of transitioning into one of these vulnerable categories during the course of the study.
- 5) Inclusion and exclusion criteria:**

Inclusion criteria: Subjects as listed above who have had chronic daily low back pain for a minimum of three months.

Exclusion criteria:

- 1) No subjects with active, untreated mental illness or suicidal behavior within the past three years.
- 2) No subjects with congestive heart failure, untreated hypertension, untreated diabetes Mellitus, no motor or neurological diseases such as ALS or

Parkinson's disease. No essential tremors; no one who is under a guardianship, and no pregnant women.

Methods

Recruitment and Consent Procedures:

After obtaining IRB approval and the consent of the dissertation committee, the study was begun.

Potential recruits were identified in the following manner. Informational flyers were posted at two integrative health centers with permission and were also posted in Whole Foods, Natural Grocers, and the Central Oregon Locavore, a local, sustainable food cooperative. The flyer listed all criteria for a subject to be included in the study; if interested they were given the researcher's business phone number and email. Twelve people contacted the researcher by phone; none by email. After calling them back, criteria for inclusion and exclusion were reviewed with each one as well as a general overview of the study and what it involved. They were then given an appointment. Each subject was privately and individually consented by the principal researcher. It was individually explained that their privacy would be protected by assigning them a unique number that would be used to identify them in the study. Their personal information would be kept in a locked file on the study premises, accessible only to the principal researcher. The informed consent clearly stated that their participation could be withdrawn at any time without penalty.

Informed consent was obtained in the following manner. After greeting the subject at their appointment, a brief face to face discussion was had between the subject

and principal researcher again outlining the study, participant's role and responsibility, researcher's role and responsibility and data collection instruments. These instruments included the McGill Pain Scale (Lovejoy, Turk & Morasco), the Visual Analog (VAS) Scale (Bell, et al.) and the BioWell GDV camera (Korotkov). Potential risks and benefits were discussed; subjects were asked if they had any questions and if they understood the study parameters. Each study participant verbalized consent. All questions were answered. After each individual verbalized satisfaction with the answers, the subject voiced agreement to proceed with the consenting process. All subjects signed the consents.

Procedure

Subjects were then given the Research Study Demographics Form, the Research Participant Consent Form, Guidelines for Subject Authorization Form for Use and Disclosure of Protected Health Information (PHI) for Research, the pre-McGill Pain Scale and pre-VAS scale. These tools can be found in the appendices. Once finished with the paperwork, they were each individually asked once more if there were any questions or concerns. They were then shown the BioWell camera, given a brief explanation of how and what it would be measuring, and told they would feel nothing. Then it was explained that each of their fingertips would be photographed individually, starting with the right thumb, then right fingers from index to little finger; then the left thumb and left fingers in the same order. Baseline imaging by the camera was completed. Following this, they were shown the Daily Energy Routine handout and the Zone Tapping Routine. The

researcher demonstrated each technique; subject and researcher did each technique together with the subject following the researcher's lead.

The techniques, purpose, (and time required) of the Daily Energy Routine are as follows:

1) The Four Thumps:

This technique helps with grounding, boosts and restores energy, increases strength and vitality, and strengthens the immune system. Begin by tapping several fingers or the knuckles over the cheekbones for the length of two or three deep breaths. Next, use several fingers to tap below the corners of the collarbones on both sides for the length of two or three deep breaths. After that use one or both hands to tap with several fingers or the knuckles on the sternum, or breastbone, also for the length of two to three deep breaths. Finally, tap in the same manner, tap along the sides of the body, about four inches down from the axilla, or armpit, for the length of two or three deep breaths. (Time: one to two minutes)

2) The Crossover Shoulder Pull:

This technique helps to get energy crossing over the body. Start with one hand on the opposite shoulder, and pull across the body to the opposite hip while inhaling and exhaling. Do several on one side and then do the same thing for the opposite shoulder. (Time: up to one minute)

3) The Cross Crawl:

This technique helps to harmonize energy, improve coordination and clear thinking. Begin with lifting your right arm and left leg together in an exaggerated march,

swinging your arm across the midline of the body. As your right arm and left leg come back down, your left arm and right leg should come up, again with the arm crossing over the midline of the body. Continue this marching pattern for a full minute while breathing deeply in a controlled manner. (Time: one minute)

4) The Wayne Cook Posture:

This technique can help to calm the mind and untangle inner chaos and helps one learn and think more proficiently. Begin by sitting up straight and crossing the left foot over the right knee. Hold the left ankle with the right hand and the bottom of the left foot with the left hand. Breathe in slowly through the nose while stretching the foot towards the body. Exhale slowly while relaxing the body. Do four or five times, then repeat on the opposite side of the body. Uncross the legs, and “steeple” the fingers with the thumbs resting just above the bridge of the nose. Breathe slowly in through the nose and through the mouth four or five times. Finally, curl the fingers at the center of the forehead and pull slowly to the temples while stretching the skin on the forehead, then slowly bringing the hands down in front of you. (Time: one to two minutes)

5) The Crown Pull:

This technique can help to clear mental congestion and headaches while sharpening memory and opening the crown chakra to higher inspiration and spirituality. Begin with the thumbs at the temples, with fingertips resting in the middle of the forehead. With pressure, slowly pull the fingers apart while stretching the skin above the eyebrows. Next, place fingers at the hairline and repeat the stretch while using pressure during the pulling apart process. This pattern is repeated at the top, center, and back of

the head to the back of the neck. At this point, one moves to the shoulders and presses the fingertips into them while holding for a brief while. Finally, hands are brought to the middle of the heart chakra (chest) and held there for the space of one deep breath. (Time: up to one minute)

6) Connecting Heaven and Earth:

This technique helps to move energies throughout the body and lubricate the joints. Begin by placing the hands on the thighs with fingers spread apart. Inhale and circle the arms up over the head, bringing the hands to a prayer position in front of the chest. Exhale. While inhaling through the nose, stretch one arm up and one down, pushing with the palms. Hold, exhale, return to prayer position, switch arms and repeat. Do this several times for each arm, finally dropping the arms down while bending forward at the waist, relaxing here with knees slightly bent for the space of two deep breaths. Slowly return to a standing position. While returning to this standing position roll your spine upright and make figure 8's with the arms all the way up and over the head, finally bringing the arms to the sides and down. (Time: one to two minutes)

7) The Zip Up:

This technique helps to boost confidence, can clear thoughts and protect from negative energies. Begin by placing one or both hands at the bottom of the pubic bone, where Central meridian starts. Take a deep breath in while moving hand or hands upward, slowly up the center of the body to the lower lip. Continue, exuberantly, to raise your hand or hands into the sky. Repeat two or three times. (Time: up to one minute)

8) The Hookup:

This technique can relieve anxiety, help with centering and calming and may help when feeling dizzy or faint. Begin by placing the middle finger of one hand on the “third eye” between the eyebrows while placing the middle finger of the other hand in the navel. Gently press the fingers into the skin while pulling up. Hold for twelve to thirty seconds; if a deep sigh or yawn is experienced it means the energies have hooked up. (Time: up to one minute)

9) Zone Tapping:

This technique employs tapping on the front or back of the wrist for a specified duration of time for pain above the waist and on the front or back of the body. For pain below the waist and on either the front or back of the body, the ankle is used. While the zones can be energy tested to “fine tune” where to tap, they can also be used in general. It was decided for this study that due to study subjects having low back pain in general, that the outsides of both ankles would be tapped. Therefore, subjects were shown how to tap, tapping with the fingertips along the outside of the ankle for ten seconds. They waited ten seconds, and then proceeded to tap for another thirty seconds. This sequence is based on the teachings from Donna Eden’s Energy Medicine Certification Program. (Time: one minute)

Detailed, illustrated descriptions of these techniques can be found in the appendices.

After finishing the Daily Energy Routine and Zone Tapping techniques, a follow-up BioWell scan was performed. They were then given the post-McGill Pain Scale and

post-VAS to fill out. After this, they were shown a comparison of their pre- and post-scan results. They were reminded that these were essentially baseline measurements that would have more meaning and context when compared with the subsequent measurements to be taken at least 28 days hence. They were sent home with a copy of the Daily Energy Routine and Zone Tapping handout while being reminded that the researcher would be checking in with each of them every 5-7 days to see how they were doing, answer any questions or address concerns, etc. A follow-up appointment was made for each subject to return a minimum of 28 days later to perform an additional pre-McGill Pain Scale and pre-VAS followed by a BioWell scan. The Daily Energy Routine and Zone Tapping sequence were performed by the researcher and subject together, followed by a repeat BioWell scan, post-McGill Pain Scale, and post-VAS scale. A comparison of the initial findings and the subsequent findings was then had with each participant at the conclusion of the study.

Data Collection Instruments

The materials used for this study include the following Data Collection Instruments:

- 1) BioWell GDV camera and software
- 2) Laptop computer for use with camera and software
- 3) McGill Pain Scale
- 4) VAS Pain Scale
- 5) Signed Guidelines for Subject Authorization Form for Use and Disclosure of Protected Health Information (PHI) for Research

- 6) Signed Research Participant Consent Form
- 7) Signed Research Study Demographics Form
- 8) Locked file cabinet on study premises
- 9) Locked portable fireproof safe for transporting study information

Background of the GDV Camera:

The camera was developed by Dr. Konstantin Korotkov over twenty years ago and is used as a diagnostic device in 32 countries. It is also in use on the International Space Station. There are 750 studies published on the device, 94 of these are in English.

McGill Pain Scale

This respected pain measurement scale has been normalized and used in countless research studies throughout the years. This scale is comprised of three sections regarding a subject's pain. Section number one asks, "What Does Your Pain Feel Like?" and then lists 20 descriptive categories that are numerically rated as 1 – 5. Section number two asks, "How Does Your Pain Change with Time?" The first question asks the subject to describe the pattern of their pain. This is followed by 22 descriptive terms regarding their effects on increasing or decreasing pain. The third section reflects upon the strength of the pain and has six questions that give a context and comparison to the current pain compared to other types of pain suffered in the past. Again, this section is ranked numerically 1-5, with one being mild and five being excruciating. A copy of this tool can be found in the appendices.

Visual Outcome Scale, or Self-Performance Rating Scale

The visual analog scale (VAS) is another respected and normalized measurement that asks a single question of the study subject, in which they are asked to consider their physical, mental, emotional, social, and spiritual condition prior to doing the testing. On the left side, the words “won’t do well on this test,” and on the right side is the word “perfection”. Participants are asked to make a single x along the line. The distance from the beginning of the left side is measured in millimeters.

Data Management

All data collected was stored in an individual file for each subject. Each subject was given a unique four-digit identification number comprised of the month and year of their birth. These files were kept on the study premises in a locked file cabinet accessible only by the principal researcher. When necessary to perform data analysis, the files were transported to the researcher’s home in a locked portable fireproof safe. In addition, all data will be kept for a minimum of 7 years in a locked safe, with all personal identifying information shredded.

Statistical Analysis

Demographic information, results from the pre- and post-McGill Pain Scales and pre- and post-VAS scales, and specific BioWell parameters were entered into a spreadsheet and sent to an independent statistician for analysis. This information was then entered into tables or charts which are found in Chapter Five.

Significance of the Study

Successful reduction of pain by participants utilizing energy medicine techniques suggests a new source of preventive healthcare practice with cost-saving potential. This would require further study with larger groups of subjects.

Limitations of the Study

- 1) Small sample size
- 2) No control group
- 3) Short study period
- 4) No medical testing of pain changes, i.e. serum cortisol, etc.
- 5) No longitudinal follow-up
- 6) Sample of convenience

Summary

As stated in the introduction of this paper, healthcare in the United States is increasingly expensive, and innovative ways of cost-cutting, as well as methods of patient empowerment, are considerations for control of these costs. The purpose of this study is to examine whether a pilot study of people with chronic low back pain performing the Daily Energy Routine and Zone tapping on the legs will have both a reduction in pain as reported on normed pain scales, and whether there will be positive changes in their biofield parameters as measured by the BioWell camera. Reasons for doing this study are that to date, no identified studies of patient-performed techniques for pain control and resultant effects on the biofield have been done. Self-performed pain management techniques that are simple, effective and easy to do can be a source of motivation for

people to adopt them into their activities of daily living, with an additional result of possibly reduced healthcare costs arising from fewer ambulatory visits for pain management.

CHAPTER FOUR

Introduction

The following information is the statistical analysis of the data collected for this study from the McGill Pain Scale, the VAS Scale, and the BioWell Camera. This analysis was performed by Dr. Jens Eickhoff.

Statistical Analysis

Effects of Specific Eden Energy Medicine Techniques on the Human Biofield: A Comparative Study

July 5, 2018

Study Design: Prospective, single-arm, pre- post-test study:

Specific Aims of the Study:

1. To determine if performance of specific Eden Energy Medicine techniques makes a difference in pain levels.
 - a. **Hypothesis One:** Performance of the specific Eden Energy Medicine techniques known as the Daily Energy Routine and Zone Tapping will reduce low back pain on the McGill Pain Scale at a level of $p < \text{or} = \text{to } 0.05$.
 - b. **Hypothesis Two:** Performance of the specific Eden Energy Medicine techniques known as the Daily Energy Routine and Zone Tapping will reduce low back pain on the VAS Scale at a level of $p < \text{or} = \text{to } 0.05$.

2. To determine if there is a strengthening of the subject biofield after performance of specific Eden Energy Medicine techniques.
 - a. **Hypothesis One:** Performance of the specific Eden Energy Medicine techniques known as the Daily Energy Routine and Zone Tapping will result in an increase in overall robustness across the body from pre- to post-measurement at a level of significance.
 - b. **Hypothesis Two:** Performance of the specific Eden Energy Medicine techniques known as the Daily Energy Routine and Zone Tapping will result in a more robust initial biofield measurement after being performed daily for thirty days at a level of significance.

Statistical Analysis: All outcome measures (VAS, McGill Pain and BioWell) were summarized in terms of means, standard errors and 95% confidence intervals. A linear mixed effects model with subject-specific random effects was used to evaluate changes from pre- to post-assessments and to conduct comparisons between the initial and end of study assessments. Changes from pre- to post-intervention assessment were quantified by calculating Cohen's effect size d . Effect sizes d are interpreted as follows: $d < 0.2$ no change, d between 0.2 and 0.5 indicates small change, d between 0.5 and 0.8 indicates a moderate change and $d > 0.8$ indicates a large change. All reported p -values are two-sided and $P < 0.05$ was used to define statistical significance.

Table 1 shows the results, stratified by testing assessment (initial testing vs. end of study testing).

Table 1: VAS, McGill and Biowell outcome parameters, stratified by testing assessment (initial testing vs. end of study testing) and comparisons between testing assessments

		Initial Test				End of Study Test (Day 30)				
Outcome	Time	Mean	SE	95% CI	<i>p</i> -value [†]	Mean	SE	95% CI	<i>p</i> -value [†]	<i>p</i> -value [‡]
VAS	Pre	70.55	3.96	61.7–79.4		74.91	4.01	66–83.8		0.4576
VAS	Post	76.64	3.29	69.3–84		79.27	2.82	73–85.6		0.5028
VAS	Change from Pre to Post	6.09	2.21	1.2–11	0.0202	4.36	4.34	-5.3–14	0.3385	0.7017
McGill Pain Scale: A (Feel)	Pre	15.82	3.33	8.4–23.2		12.18	3.80	3.7–20.7		0.2187
McGill Pain Scale: A (Feel)	Post	9.36	2.55	3.7–15		7.00	2.60	1.2–12.8		0.1469
McGill Pain Scale: A (Feel)	Change from Pre to Post	-6.45	1.45	-9.7–-3.2	0.0012	-5.18	1.63	-8.8–-1.6	0.0098	0.5380
McGill Pain Scale: B (Change)	Pre	1.73	0.14	1.4–2		1.64	0.20	1.2–2.1		0.6761
McGill Pain Scale: B (Change)	Post	1.91	0.21	1.4–2.4		1.55	0.21	1.1–2		0.2212
McGill Pain Scale: B (Change)	Change from Pre to Post	0.18	0.12	-0.1–0.5	0.1669	-0.09	0.09	-0.3–0.1	0.3409	0.0816
McGill Pain Scale: C (Strength)	Pre	1.82	0.23	1.3–2.3		1.64	0.24	1.1–2.2		0.5884
McGill Pain Scale: C (Strength)	Post	1.36	0.15	1–1.7		1.27	0.20	0.8–1.7		0.7560
McGill Pain Scale: C (Strength)	Change from Pre to Post	-0.45	0.21	-0.9–0	0.0531	-0.36	0.20	-0.8–0.1	0.1039	0.7961
BioWell: Emotional-Pressure	Pre	3.39	0.30	2.7–4.1		3.40	0.19	3–3.8		0.9640
BioWell: Emotional-Pressure	Post	3.39	0.26	2.8–4		3.29	0.23	2.8–3.8		0.4470
BioWell: Emotional-Pressure	Change from Pre to Post	-0.01	0.11	-0.3–0.2	0.9367	-0.12	0.09	-0.3–0.1	0.1941	0.5012
BioWell: Energy	Pre	46.02	2.03	41.5–50.5		46.42	1.89	42.2–50.6		0.8799

BioWell: Energy	Post	42.34	0.89	40.4–44.3		45.01	1.95	40.7–49.3		0.2039
BioWell: Energy	Change from Pre to Post	-3.68	1.65	-7.3–0	0.0493	-1.42	1.13	-3.9–1.1	0.2396	0.2428
BioWell: Left/Right	Pre	95.86	1.21	93.2–98.6		91.16	1.14	88.6–93.7		0.0343
BioWell: Left/Right	Post	92.67	1.02	90.4–94.9		93.32	1.07	90.9–95.7		0.6209
BioWell: Left/Right	Change from Pre to Post	-3.20	1.84	-7.3–0.9	0.1120	2.16	1.22	-0.6–4.9	0.1078	0.0322
BioWell: Organ- Balance	Pre	86.85	2.00	82.4–91.3		86.33	1.32	83.4–89.3		0.7761
BioWell: Organ- Balance	Post	88.28	1.28	85.4–91.1		86.57	2.19	81.7–91.5		0.5041
BioWell: Organ- Balance	Change from Pre to Post	1.42	2.68	-4.5–7.4	0.6069	0.25	2.02	-4.3–4.8	0.9058	0.6688
BioWell: Entropy- Coefficient	Pre	2.22	0.08	2–2.4		2.25	0.05	2.1–2.4		0.5797
BioWell: Entropy- Coefficient	Post	2.18	0.07	2–2.3		2.23	0.06	2.1–2.4		0.4110
BioWell: Entropy- Coefficient	Change from Pre to Post	-0.03	0.03	-0.1–0	0.2741	-0.02	0.03	-0.1–0.1	0.5711	0.7392
BioWell: Form- Coefficient	Pre	2.78	0.13	2.5–3.1		2.77	0.10	2.5–3		0.9437
BioWell: Form- Coefficient	Post	2.81	0.10	2.6–3		2.75	0.08	2.6–2.9		0.5924
BioWell: Form- Coefficient	Change from Pre to Post	0.03	0.08	-0.2–0.2	0.7532	-0.02	0.03	-0.1–0.1	0.5122	0.5974

† p-value for evaluating changes from pre- to post-intervention assessment within initial and end of study testing

* p-value for comparing initial vs. end of study testing

Summary of results:

- At the beginning of the study, there was a significant increase in the VAS from the pre- to the post-intervention assessment (6.1 +/- 2.2, $p = 0.0202$), a significant decrease in the McGill Pain Scale-Feel (-6.5 +/- 1.5, $p = 0.0012$), and a significant decrease in BioWell-Energy (-3.7 +/- 1.7, $p = 0.0493$).
- At the end of study, there was a significant decrease in McGill Pain Scale-Feel (-5.2 +/- 1.6, $p = 0.0098$).
- There was a significant difference in the change from pre- to post-intervention assessment in BioWell-Left/Right between the initial testing (-3.2 +/- 1.8) vs. the end of study (2.2 +/- 1.2) testing ($p = 0.0322$).

Table 2 shows the results when combining the initial and end of study assessments.

Table 2: *VAS, McGill and Biowell outcome parameters for combined (initial and end of study testing)*

Outcome	Time	Mean	SD	95% CI	Cohen's Effect Size D	p -value [†]
VAS	Pre	72.73	2.81	66.5–79		
VAS	Post	77.95	2.41	72.6–83.3		
VAS	Change from Pre to Post	5.23	2.66	-0.7–11.1	0.59	0.0775
McGill Pain Scale: A (Feel)	Pre	14.00	3.29	6.7–21.3		
McGill Pain Scale: A (Feel)	Post	8.18	2.46	2.7–13.7		
McGill Pain Scale: A (Feel)	Change from Pre to Post	-5.82	1.17	-8.4–-3.2	1.50	0.0006
McGill Pain Scale: B (Change)	Pre	1.68	0.14	1.4–2		
McGill Pain Scale: B (Change)	Post	1.73	0.16	1.4–2.1		
McGill Pain Scale: B (Change)	Change from Pre to Post	0.05	0.08	-0.1–0.2	0.19	0.5884
McGill Pain Scale: C (Strength)	Pre	1.73	0.17	1.3–2.1		
McGill Pain Scale: C (Strength)	Post	1.32	0.10	1.1–1.5		
McGill Pain Scale: C (Strength)	Change from Pre to Post	-0.41	0.11	-0.7–-0.2	1.12	0.0047
BioWell: Emotional-Pressure	Pre	3.40	0.22	2.9–3.9		.
BioWell: Emotional-Pressure	Post	3.34	0.23	2.8–3.9		.

BioWell: Emotional-Pressure	Change from Pre to Post	-0.06	0.06	-0.2–0.1	0.30	0.3156
BioWell: Energy	Pre	46.22	1.47	42.9–49.5		
BioWell: Energy	Post	43.67	1.15	41.1–46.2		
BioWell: Energy	Change from Pre to Post	-2.55	1.08	-5–0.1	0.71	0.0397
BioWell: Left/Right	Pre	93.51	0.68	92–95		
BioWell: Left/Right	Post	92.99	0.83	91.1–94.8		
BioWell: Left/Right	Change from Pre to Post	-0.52	1.13	-3–2	0.14	0.6542
BioWell: Organ-Balance	Pre	86.59	1.43	83.4–89.8		
BioWell: Organ-Balance	Post	87.42	1.30	84.5–90.3		
BioWell: Organ-Balance	Change from Pre to Post	0.83	1.96	-3.5–5.2	0.13	0.6797
BioWell: Entropy-Coefficient	Pre	2.23	0.06	2.1–2.4		
BioWell: Entropy-Coefficient	Post	2.21	0.06	2.1–2.3		
BioWell: Entropy-Coefficient	Change from Pre to Post	-0.03	0.02	-0.1–0	0.45	0.3276
BioWell: Form-Coefficient	Pre	2.78	0.09	2.6–3		
BioWell: Form-Coefficient	Post	2.78	0.07	2.6–2.9		
BioWell: Form-Coefficient	Change from Pre to Post	0.00	0.04	-0.1–0.1	0.00	0.9683

Summary of results:

- There was a significant decrease in the McGill-Pain Scale- Feel score from the pre- to the post-intervention assessment (-5.8 +/- 1.2, p=0.0006) with a large effect size D of 1.5. This supports Specific Aim 1, Hypothesis 1.
- There was a significant decrease in the McGill-Pain Scale-Strength score from the pre- to the post-intervention assessment (-0.4 +/- 0.1, p=0.0047) with a large effect size D of 1.12. This supports Specific Aim 1, Hypothesis 1.
- 30 day follow up significance for left-right change pre p \leq 0.0343 95% confidence interval. This supports Specific Aim 2, Hypothesis 2.
- 30 day follow up significance for left-right change pre-post p \leq 0.0322 95% confidence interval. This supports Specific Aim 2, Hypothesis 2.

- There was a significant decrease in the BioWell-Energy score from the pre- to the post-intervention assessment (-2.6 ± 1.1 , $p=0.0397$).

Overall Summary:

1. The results support Specific Aim 1, Hypothesis 1.
2. The results do not support Specific Aim 1, Hypothesis 2.
3. There is partial support for Specific Aim 2, Hypothesis 2 in terms of the parameters of L/R Symmetry.
4. There is no support for Specific Aim 2, Hypothesis 1.

As can be seen from this analysis, the results were supportive of Specific Aim 1, Hypothesis 1, so statistical significance has been achieved in a portion of this study. The data do not support Hypothesis 2 for Specific Aim 1, nor is there support for Specific Aim 2, Hypothesis 1. Discussion and conclusions follow in Chapter 5.

CHAPTER FIVE

Discussion

As previously discussed, this pilot study was a sample of convenience, involving twelve initial subjects and concluding with eleven due to an unavoidable schedule conflict on the part of one subject. This was a group of people with chronic low back pain of varying origin who were interested in trying a drug-free, noninterventional way of managing their pain. The group ranged in age from late twenties through early sixties and included two men and nine women. For clarity, the first testing session is referred to as the initial tests, with the words “pre” and “post” referring to baseline tests prior to, and after doing the DER and Zone Tapping. The second set of testing, again pre-DER and Zone Tapping, is referred to as the follow-up. Each testing session included subjects filling out the VAS and McGill Pain Scales, having the BioWell scan done, performing the DER and Zone Tapping, repeating the BioWell scan, then without knowing how they did on the scan, again filling out the VAS and McGill Pain Scales. After this was completed, the findings of the BioWell scans were reviewed and compared with each subject.

For the beginning part of the study, each participant was screened by the researcher and, if accepted into the study, given an appointment. During this initial appointment, 5-10 minutes were spent face-to-face discussing the history of the subject's pain, origin if known, current treatment methods to include pharmacologic measures,

conventional treatment methods and complementary or alternative modalities. Questions were answered and consent forms signed. Each participant then filled out a VAS Pain Scale and a McGill Pain Scale. These two well-respected units of measurement provide an objective rating of a subject's pain characteristics, the pattern of their pain, and the level of pain at the start of the study and initial and final rounds of testing. In addition, before and after measurement parameters using the BioWell camera are also included. Of note, the BioWell was calibrated every day before testing. An expansion of the parameters measured in each test is provided in the following discussion.

Measurement Tools

The VAS (Visual Outcome Scale – Self-Performance Rating) is a measure of how an individual believes they will do on the testing and is comprised of a 100 mm line. On the left-hand side below the line are the words “Did not do well on this test.” On the right-hand side is the word “Perfection”. The subject places an “X” on the line corresponding to their belief regarding the outcome. Scoring involves measurement of the “X” from the beginning of the 100 mm line and is recorded in millimeters. The numbers in the chart reflect the measurement. This test was performed prior to doing the Daily Energy Routine and then again afterward.

The McGill Pain Scale has three sections to it. The first section is called “What Does Your Pain Feel Like?”, the second section is “How Does Your Pain Change With Time?”, and the third, “How Strong is Your Pain?” This test can provide useful information in regards to the effectiveness of an intervention or treatment modality. The numbers in these charts are scored accordingly, with Section A corresponding to what the

subject's pain feels like, Section B corresponds to how the subject's pain changes with time, and Section C corresponding to how strong the subject's pain is at the time of the testing. The McGill Pain Scale also has a separate section listing different words that the subject can use to describe environmental effects on their pain such as the use of heat, cold, pressure or massage, movement or lack thereof, etc. Some subjects chose to circle various words, with an arrow pointing up or down to signify whether there was an increase or decrease in their pain; not all subjects chose to use this section. Of note, of those who chose to utilize this section, common universal triggers to increase pain among several of them were weather changes, heat, dampness, lack of movement and going to work. Common modalities offering a decrease in pain included pressure, massage, mild exercise and rest. Again, it is important to point out that not all subjects chose to utilize this section.

The BioWell GDV camera was chosen for this study because of its analytical potential. The camera works by having the subject insert each finger, starting with the right thumb and then right fingers in sequence; then proceeding through the left hand, again starting with the thumb. The subject's fingertip is placed on the dielectric plate and a single millivolt of electricity goes through it, causing an electron cascade from the fingertips. The human body "breathes" all over, discharging a variety of gases, and the electron cascade from the dielectric plate causes the gases from the fingertips to light up. The concentration and level of discharge of the gases can give important information as to the status of organs, etc. (personal conversation with Dr. Melinda Conner, 7/2/18). The camera has standardized measurement parameters which have been derived from the

findings of a database of apparently healthy people, according to the proprietary software used with the camera to obtain the study subjects' status. Six of these measurement parameters were chosen as they reflect an overall general baseline that offers useful data. The parameters, a short description of each, and its scoring follow in order to augment understanding of the findings.

Emotional pressure (EP) refers to the subject's emotional status. Scoring falls into this range:

0-2 Calm

2-3 Optimal

3-4 Anxiety

4-6 Stress

6-8 Heightened Stress

8-10 High Stress

The next parameter is Energy (EN) and refers to the level of energy for the particular person both in Joules and % related to the database of apparently healthy people, measured from 0-100 Joules, again according to the software. Scoring is measured as follows:

0-20 Joules ($\times 10^{-2}$) – low energy (may be related to energy deficiency, as well as to a meditative state.)

20-40 Joules ($\times 10^{-2}$) – decreased energy

40-70 Joules ($\times 10^{-2}$) – typical energy

70-90 Joules ($\times 10^{-2}$) – heightened energy - characteristic of people with a high level of energy

90-100 Joules ($\times 10^{-2}$) – high energy, typical for athletes, top managers – though can also be an indication of inflammation.

The next parameter is Balance or Left to Right Symmetry (L/R) and is an indication of the balance and equilibrium between the left and right parts of the brain, again according to the software. Scoring is measured as follows:

0-50% - very low balance, an indication of serious mis-functioning

50-90% - low balance – an indication of a functional disorder. Can also be seen with fatigue.

90-100% - typical balance

The next parameter is Organ Balance (OB) and is also measured in Joules.

Scoring is measured as follows:

0-40 Joules ($\times 10^{-2}$) – very low

40-70 Joules ($\times 10^{-2}$) – low

70-100 Joules ($\times 10^{-2}$) – optimal

Entropy Coefficient (EC). This refers to the amount of charge or actual power in the total area or subject's energy field.

The last parameter is Form Coefficient (FC). This parameter refers to a specific area's total charge and actual power.

After completing the initial round of testing, both before and after doing the Daily Energy Routine and Zone Tapping, subjects left the site having agreed to perform these

techniques as instructed. A follow-up appointment was scheduled at that time. They were told that the researcher would be checking in with them via phone or text to see how they were doing, whether they had questions, etc. All subjects were agreeable to this.

The researcher checked in as agreed upon approximately every five to seven days; none of the subjects had any problems or issues arise from their performance of the techniques. As time elapsed, several of the subjects mentioned that they had had a decrease in their pain, some quite significantly, with two subjects having essentially complete resolution of their pain at the end of the study.

At the conclusion of the study, participants were reminded of their appointment times by text and all but one were able to return at the agreed upon time. The researcher took five to ten minutes at the beginning of the second session of testing to just check in with each participant. They were asked how the experience had been for them overall and there was unanimous agreement that it had been a positive experience. They were asked to reflect on what ways had they noticed any change, and what these changes were.

Findings

VAS Scores

In terms of the VAS scales, with the initial round of testing at the beginning of the study, it can be seen that Subjects 2 and 6 had slight decreases in their scales from pre- and post-. Subject 2 had an initial VAS of 75, which dropped to 74. Subject 6 also decreased from 78 to 76. A full comparison of the pre- and post-scan scores in the initial and follow-up testing can be seen in Table 2 in the previous chapter. Table 1 is below.

Table 1. Initial Test Results - Beginning of Study (in millimeters)

Participant	VAS (Pre)	VAS (Post)
1	71	73
2	75	74
3	88	94
4	54	55
5	77	78
6	78	76
7	75	85
8	73	86
9	82	84
10	43	63
11	60	75

A comparison with the follow up testing revealed the following information. In comparing the VAS scores, Subjects 1, 6, 8, 9, 10 and 11 had an increase in their VAS scores from before compared to after completing the DER and Zone Tapping, while the others had a decrease or only minimal change. Subject 2 had a marked decrease in his score from 88 to 58 in the follow-up testing; in reviewing this with him he explained that the tightness he felt in his low back while sitting even for a short period contributed to a feeling he might not do as well on the second set of testing (Table 2).

Table 2. Test Results - End of Study (2nd round of testing)

Participant	VAS (Pre)	VAS (Post)
1	66	83
2	88	58
3	84	82
4	82	77
5	85	85
6	47	68
7	88	89
8	57	76
9	78	90
10	76	82
11	73	82

McGill Scores

Each participant reported a decrease in their low back pain, some significantly, from the beginning of the study to the conclusion. This can be seen by examining and comparing the McGill scores, in particular (Table 1 and 2).

Comparing the pre- and post-DER and Zone Tapping findings on the initial round of testing it can be seen by examining Table 1 that all subjects had a decrease in pain in Column A except for subject 2, who found that sitting for even short periods of time would cause his back to feel tight. Column C shows that subjects 7, 8 and 9 all had a one

point reduction in their pain from pre-DER and Zone Tapping to post-, whereas the rest of the subjects had no reduction in the strength of their pain (Table 3 and 4).

**Table 3. McGill Pain Scale - Scoring (Pre)
Test Results - Initial Study (Before DER and Tapping)**

A. Section 1: What Does Your Pain Feel Like?

B. Section 2: How Does Your Pain Change with Time?

C. Section 3: How Strong is Your Pain?

Participant	A. Feels	B. Change	C. Strength
1	19	1	2
2	3	2	1
3	15	2	1
4	10	1	2
5	8	2	1
6	44	1	3
7	15	2	3
8	11	2	2
9	17	2	2
10	8	2	1
11	24	2	2

**Table 4. McGill Pain Scale - Scoring (Post)
Test Results - After DER and Tapping**

A. Section 1: What Does Your Pain Feel Like?

B. Section 2: How Does Your Pain Change with Time?

C. Section 3: How Strong is Your Pain?

Participant	A. Feels	B. Change	C. Strength
1	18	1	2
2	4	2	1
3	8	3	1
4	8	1	2
5	6	2	1
6	30	1	1
7	5	3	2
8	4	2	1
9	6	2	1
10	0	2	1
11	14	2	2

On the pre- and post-rounds of testing at the follow-up, or end of the study, all subjects had a decrease in column A scores, some of them significantly in comparing these numbers. Subjects 1, 4 and 11 had a reduction of their pain levels by one point in column C, the strength of the pain at the current time also showed either a decrease in current pain levels or no change before and after doing the Daily Energy Routine and Zone Tapping (Table 5).

**Table 5. McGill Pain Scale - Scoring (Pre)
Test Results - 2nd round of testing**

A. Section 1: What Does Your Pain Feel Like?

B. Section 2: How Does Your Pain Change with Time?

C. Section 3: How Strong is Your Pain?

Participant	A. Feels	B. Change	C. Strength
1	35	1	2
2	4	1	1
3	8	1	3
4	17	2	2
5	4	2	1
6	38	1	2
7	6	1	1
8	7	2	1
9	7	2	1
10	3	2	1
11	5	3	3

In the second round of testing at the end of the study, all subjects had a reduction of pain, some of them significantly, in column A. In column C, Subjects 1, 4 and 11 had a reduction of their pain by one or two points, whereas the rest of the subjects' pain intensity remained the same (Table 6).

**Table 6. McGill Pain Scale - Scoring (Post)
Test Results - 2nd round (After DER and Tapping)**

A. Section 1: What Does Your Pain Feel Like?

B. Section 2: How Does Your Pain Change with Time?

C. Section 3: How Strong is Your Pain?

Participant	A. Feels	B. Change	C. Strength
1	27	1	1
2	2	1	1
3	4	1	3
4	4	1	1
5	4	2	1
6	21	1	2
7	5	1	1
8	2	2	1
9	4	2	1
10	0	2	1
11	4	3	1

It is important to consider that the VAS, McGill Pain Scale and the subjects' personal reflection during this study refers to a relatively subjective experience as well.

Further findings of interest include the BioWell camera parameter measurements as they can offer a more objective picture and expand upon what the subject is experiencing.

BioWell Findings

In the initial round of testing at the beginning of the study, Subjects 1 through 6 experienced an increase in their Emotional Pressure (EP) in the comparison between the initial BioWell reading prior to doing the DER and Zone Tapping and the following one. Subjects 7 through 11, on the other hand, had a lessening of their pressure. Subjects 1-5, 8 and 11 had a decrease in their Energy (EN), while the others had an increase, again to varying degrees. These variations between subjects' measurements before and after can also be seen in the L/R Symmetry, as well, with 2, 6 and 9 having an increase in symmetry between the initial and follow-up measurements while the rest had a decrease. In terms of Organ Balance (OB), subjects 2, 3, 7, 9, 10 and 11 had an increase in their organ balance energy, while the others had a decrease (Table 7).

Table 7. BioWell Parameters - Initial Study (Pre)

Emotional Pressure (EP)	Energy (EN)	Left/Right Symmetry (L/R)	Organ Balance (OB)	Entropy Coefficient (EC)	Form Coefficient (FC)
2.41	46.84	99.55	91.78	2.23	2.64
3.01	55.72	93.42	90.96	2.08	2.46
2.35	47.93	97.64	89.38	2.64	3.09
2.55	49.29	99.53	91.01	2.44	2.80
3.65	55.75	95.48	89.79	1.91	2.25

4.37	40.73	90.12	88.12	1.99	2.58
3.12	42.21	95.64	69.78	2.52	3.42
2.29	40.60	97.16	92.16	2.41	2.99
5.04	44.04	87.64	86.56	2.01	2.53
4.67	33.37	98.40	80.42	2.20	3.55
3.88	49.74	99.93	85.44	1.94	2.31

In comparing the pre- and post-scan in the follow-up findings, these results are seen. In the Emotional Pressure (EP) scores, subjects 2, 9 and 10 had an increase in their pressure, while the rest had a decrease. It is important to point out here that each of these three subjects related feeling anxious regarding how they would do on the testing. These three had initially higher EP scores at the initial testing than they did at the follow-up testing, however. In evaluating the energy (EN), subjects 1, 4, 6, 9, 10 and 11 had an increase in their post-scan energy, compared to the rest of the subjects who had a decrease. Of note, in comparing these findings to the post-scan findings of the initial study, subjects 6, 7 and 10 had an increase in their energy as opposed to the rest of the subjects, who had a decrease (Table 7, 8).

Table 8. BioWell Parameters - Initial Study (Post)

Emotional Pressure (EP)	Energy (EN)	Left/Right Symmetry (L/R)	Organ Balance (OB)	Entropy Coefficient (EC)	Form Coefficient (FC)
2.75	44.85	85.34	79.61	2.33	3.07
3.40	48.01	94.73	92.30	2.03	2.56
2.44	40.83	92.70	90.97	2.54	3.19
2.69	40.03	92.88	87.35	2.32	2.84
3.90	41.88	94.75	85.18	1.88	2.43
3.93	42.66	90.43	84.60	2.03	2.58
2.60	43.71	94.03	91.52	2.46	3.41
2.46	40.33	91.34	88.27	2.34	2.89
4.94	43.26	96.86	91.83	2.02	2.49
4.00	36.60	89.54	85.89	2.03	2.87
4.13	43.56	96.73	93.52	2.05	2.59

In comparing L/R symmetry pre- and post-scan in the follow-up findings, these scores were obtained. Subjects 2, 6, and 8 had a decrease in their symmetry while the rest of the subjects had an increase. It is of interest here to compare this to the initial study where subjects 2, 6 and 9 had an increase in symmetry while the rest of the subjects had a decrease (Table 9, 10).

Table 9. BioWell Parameters - Follow-up Study (Pre)

Emotional Pressure (EP)	Energy (EN)	Left/Right Symmetry (L/R)	Organ Balance (OB)	Entropy Coefficient (EC)	Form Coefficient (FC)
3.44	49.23	88.40	85.93	2.23	2.83
3.48	51.14	99.29	92.54	2.12	2.62
2.67	46.14	92.79	85.46	2.33	2.67
3.21	34.76	89.52	83.79	2.40	3.27
3.75	53.19	91.81	84.23	1.96	2.38
4.03	51.92	91.26	90.36	2.12	2.50
2.51	49.75	87.17	81.68	2.32	2.67
3.08	41.95	95.76	93.41	2.44	3.17
4.71	51.89	91.00	86.46	1.99	2.28
3.43	43.31	89.57	86.65	2.42	2.86
3.14	37.37	86.17	79.08	2.44	3.25

A comparison of the follow-up study pre- and post-scan results examining Organ Balance (OB) showed the following. Subjects 2, 4, 8 and 10 had a decrease in their organ balance energy as opposed to the rest of the subjects who had an increase. In comparing this to the initial study post-scan results, subjects 1, 4, 5, 6, 8, and 11 had a decrease in their organ balance. In other words, a smaller number had a decrease in their organ balance after doing the DER at the end of the study (Table 9, 10).

Table 10. BioWell Parameters - Follow-up Study (Post)

Emotional Pressure (EP)	Energy (EN)	Left/Right Symmetry (L/R)	Organ Balance (OB)	Entropy Coefficient (EC)	Form Coefficient (FC)
3.29	49.45	91.02	87.24	2.19	2.62
3.57	41.79	96.43	90.16	2.02	2.75
2.63	40.24	97.49	89.73	2.29	2.79
2.61	37.85	91.20	67.85	2.52	3.19
3.86	52.40	96.30	89.80	1.98	2.42
3.83	52.49	89.46	90.97	2.14	2.52
2.37	47.78	97.86	89.99	2.29	2.68
2.47	37.36	92.24	90.82	2.51	2.97
4.82	54.06	95.18	92.92	2.04	2.34
3.72	43.95	92.20	82.23	2.13	2.80
2.97	37.71	87.09	80.58	2.45	3.16

Areas of Concern for Replication

A limitation of this finding, and therefore important, is the small study size – a pilot study. A larger study with a minimum of 30-50 subjects would be a consideration for a future study in order to obtain a power analysis, which would have stronger relevance. Another area to consider is the possible effect of the researcher's energy field on the subject's. For the first round of testing at the outset of the study, the subject was coached by the researcher through the DER and Zone Tapping. Upon their return for the

conclusion, the researcher did the DER along with the subject as the subjects were very familiar with how to do it by then. Doing it together could have possibly lessened the performance anxiety the subject might feel should they simply be observed doing it. The issue here was the necessity of observing the performance of the exercises to ensure that they were all done in order for both uniformity and conformity for the study.

An additional consideration when examining the overall findings of the study is the use of empirical pain scale measurement tools when collecting data that involves the performance of a new technique. An interesting finding was that while the subjects, in general, reported lower pain scales overall after performing the DER and the Zone Tapping, several of them also conversely had a lowering of their overall energy and organ energy balance, with an elevation of their emotional pressure afterward. Perhaps the wording used by the researcher, such as “test” or “testing”, potentially induced some performance or outcome anxiety in several of the subjects. A better choice of word might be “scan” versus “test.” While this observation is of interest, it obviously cannot be generalized to the cohort as a whole.

An important consideration to factor in here involves the role of the Triple Warmer energy system, long recognized in Oriental medicine. Eden (2008) describes this energy system as one that functions both as a meridian and a radiant circuit due to its ability to network information to all of the other meridians and organs they serve, working in conjunction with the hypothalamus gland. This gland functions as the body’s thermostat as well as an instigator of the fight, flight or calm response (p. 243). Eden goes on to explain that while meridians follow fixed pathways, radiant circuits do not

follow a pathway; rather they are more diffuse and can intersect all of the meridians. When the body enters the fight, flight or calm state, Triple Warmer heats the body in three different ways. When the body is relatively balanced, or calm, the heat is more evenly distributed during the three “warmers” generally found in the chest, solar plexus and below the navel. During periods of anger, or fight, heat and energy will rise, causing facial and upper extremity flushing in order to prepare for battle. During periods of flight, the heat and energy leave the upper part of the body to enter the lower extremities in order to allow one to run faster; a reason one’s face turns white when terrified (p. 243). It is certainly possible to consider that the Triple Warmer system may have been triggered by the word “test” for some subjects, as this word can connote performance outcomes from the early childhood school experience on through adulthood and also be related to modern day school or employment, for example.

Because of this, a final consideration would be to evaluate additional alternative pain measurement tools for use in replicated or future studies. The McGill Pain Scale was very useful and gave good information; for the most part, the study subjects understood what it was about though some of them commented that more than one word in a category in Section A would have been applicable to their pain. The VAS Scale, on the other hand, was problematic for several of them according to their comments. Simply marking an “X” on a line to represent how well they thought they would do felt somewhat clumsy and difficult for some of them, and it is possible that this contributed to some outcome anxiety as well. Alternatively, perhaps a performance scale would not be necessary for future studies of this nature.

In addition, those choosing to replicate this study should become very familiar with the use of the BioWell camera, understanding the data and its interpretation when discussing the findings with study subjects. The camera must be calibrated at the start of each day of testing and reminding subjects not to eat for 90-120 minutes prior to the testing is important. Subjects need to remove watches and any rings that are just worn occasionally.

Directions for Future Research

Suggestions for future research include the following possible directions. First of all, a study comparing simply the biofield parameters using the BioWell camera could yield useful information. This study would have a more singular focus, looking at the effects of the Daily Energy Routine on the integrity of the biofield. Study participants would have a baseline biofield measurement and then perform the Daily Energy Routine. A second biofield measurement would be taken and a comparison made between the two. This study would simply use the camera's parameters as already outlined to measure changes. A weekly measurement of the biofield for a month could provide useful information, as well, in terms of patterns of findings. An important consideration to remember, and this was discussed with the participants in this study, is again the fact that this is a momentary look in time at a dynamic energy field, not a concrete or unyielding finding. It could be of interest to identify recurring patterns in the measurements, which would be seen in a more frequent, such as weekly, measurement. This particular study could involve having participants do the Daily Energy Routine twice a day if recurring patterns are identified, and then measure those effects as well.

Another direction for future study would be to test a group of people who have done the DER daily for at least a year, measuring them both pre-and post- intervention, compared with a group who has never done it. In addition, it would be important to consider the use of standard medical measures, larger sample size, a longer test period and a control group doing current standard medical care.

As discussed in Chapter 2, there are many excellent and well-done studies strongly supportive of biofield healing; however, there is no, as yet identified, specific research that compares client-reported low back pain pre-and post-client performed techniques. In addition, measurement of the biofield using the BioWell camera pre- and post-session with these clients has the potential to yield useful information that also can direct further research. Thus, this study has shown merit and significance. Larger, additional studies emphasizing the role of client performed techniques are warranted and necessary.

CHAPTER SIX

Conclusions

There are several factors to consider when evaluating the results of this study and forming conclusions. It is important to remember that pain is a subjective experience common to all people at some point, and to varying degrees in their lifetimes. Pain is also a uniquely personal event, experienced through the perspective and filters of the individual. With regards to the subjects in the study, each of them related how this study had impacted them on a personal level. For several, they discovered that taking the time to do the Daily Energy Routine and Zone Tapping required some important “me” time; a time for self-care that had been missing for several of them. Those who already had a self-care practice found that doing the exercises augmented what they were doing, with subjects variously saying they felt more energy, more mental clarity, or felt they could cope a bit better with day to day stressors.

Subject 1 reinjured his back halfway through the study, so had had a worsening of his pain - his McGill scores reflected this; however, there was a decrease from the beginning of the study to after. His overall feeling was that doing the Daily Energy Routine and Tapping had decreased his pain somewhat but, of interest, he found he was more flexible. This was observed by the researcher as well; there was a marked difference in his walking as well as ease and flexibility of doing the Wayne Cook, for example, when compared to the first round of testing at the beginning of the study.

Subject 3, a female, had noted on her intake information that her pain could be rated as an eight at times on a scale of one to ten. She found it interesting that her back pain had all but disappeared within approximately the first week of the study; and while certain movements could trigger it, the intensity was much less. Subject 10, whose pain was cyclic and predictable, had near resolution of her pain as well, commenting at her follow-up session that by that date the pain should have been much worse. Subject 8 was injured in an accident halfway through the study, causing pain and decreased range of motion in a shoulder which limited her ability to fully do the techniques for a few days. As flexibility returned and pain decreased, she did return to these and also noted an overall decrease in her back pain. Subject 6 has a very stressful job and recognized the role of her job in relationship to her back pain. She related that a recent vacation allowed for a significant decrease in her pain, only to have it return when she started back to work.

Another subject related that she could remember when her back pain began and this was shortly after the loss of a beloved pet. While her pain had been gradually improving, albeit slowly, over the past two years, she noticed a definite improvement since doing the Daily Energy Routine and Zone Tapping.

It is very likely, as well, that each subject found that they had to get in touch with the nature of their pain and its meaning for them, perhaps for the first time having to examine the parameters of their personal relationship with it in terms of such things as the effect of their jobs or activities upon it. There is an emotional component to pain, as well, that can be tied into a precipitating traumatic event that may or may not have had an

initial physical origin such as an accident, for example. Since the body is an electrochemical system, with memories held in the tissue in a complex interplay between water and the effects of piezoelectricity, tapping can be an effective way to help to clear out the “charge” held in the body around an event. Oschman (2016) describes the generation of electromagnetic fields in the body when tissue is stretched or compressed, and these fields can then interact with physiological processes. Tapping can contribute to piezoelectricity’s ability to generate new or different electromagnetic fields conducive to forming new patterns that contribute to healing (p. 162).

Perhaps, too, having the subjects participate in a study that required them to do something for themselves that had benefit can contribute to a sense of well-being and self-empowerment. In other words, having tools that are safe, easy, effective and do not involve travel or expense other than the two trips to the study site, has the potential for incorporation into their activities of daily living for permanent self-care practice. Indeed, nearly all the subjects commented that they planned to continue doing the Daily Energy Routine and Zone Tapping.

The use of the BioWell camera was a popular choice among the subjects. It was explained to them that somewhat similar to a laboratory blood test result, the measurements are a “snapshot” in time and that it can change due to the dynamic nature of the biofield. Useful information can potentially be gleaned with repetitive testing particularly if certain findings fall into a recurring pattern. While they were well aware that the camera is considered experimental in the United States, the changes they were

able to see overall from the beginning of the study to the end was intriguing and apparently empowering for them as a whole as well.

This study has significance on several levels beyond the statistical realm. In alignment with Specific Aim number one, all study subjects had a reduction in their pain from the beginning to the end of the study, as seen on both the McGill Pain Scale and the VAS scale. More than that, however, subjects reported an overall lessening in their day-to-day pain to varying degrees. In addition, unanticipated but additional benefits included clearer thinking, reduced reaction to usually stressful triggers and increased overall energy. While these things are empirically more difficult to measure, they are important factors to be aware of.

Hypotheses Results

Specific Aims of the Study – A Review

- 1) To determine if a performance of specific Eden Energy Medicine techniques makes a difference in pain levels.
 - a) **Hypothesis One:** Performance of the specific Eden Energy Medicine techniques known as the Daily Energy Routine and Zone Tapping will reduce low back pain on the McGill Pain Scale at a level of $p \leq$ to 0.05.
 - b) **Hypothesis Two:** Performance of the specific Eden Energy Medicine techniques known as the Daily Energy Routine and Zone Tapping will reduce low back pain on the VAS Scale at a level of $p \leq$ to 0.05.
- 2) To determine if there is a strengthening of the subject biofield after a performance of specific Eden Energy Medicine techniques.

a) Hypothesis One: Performance of the specific Eden Energy Medicine

techniques known as the Daily Energy Routine and Zone Tapping will result in an increase in overall robustness across the body from pre- to post-measurement at a level of significance.

b) Hypothesis Two: Performance of the specific Eden Energy Medicine

techniques known as the Daily Energy Routine and Zone Tapping will result in a more robust initial biofield measurement after being performed daily for thirty days at a level of significance.

A summary of the results is as follows in terms of statistical significance.

At the beginning of the study, there was a significant increase in the VAS from the pre- to the post-intervention assessment (6.1 ± 2.2 , $p = 0.0202$), a significant decrease in the McGill Pain Scale Feel portion of the test (6.5 ± 1.5 , $p = 0.0012$), and a significant decrease in the BioWell EN (energy) portion of the test (-3.7 ± 1.7 , $p = 0.0493$). At the end of the study, there was a significant decrease in the McGill Pain Scale Feel portion (5.2 ± 1.6 , $p = 0.0098$). There was a significant difference in the change from pre- to post-intervention assessment in BioWell – Left/Right (Symmetry) between the initial testing (-3.2 ± 1.8) vs. the end of the study (2.2 ± 1.2 testing, $p = 0.0322$).

There was a significant decrease in the McGill Pain Scale Feel score from the pre- to the post-intervention assessment (-5.8 ± 1.2 , $p = 0.0006$) with a large effect size D of 1.5. This supports Specific Aim 1, Hypothesis 1. There was a significant decrease in the McGill Pain Scale Strength score from the pre- to the

post-intervention assessment (-0.4 ± 0.1 , $p = 0047$) with a large effect size D of 1.12. This supports Specific Aim 1, Hypothesis 1. There was a significant decrease in the BioWell-Energy score from the pre-to the post-intervention assessment (-2.6 ± 1.1 , $p = 0397$).

In conclusion, then, the results support Specific Aim 1, Hypothesis 1 which was to determine if a performance of the DER and Zone Tapping on a daily basis for one month would reduce low back pain on the McGill Pain scale by a level of $p < \text{or} =$ to 0.05. The results do not support Specific Aim 1, Hypothesis 2 regarding the VAS scale also having a reduction in the level of pain by a level of $p < \text{or} =$ to 0.05. There is some support for Specific Aim 2, Hypothesis 2, which showed changes in L/R symmetry at the 30 day follow-up; but this was only one parameter of the biofield tested. There is no support for Hypothesis 1. As discussed in Chapter 5, there is a strong possibility of test anxiety impacting the subjects perceived ability to perform the exercises and the uncertainty of the outcome. This would be a reason to consider testing just the biofield before and after doing the DER by itself, with no pain scales or other “test” type materials. Use of the word, “scan” could be a more appropriate and less anxiety-provoking word as well.

While statistical significance was found in the results of this study to support a portion of the specific aims, an equally important consideration is the non-empirical or subjective findings reported by the subjects. To reiterate, it was things like a new-found reason for self-care as a result of how doing the DER and Zone Tapping made them feel, giving them a new, easy, effective tool, and self-empowerment as a result. In today’s very

busy world, many people cannot, or will not, take an hour or even thirty minutes to exercise, but nearly anyone can find the time to do the DER which can be accomplished in less than ten minutes. Even better, it can be done in portions rather than all at once. A patient-performed, quick, easy, and effective self-care tool can be easily incorporated into busy lives and the DER should be a consideration for inclusion in today's preventive healthcare practices.

Finally, in terms of preventive care, is there potential for the biofield to become more robust over time, possibly contributing to a lessening of pain, and an increase in general overall wellbeing by patients doing the Daily Energy Routine and Zone Tapping? While there is no statistical significance to support this, there is subjective evidence from the feedback from the study subjects. Since ancient Oriental medicine practitioners relied on manipulating the biofield through acupuncture, acupressure, etc., it stands to reason that self-performed techniques that employ movement and acupressure do have the potential to “nudge” the biofield over time in a positive and preventative fashion, thereby contributing to improved health overall. The Daily Energy Routine and Zone Tapping have the very real potential to augment and complement conventional healthcare and deserve consideration in today's healthcare treatment regimens.

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APPENDICES

APPENDIX A

Citi Program Completion Report

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COMPLETION REPORT - PART 1 OF 2 COURSEWORK REQUIREMENTS*

* NOTE: Scores on this **Requirements Report** reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

• Name: Gail Jett (ID: 6932211)
• Institution Affiliation: Independent Learner (ID: 969)
• Phone: 541-815-2599

• Curriculum Group: Human Subjects Research - BASIC
• Course Learner Group: Human Subjects Research - Biomedical Basic
• Stage: Stage 1 - Independent Learner

• Record ID: 25962137
• Completion Date: 05-Feb-2018
• Expiration Date: 05-Feb-2019
• Minimum Passing: 80
• Reported Score*: 97

REQUIRED AND ELECTIVE MODULES ONLY

	DATE COMPLETED	SCORE
Conflicts of Interest in Human Subjects Research (ID: 17464)	30-Jan-2018	4/5 (80%)
History and Ethics of Human Subjects Research (ID: 436)	30-Jan-2018	6/7 (86%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	31-Jan-2018	5/5 (100%)
Informed Consent (ID: 3)	02-Feb-2018	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 6)	02-Feb-2018	4/4 (100%)
Records-Based Research (ID: 5)	02-Feb-2018	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	05-Feb-2018	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	05-Feb-2018	5/5 (100%)
Research Involving Children (ID: 9)	05-Feb-2018	3/3 (100%)
FDA-Regulated Research (ID: 12)	05-Feb-2018	5/5 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	05-Feb-2018	5/5 (100%)
Research and HIPAA Privacy Protections (ID: 14)	05-Feb-2018	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	05-Feb-2018	3/3 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/7fe639b821-033d-4da1-b223-bad6e58b671e-25962137

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-6929
Web: <https://www.citiprogram.org>

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2 COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most recent quiz completions, including quizzes on optional supplementary elements of the course. See below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

• Name: Gail Jett (ID: 6932211)
 • Institution Affiliation: Independent Learner (ID: 669)
 • Phone: 541-815-2539

• Curriculum Group: Human Subjects Research - BASIC
 • Course Learner Group: Human Subjects Research - Biomedical Basic
 • Stage: Stage 1 - Independent Learner

• Record ID: 25982137
 • Report Date: 05-Feb-2018
 • Current Score**: 97

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES

	MOST RECENT	SCORE
History and Ethics of Human Subjects Research (ID: 496)	30-Jan-2018	6/7 (86%)
Informed Consent (ID: 3)	02-Feb-2018	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 6)	02-Feb-2018	4/4 (100%)
Records-Based Research (ID: 5)	02-Feb-2018	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	05-Feb-2018	5/5 (100%)
Research Involving Children (ID: 9)	05-Feb-2018	3/3 (100%)
FDA-Regulated Research (ID: 12)	05-Feb-2018	5/5 (100%)
Research and HIPAA Privacy Protections (ID: 14)	05-Feb-2018	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	05-Feb-2018	3/3 (100%)
Avoiding Group Harms - International Research Perspectives (ID: 14081)	05-Feb-2018	3/3 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	31-Jan-2018	5/5 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	05-Feb-2018	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	05-Feb-2018	5/5 (100%)
Conflicts of Interest in Human Subjects Research (ID: 17464)	30-Jan-2018	4/5 (80%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/79e639b821-033d-4da4-b223-bad5e58b671e-25982137

Collaborative Institutional Training Initiative (CITI Program)
 Email: support@citiprogram.org
 Phone: 866-629-6929
 Web: <https://www.citiprogram.org>

Clay House Permission

3/26/2018

To Whom It May Concern,

I have given permission to Gail Jett to conduct her research project at her office which is located at 362 N.E. Clay Ave. Bend, Oregon.

Thanks

Andrea Walterscheid, landlord

Daily Energy Routine Permission

**INNERSOURCE
777 East Main Street
Ashland, OR 97520
541-482-1800**

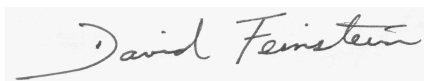
January 24, 2018

To Whom It May Concern,

Gail Jett has our permission and blessings to utilize our copyrighted "Daily Energy Routine" in her doctoral research in any way she sees fit.

We are eager to see the results of her study.

Thank you!

A handwritten signature in cursive script that reads "David Feinstein". The signature is written in dark ink on a light-colored background.

David Feinstein, Ph.D.
CEO

A handwritten signature in cursive script that reads "Donna Eden". The signature is written in dark ink on a light-colored background.

Donna Eden
President

Zone Tapping Permission

**INNERSOURCE
777 East Main Street
Ashland, OR 97520
541-482-1800**

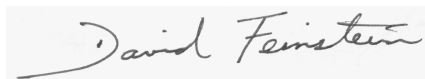
March 8, 2018

To Whom It May Concern,

Gail Jett has our permission and blessings to utilize the “Zone Tapping” pain management technique taught in our Certification Program for her doctoral research in any way she sees fit.

We are eager to see the results of her study.

Thank you!

A handwritten signature in cursive script that reads "David Feinstein". The signature is written in dark ink on a light-colored background.

David Feinstein, Ph.D.
CEO

A handwritten signature in cursive script that reads "Donna Eden". The signature is written in dark ink on a light-colored background.

President

Institutional Review Board (IRB) Permission***National Foundation for Energy Healing***

31907 South Davis Ranch Rd.

Marana, AZ 85658

(520) 609-1765

www.nffeh.org



April 22, 2018

RE: PROJECT 04-22-18-02 Effects of Specific Eden Energy Medicine Techniques on Pain Perception and the Human Biofield: A Comparative Study.

Dear Ms. Jett:

We have received and reviewed your research proposal as cited above. The procedures to be followed in this study have been reviewed by the Institutional Review Board (IRB) as cited in the regulations issued by the U.S. Department of Health and Human Services. This project is approved with an expiration date of 4-22-19. Please make copies of the attached IRB stamped consent documents to consent your subjects. Approval is granted with the understanding that no further changes or additions will be made to the procedures followed without the knowledge and approval of the Human Subjects Committee (IRB). Any research related physical or psychological harm to any subject must also be reported to the IRB committee.

We require an annual report should the study be continued past the expiration date listed above. Please be sure to submit the annual report form found on our web site a month prior to the expiration date should that become necessary.

Sincerely,

Beth Greenwood, R.N.

Quality Assurance, Human Studies Ethics Review Board
National Foundation for Energy Healing

APPENDIX B**Conflict of Interest and Commitment Disclosure*****National Foundation for Energy Healing*****CONFLICT OF INTEREST AND COMMITMENT DISCLOSURE**NAME: Gail M. JettDATE: 3/19/18DEPARTMENT/ COMPANY: Advanced Healing Energetics, LLCADDRESS: 60913 Amethyst St., Bend, Or. 97702TELEPHONE: 541-815-2599

1. If your potential conflict of interest confers a benefit (pecuniary, property, or proprietary), directly or indirectly, on you or a member of your family and the benefit exceeds a remote interest provide a full description of the activities including actual valuation and method of determining stated value.

2. If your responsibilities or commitment to the work (teaching, research, service, or other activities) are or will be affected by the outside interest, please explain. All related activities must be included.

3. If your interest is with a company or other legal entity, provide:

a. Name: Innersource

b. Nature of the business activity:

__Am faculty for this company and receive compensation for teaching students in the
Eden Energy Medicine Certification
Program_____

c. Address and Telephone Number:

__Innersource; 777 East Main Street, Ashland, Or. 97520; 541-482-1800__

SIGNATURE: _____

DATE: __3/19/18_____

**Please feel free to attach additional pages to this form if the space allotted is
insufficient to fully describe and to explain the potential conflict of interest.**

Demographic Form**Research Study: “Effects of Specific Eden Energy Medicine Techniques on Pain Perception and the Human Biofield: A Comparative Study.”****Demographic Form**

Study Number _____ Date _____

Date of Birth _____

Name: _____

Age: _____ Gender: (please circle) M F

Address: _____

_____ Zip Code _____

Phone: _____ Email: _____

Emergency Contact: _____ Relationship to you: _____

Phone: _____

Length of time you have had chronic low back pain: years _____ months: _____

Primary Care Provider: _____

Please list any diseases or other health conditions you have:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Do you take any medications? If so, please list:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Do you use alternative forms of care such as acupuncture, etc. to help control your pain?

If so, please list:

1. Acupuncture _____

2. Massage Therapy _____

3. Tai Chi _____

4. Chi Gong _____

5. Reiki _____

6. Yoga _____

7. Other (please list) _____

If you use any of these modalities, how often do you do, or use them? _____

I certify that to the best of my knowledge, I do not have untreated mental health conditions such as severe depression, anxiety, bipolar disease, etc. In addition, I do not have untreated congestive heart failure, diabetes mellitus, hypertension, essential tremors, Parkinson's disease, ALS or any other movement disorders.

Signature: _____

Procedure for Study

If you are accepted into the study, you will fill out and sign the HIPAA Consent form, Subject Informed Consent form, the McGill Pain Scale (which measures the intensity of your pain on a numerical rating scale), and the VAS, or Visual Analog Scale, which is another measurement of your pain. I will then measure your biofield using the BioWell camera. This consists of you inserting your ten fingers, one at a time, into a special slot on the camera where the image of your fingertip will be captured. This is painless. You will then be shown a series of movement techniques known as the Daily Energy Routine, followed by a tapping sequence where you will use your fingers to tap on the outside of your ankles for ten seconds, with a 10 second pause, followed by 30 seconds. I will repeat the biofield measurement, and you will then fill out the McGill Pain Scale and the VAS scale again. You will be given a copy of the Daily Energy Routine to take home. You agree to perform these techniques every day for a minimum of 28 days, returning to my office in 30 days to repeat this sequence of measurements again. Successful completion of this study will entitle you to a \$10.00 Amazon gift card.

I, _____ understand the above Procedure for the study, and agree to do the Daily Energy Routine every day for 28 days. I will return on the scheduled return date to complete the above sequence again.

Initial Measurement Date _____

Repeat Measurement Date _____

Signature _____

“Do You Have Chronic Low Back Pain” Flyer

Do You Have Chronic Low Back Pain?

Research Study Volunteers Needed for An Investigational Study Utilizing Non-drug and Non-invasive Techniques for Pain Management

Name of Study: “Effects of Specific Eden Energy Medicine Techniques on Pain Perception and the Human Biofield: A Comparative Study.”

Background:

My name is Gail Jett, and I am a Nurse Practitioner as well as an Advanced Practitioner of Eden Energy Medicine. I am a doctoral candidate at Holos University Graduate Seminary and am conducting a research study to examine the effects of performing simple energy medicine techniques that can help to reduce or control chronic low back pain.

The study will involve comparing a group of people before and after they perform some simple techniques that will be demonstrated. I will compare pain-scale levels and also the effects on your Biofield (also known as the Human Energy Field) using an experimental device known as the BioWell Camera. This sequence will be repeated in 30 days.

Study Criteria

Age range: 18 years of age up to 75 years. No children.

Must have chronic low back pain (back pain present on a daily basis for a minimum of three months) prior to enrolling in the study.

No pregnant women. No one who is under a guardianship.

No **untreated** mental health conditions such as severe depression, etc.

No **untreated** hypertension, congestive heart failure or diabetes mellitus

No **movement disorders** such as essential tremors, Parkinson’s disease or ALS, etc.

Contact me for more information at 541-815-5603 or gailjett53@gmail.com

Successful completion of the study will entitle you to an Amazon gift card.

HIPAA Consent Form

GUIDELINES FOR SUBJECT AUTHORIZATION FORM FOR USE AND DISCLOSURE OF PROTECTED HEALTH INFORMATION (PHI) FOR RESEARCH

Name of Study: “Effects of Specific Eden Energy Medicine Techniques on Pain Perception and the Human Biofield: A Comparative Study.”

The United States government has issued a new privacy rule to protect the privacy rights of individuals enrolled in research. The Privacy Rule is designed to protect the confidentiality of an individual's health information. This document hereafter known as an “Authorization for Use and Disclosure of Protected Health Information for Research” describes my rights and explains how my health information will be used and disclosed for this study.

PURPOSE

I am being invited to participate voluntarily in the above-titled research project. The purpose of this project is to determine whether patient-performed energy medicine techniques can reduce the perception of pain in subjects with chronic low back pain. I understand there are some medical condition exclusions that if present, do not allow me to participate in the study. Thus I have been asked for my protected health information.

USE AND DISCLOSURE OF PROTECTED HEALTH INFORMATION

I understand that my demographic form, which includes my contact information such as address and phone, as well as a general health history will allow the principle researcher, Gail Jett, RN, MSN, FNP, Th.D. candidate to ascertain that I meet the inclusion and exclusion criteria for this study and may therefore participate in it. This information will be used for purposes of the study, in other words, to compare my level of pain prior to and after doing the energy medicine techniques. In addition, the camera images of my Biofield prior to and after doing the techniques. Gail Jett will be providing this protected health information to Holos University Graduate Seminary as part of her dissertation. I understand that my protected health information will be assigned a number, and it is this number that will be used to identify me in the study findings. I have the right to access my PHI that may be created during this study as it relates to my treatment or payment. My access to this information will become available only after the study analyses are complete.

CONTACTS:

I can obtain further information from the principal investigator Gail Jett, RN, MSN, FNP, Th.D. Candidate at 541-815-5603. If I have questions concerning my rights as a research subject, I may call the Human Subjects Protection Program office at 520-609-1765.

AUTHORIZATION

I hereby authorize the use or disclosure of my individually identifiable health information. I may withdraw this authorization at any time by notifying the Principal Investigator in writing. The address for the Principal Investigator is **60913 Amethyst St., Bend, Or. 97702**. If I do withdraw my authorization, any information previously disclosed cannot be withdrawn and may continue to be used. Once information about me is disclosed in accordance with this authorization, the

individual or organization that receives this may redisclose it and my information may no longer be protected by Federal Privacy Regulations. I may refuse to sign this authorization form. If I choose not to sign this form, I cannot participate in the research study. *Refusing to sign will not affect my present or future medical care and will not cause any loss of benefits to which I am otherwise entitled.* This authorization will expire on the date the research study ends. I will be given a copy of this signed authorization form.

Subject's Signature

Date

Printed Name of Subject

Signature of Subject's Legal Representative (if necessary)

Date

Printed Name of Subject's Legal Representative

Relationship to the Subject

McGill Pain Questionnaire

The McGill Pain Questionnaire

Overview: The McGill Pain Questionnaire can be used to evaluate a person experiencing significant pain. It can be used to monitor the pain over time and to determine the effectiveness of any intervention. It was developed at by Dr. Melzack at McGill University in Montreal Canada and has been translated into several languages.

Sections:

(1) What Does Your Pain Feel Like?

(2) How Does Your Pain Change with Time?

(3) How Strong is Your Pain?

What Does Your Pain Feel Like?

Statement: Some of the following words below describe your present pain. Circle ONLY those words that best describe it. Leave out any category that is not suitable. Use only a single word in each appropriate category - the one that applies best.

Group	Descriptor	Points
1 (temporal)	flickering	1
	quivering	2
	pulsing	3
	throbbing	4
	beating	5
	pounding	6
2 (spatial)	jumping	1
	flashing	2
	shooting	3
3 (punctate pressure)	pricking	1
	boring	2
	drilling	3
	stabbing	4
	lancinating	5
4 (incisive pressure)	sharp	1
	cutting	2
	lacerating	3

5 (constrictive pressure)	pinching	1
	pressing	2
	gnawing	3
	cramping	4
	crushing	5
6 (traction pressure)	tugging	1
	pulling	2
	wrenching	3
7 (thermal)	hot	1
	boring	2
	scalding	3
	searing	4
8 (brightness)	tingling	1
	itchy	2
	smarting	3
	stinging	4
9 (dullness)	dull	1
	sore	2
	hurting	3
	aching	4
	heavy	5
10 (sensory miscellaneous)	tender	1
	taut	2
	rasping	3
	splitting	4
11 (tension)	tiring	1
	exhausting	2
12 (autonomic)	sickening	1

	suffocating	2
13 (fear)	fearful	1
	frightful	2
	terrifying	3
14 (punishment)	punishing	1
	gruelling	2
	cruel	3
	vicious	4
	killing	5
15 (affective-evaluative-sensory: miscellaneous)	wretched	1
	blinding	2
16 (evaluative)	annoying	1
	troublesome	2
	miserable	3
	intense	4
	unbearable	5
17 (sensory: miscellaneous)	spreading	1
	radiating	2
	penetrating	3
	piercing	4
18 (sensory: miscellaneous)	tight	1
	numb	2
	drawing	3
	squeezing	4
	tearing	5
19 (sensory)	cool	1
	cold	2
	freezing	3

20 (affective-evaluative: miscellaneous)	nagging	1
	nauseating	2
	agonizing	3
	dreadful	4
	torturing	5

pain score = SUM(points for applicable descriptors)

How Does Your Pain Change with Time?

Question	Response	Points
Which word or words would you use to describe the pattern of your pain?	continuous steady constant	1
	rhythmic periodic intermittent	2
	brief momentary transient	3

Do the following items increase or decrease your pain?

- (1) liquor
- (2) stimulants such as coffee
- (3) eating
- (4) heat
- (5) cold
- (6) damp
- (7) weather changes
- (8) massage or use of a vibrator
- (9) pressure
- (10) no movement
- (11) movement
- (12) sleep or rest
- (13) lying down

(14) distraction (TV reading etc.)

(15) urination or defecation

(16) tension

(17) bright lights

(18) loud noises

(19) going to work

(20) intercourse

(21) mild exercise

(22) fatigue

How Strong is Your Pain?

Statement: People agree that the following 5 words (mild discomforting distressing horrible excruciating) represent pain of increasing intensity. To answer each question below write the number of the most appropriate word in the space beside the question.

Question	Response	Points
Which word describes your pain right now?	mild	1
	discomforting	2
	distressing	3
	horrible	4
	excruciating	5
Which word describes it at its worst?	mild	1
	discomforting	2
	distressing	3
	horrible	4
	excruciating	5
Which word describes it when it is least?	mild	1
	discomforting	2
	distressing	3
	horrible	4
	excruciating	5

Which word describes the worst toothache you ever had?	mild	1
	discomforting	2
	distressing	3
	horrible	4
	excruciating	5
Which word describes the worst headache you ever had?	mild	1
	discomforting	2
	distressing	3
	horrible	4
	excruciating	5
Which word describes the worst stomach-ache you ever had?	mild	1
	discomforting	2
	distressing	3
	horrible	4
	excruciating	5

Interpretation:

- minimum pain score: 0 (would not be seen in a person with true pain)
- maximum pain score: 78
- The higher the pain score the greater the pain.

References:

- Melzack R. The McGill Pain Questionnaire: Major properties and scoring methods. Pain. 1975; 1: 277-299.
- Stein C Mendl G. The German counterpart to McGill Pain Questionnaire. Pain. 1988; 32: 251-255.

Research Participant Consent Form

RESEARCH PARTICIPANT CONSENT FORM

Study Title: "Effects of Specific Eden Energy Medicine Techniques on Pain Perception and the Human Biofield: A Comparative Study."

I AM BEING ASKED TO READ THE FOLLOWING MATERIAL TO ENSURE THAT I AM INFORMED OF THE NATURE OF THIS RESEARCH STUDY AND OF HOW I WILL PARTICIPATE IN IT, IF I CONSENT TO DO SO. SIGNING THIS FORM WILL INDICATE THAT I HAVE BEEN SO INFORMED AND THAT I GIVE MY CONSENT. FEDERAL REGULATIONS REQUIRE WRITTEN INFORMED CONSENT PRIOR TO PARTICIPATION IN THIS RESEARCH STUDY SO THAT I CAN KNOW THE NATURE AND RISKS OF MY PARTICIPATION AND CAN DECIDE TO PARTICIPATE OR NOT PARTICIPATE IN A FREE AND INFORMED MANNER.

PURPOSE

I am being invited to participate voluntarily in the above-titled research project. The purpose of this project is to determine if specific energy medicine techniques that I am shown and then perform on myself help to reduce my low back pain. In addition, I understand that a specialized experimental camera will record my Biofield, also known as the Human Energy Field, or Aura to look for changes before and after I do the techniques. I understand that I can withdraw from the study at any time without penalty.

SELECTION CRITERIA

I am being invited to participate because I have had daily low back pain for at least three months. I certify that I am not pregnant, my age is _____ years, and I do not have untreated mental health problems such as severe depression or anxiety, etc. I also certify that I do not have untreated congestive heart failure, hypertension, diabetes mellitus or any movement disorders such as Parkinson's disease or ALS. Up to twenty subjects may be enrolled in this study.

STANDARD TREATMENT(S)

Current standard treatment(s) for chronic low back pain can include but are not limited to: chiropractic adjustment, acupuncture, massage therapy, prescription and over the counter medications, local heat and/or ice applications to the back, etc. I understand that on the day I participate in the study I am not to have, or use any of these treatments **prior** to my participation.

PROCEDURE(S)

If I agree to participate, I will be asked to consent to the following: participating in the study for approximately one to one and one-half hour of my time. This will include filling out requested forms and questionnaires, performing the energy medicine techniques, having my Biofield measured using the BioWell camera both before and after I perform the techniques, and filling out another pain questionnaire after I do the techniques. This will be repeated after I do the Daily Energy Routine and Zone Tapping every day for a minimum of 28 days; in which I will return to Gail Jett's office to repeat this same study sequence.

RISKS

A risk to participation in this study is to have possible psychological symptoms such as disappointment or a stronger reaction as a result of having no reduction in my pain. I understand that while this is a slight risk, I understand and acknowledge that it is still a possible risk.

BENEFITS

A benefit to participation in this study is to have reduction of my low back pain as a result of performing the techniques.

CONFIDENTIALITY

I understand that the Principle Researcher, Gail Jett, and her Dissertation Committee Chair, Dr. Melinda Connor, are the only two people who will have access to any of my records or personal information as a result of this study. My confidential information, such as the demographic form

and all questionnaires will be kept in a locked file cabinet and that if my information is moved from Gail Jett's office where the study is being performed, it will be transported in a portable, locked fireproof safe. I understand that Gail will assign a number to my confidential information, and that only she, and Dr. Connor, will have access to the document linking my confidential information to this number.

PARTICIPATION COSTS AND SUBJECT COMPENSATION

I understand that there is no cost to me to participate in this study. I also understand that I will receive no payment or other compensation to participate in this study other than a \$10.00 Amazon gift certificate if I complete the study, which will involve two visits to Gail Jett's office.

CONTACTS [for projects involving no known risk(s) to subjects, include the following sentences]

I can obtain further information from the principal investigator _Gail Jett, RN, MSN, FNP, Th.D. Candidate, etc.) at 541-815-5603. If I have questions concerning my rights as a research subject, I may call the Human Subjects Committee representative at (520) 609-1765.

Side effects or harm are possible in any research program despite the use of high standards of care and could occur through no fault of mine or the investigator involved. Known side effects have been described in this consent form. However, unforeseeable harm also may occur and require care. I do not give up any of my legal rights by signing this form. In the event that I require or am billed for medical care that I feel

has been caused by the research, I should contact the principal investigator, Gail Jett, RN, MSN, FNP, Th.D. Candidate at (541)815-5603. If I have questions concerning my rights as a research subject, I may call the Human Subjects Committee office at (520) 609-1765

AUTHORIZATION (the following paragraph is to be used verbatim in all consent forms with two exceptions: delete words "or by the sponsor" if unfunded and no sponsor and "or affecting my medical care" if not clinical, medical treatment)

BEFORE GIVING MY CONSENT BY SIGNING THIS FORM, THE METHODS, INCONVENIENCES, RISKS, AND BENEFITS HAVE BEEN EXPLAINED TO ME AND MY QUESTIONS HAVE BEEN ANSWERED. I MAY ASK QUESTIONS AT ANY TIME AND I AM FREE TO WITHDRAW FROM THE PROJECT AT ANY TIME WITHOUT CAUSING BAD FEELINGS OR AFFECTING MY MEDICAL CARE. MY PARTICIPATION IN THIS PROJECT MAY BE ENDED BY THE INVESTIGATOR FOR REASONS THAT WOULD BE

EXPLAINED. NEW INFORMATION DEVELOPED DURING THE COURSE OF THIS STUDY WHICH MAY AFFECT

MY WILLINGNESS TO CONTINUE IN THIS RESEARCH PROJECT WILL BE GIVEN TO ME AS IT BECOMES AVAILABLE. THIS CONSENT FORM WILL BE FILED IN AN AREA DESIGNATED BY THE HUMAN SUBJECTS COMMITTEE WITH ACCESS RESTRICTED TO THE PRINCIPAL INVESTIGATOR, Gail Jett, RN, MSN, FNP, Th.D Candidate. I DO NOT GIVE UP ANY OF MY LEGAL RIGHTS BY SIGNING THIS FORM. **A COPY OF THIS SIGNED CONSENT FORM WILL BE GIVEN TO ME.**

Subject's Signature

Date

Parent/Legal Guardian (if necessary)

Date

Witness (if necessary)

Date

INVESTIGATOR'S AFFIDAVIT

I have carefully explained to the subject the nature of the above project. I hereby certify that to the best of my knowledge the person who is signing this consent form understands clearly the nature, demands, benefits, and risks involved in his/her participation and his/her signature is legally valid. A medical problem or language or educational barrier has not precluded this understanding.

Signature of Investigator

Date

Visual Outcome Scale – Self Performance Rating – Pre Form

Visual Outcome Scale – Self Performance Rating - Pre

Subject Number _____

Study Number _____

Run Number _____

Please reflect on your state of performance before the test. Take into account your physical, mental, emotional, social and spiritual condition. How do you think you will do on this trial? Use and X on the line to mark you answer to the question.

Mark the line below with an X at the point that summarizes your overall state at this moment

Will not do well on this test _____ Perfection

Visual Outcome Scale – Self Performance Rating – Post Form

Visual Outcome Scale – Self Performance Rating – Post

Subject Number _____

Study Number _____

Run Number _____

Please reflect on your state of performance before the test. Take into account your physical, mental, emotional, social and spiritual condition. How do you think you will do on this trial? Use and X on the line to mark you answer to the question.

Mark the line below with an X at the point that summarizes your overall state at this moment

Will not do well on this test _____ Perfection

APPENDIX C

Daily Energy Routine Page 1



The Eden Energy Medicine DAILY ENERGY ROUTINE

The Techniques: These simple techniques can benefit nearly anyone living in the stress-producing, polluted, nature-alien, energy-scrambling environments that mark our technological progress. I suggest you combine these methods into a "Daily Energy Routine," and that you use it every day. The daily routine builds positive habits into your energy field. The techniques are simple yet potent, and they are cumulative.

- ◆ Four Thumps
- ◆ Crossover Shoulder Pull
- ◆ Cross Crawl
- ◆ Wayne Cook Posture
- ◆ Crown Pull
- ◆ Connecting Heaven & Earth
- ◆ Zip-up
- ◆ Hook-up

THE FOUR THUMPS

Helps with grounding, boosts and restores energy, increases strength and vitality, and strengthens the immune system.

Use several fingers or knuckles to tap the spots shown in the pictures. Without hurting yourself, tap vigorously on each set of spots. Focus on breathing in through your nose and out through your mouth while you are tapping.

- 1 Tap on your cheekbones for the length of two to three deep breaths.
- 2 To locate K-27 points, place your fingers on your collarbone and move them toward the center until you come to the corners of the collarbone just below the throat. Move your fingers down about an inch. There is an indent there for most people. Tap or press/buzz these points for two to three deep breaths.

- 3 Tap or press/buzz the Thymus point in the middle of your sternum for two to three deep breaths with your fingers or your knuckles.
- 4 Tap or press/buzz the Spleen acupuncture points on the side of the body about four inches down from the arm pits, for two to three deep breaths. Alternately, tap or press/buzz the Neurolymphatic Spleen points, beneath the breasts and down one rib, for two to three deep breaths. If either set is more tender use these points in the future.



1. Grounding



2. K-27



3. Thymus



4. Spleen

THE CROSSOVER SHOULDER PULL

- 1 Put one hand on opposite shoulder.
- 2 Dig your fingers into the back of shoulder, drag them over the top, and pull firmly down across your body to the opposite hip.
- 3 Do this several times and repeat on the other side.



Daily Energy Routine Page 2

THE CROSS CRAWL

Balances and harmonizes energy, improves coordination, and clears thinking.

- 1 While standing, sitting or lying down, lift your right arm and left leg simultaneously.
- 2 As you let them down, raise your left arm and right leg.
- 3 Repeat, this time exaggerating the lift of your leg and the swing of your arm across the midline to the opposite side of your body.
- 4 If you can, twist so that your elbow touches your opposite knee.
- 5 Continue this exaggerated march for at least a minute, breathing deeply in through your nose and out through your mouth.

If doing the Cross Crawl tires you or leaves you feeling uncoordinated, precede it with the Homolateral Crossover Repatterning in Energy Medicine, 2008, pages 251 – 252.



THE WAYNE COOK POSTURE

Focuses the mind, allows you to untangle inner chaos, see with better perspective, think more clearly, and learn more proficiently.

- 1 Sit with your spine straight. Place your left foot over your right knee. Hold your left ankle with your right hand and the bottom of your left foot with your left hand.
- 2 Breathe in slowly through your nose, letting the breath lift your body, while stretching your leg toward you. Exhale slowly through your mouth, relaxing your body. Repeat four or five times.
- 3 Switch to the other foot and repeat this entire process.
- 4 Uncross your legs and "steeple" your fingertips, resting your thumbs just above the bridge of your nose. Breathe slowly in through your nose and out through your mouth four or five times.
- 5 On the last exhale, curl your fingers at the center of your forehead, and pull slowly to your temples, stretching the skin on your forehead. Slowly bring your hands down in front of you. Surrender into your own breathing.



Daily Energy Routine Page 3

THE CROWN PULL

Relieves mental congestion and headaches, clears and refreshes the mind, sharpens memory, and opens the Crown chakra to higher inspiration.

- 1 Place your thumbs at your temples with your fingertips resting in the middle of your forehead.
- 2 Slowly, with pressure, pull your fingers apart stretching the skin above your eyebrows.
- 3 Place your fingers at your hairline and repeat the stretch. Again, use pressure as you pull.
- 4 Repeat this pattern at the top, center, and back of your head. Continue all the way back and down until you reach the base of your neck.
- 5 Move down to your shoulders. Press your fingers into your shoulders and hold. Then pull across your shoulders towards the front. Keep your fingers there as long as feels good. When ready, bring your hands to the middle of your Heart chakra and rest your crossed hands there for at least one deep breath.



CONNECTING HEAVEN AND EARTH

Opens energies throughout the body, particularly in the joints. Use in moments of transition to clear out old energy and make space for new energy.

- 1 Start with your hands on your thighs, fingers spread.
- 2 Inhale through your nose, circle your arms out and up over your head, and bring your hands together in prayer position in front of your heart. Exhale through your mouth.
- 3 Inhaling through your nose, stretch one arm up and one down, pushing with your palms. Hold, exhale, and return to the prayer position. Switch arms and repeat.
- 4 Do this twice for each arm, emphasizing the stretch.
- 5 Drop your arms down, fold your body forward at the waist, and relax with your knees slightly bent. Take two deep breaths before slowly returning to a standing position.
- 6 As you slowly roll your spine upright, you may make small or large Figure 8s with your arms.

Alternatively, you can "roll" your energy up your body with your hands starting at your feet and rolling all the way up and over your head and out to the sides.



Daily Energy Routine Page 4

THE ZIP-UP

Boosts confidence, clears your thoughts, and protects you from negative energies that may be around you. An excellent time to do affirmations.

- 1 Place your hands at the bottom of Central meridian at your pubic bone.
- 2 Take a deep breath in as you move your hands, slowly and deliberately, straight up the center of your body to your lower lip.
- 3 Continue upward, bringing your hands past your lips and exuberantly raising them into the sky. Circle your arms back to your pelvis.
- 4 Repeat two or three times.



THE HOOK-UP

Calm you and centers you. Connects many of the body's energy circuits. May help when feeling dizzy or faint.

- 1 Place the middle finger of one hand on the "third eye" (between the eyebrows above the bridge of the nose).
- 2 Place the middle finger of your other hand in your navel.
- 3 Gently press each finger into your skin and pull it upwards. Hold for twelve to thirty seconds, or longer if you wish.

Often you will experience a deep sigh and/or yawn, showing that your energies are hooking up.



Resources for more information about
DONNA EDEN ENERGY MEDICINE

LearnEnergyMedicine.com

Facebook: [Eden Energy Medicine Programs Page](#)

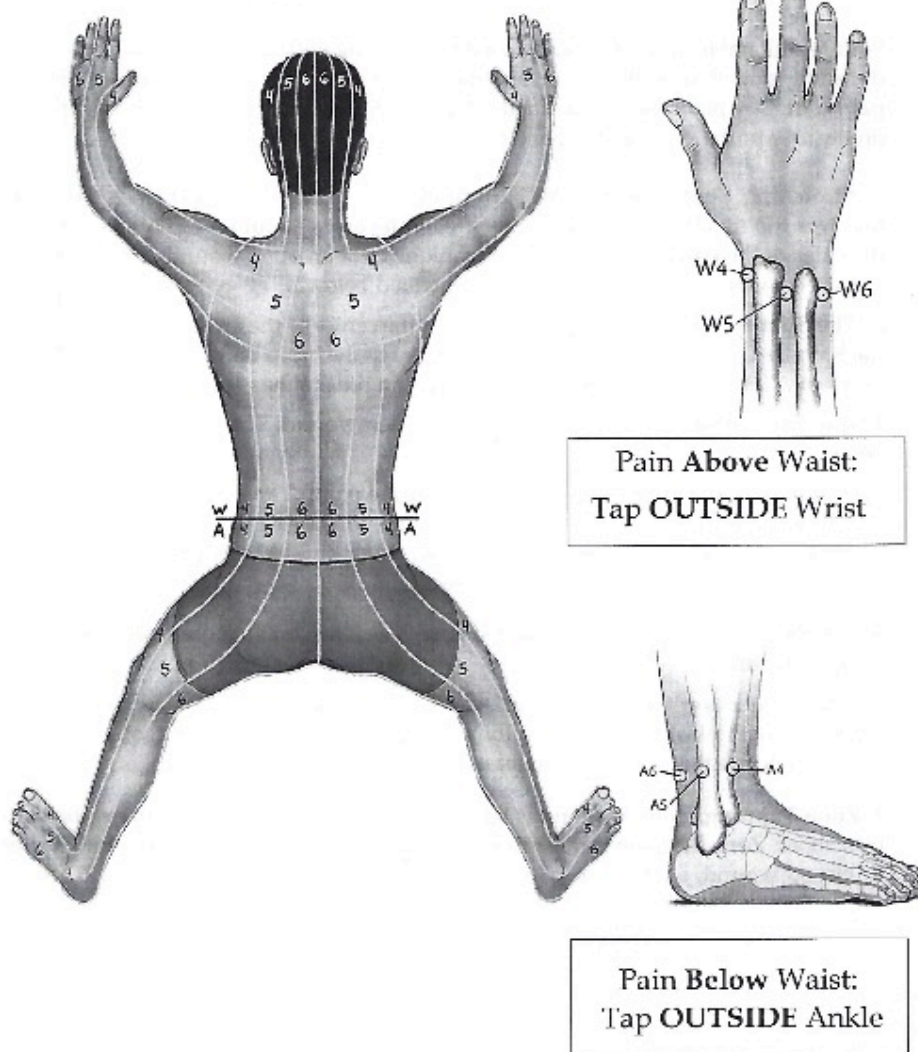
See the latest information about upcoming classes, Donna's and David's travels, our weekly Energy Minute, and MORE.

Eden Energy Medicine Group

Ask questions about Eden Energy Medicine and get connected to our worldwide community!

Zone Tapping Page 1

Yang Zones Outside and Back



Zone Tapping Page 2

