

AN EXPLORATION OF THE EFFECTS OF TONING AND  
QUARTZ CRYSTAL BOWLS ON THE ENERGETIC BALANCE IN THE BODY  
AS MEASURED ELECTRICALLY THROUGH THE ACUPUNCTURE MERIDIANS

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The work reported in this dissertation is original and carried out by me solely, except for the acknowledged direction and assistance gratefully received from colleagues and mentors.

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LAQUITA JOY ALLEN

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## ABSTRACT

This study explored the effects of toning with a Marcel Vogel crystal and the playing of a quartz crystal bowl on the energetic balance in the body, as measured electrically through the acupuncture meridians. Forty-two subjects were told they were participating in a study of the effects of sound on the body, as measured on the Asyra™, a computerized electronic electrodermal instrument measuring the subjects' energetic reading of the acupuncture meridians under exposure to low voltage electric frequencies. Readings were taken at 40 access points for acupuncture meridians on the fingers and toes. Two readings were taken at five-minute intervals prior to the two interventions to establish an average baseline and a control for each subject. A third and fourth reading were taken after each subject experienced both conditions: A) Toning by the Principal Investigator holding a Marcel Vogel Crystal to chakra points on the subject's back; B) The playing of a quartz crystal bowl tuned to the musical note "F", corresponding metaphysically to the heart chakra. Results indicate that listening to both toning and the playing of the quartz crystal bowl produce changes in the energetic patterns as measured on the Asyra™. Analysis of means for all subjects across time indicate a significant increase in energetic readings on the left hand after toning with  $p < .05$ , and a significant decrease in energetic readings of the right foot following crystal bowl sounds,  $p < .01$ . Analysis of variance comparing interaction of order effect indicates a significant effect of the order of sequence of conditions in the left hand meridians with toning first and crystal bowl sounds second,  $p < .05$ .

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## CHAPTER 1

### INTRODUCTION

***It is highly dishonorable for a reasonable Soul to live in so Divinely built a mansion as the Body she resides in altogether unacquainted with the exquisite structure of it.***

Robert Boyle

Can we become self healers? This question evolved from a line in a recent movie, “KPAX”, in which the character portrayed by actor Kevin Spacey claimed to be from another planet where people did not require the services of doctors because they were self-healers. The scene lasted for less than one minute, but it left a permanent imprint on my mind.

In the summer of 2000 I retired from a career in telecommunications with no plans except to pack away my daytimer and live one day at a time, enjoying my family and friends, and my interests in astrology, health, and cooking. For twenty-five years I had spent a great deal of my life on planes, and I was ready to ground my life by tending to my garden and my house. Just as nature abhors a vacuum, even this strategy was short-lived.

My younger sister developed lung cancer, and I became her care-giver and her advocate in the maze of doctors, hospitals, medical treatments and complicated HMO requirements and procedures. My education and my first career had been in nursing. I left that field and developed an interest in alternative and holistic lifestyle choices while

pursuing other careers. I was both amazed and discouraged at what I felt was the absence of real patient concern and organization within the established systems. Tests had to be repeated. Records were lost. The attitude and professionalism of health care providers was discouraging. To their credit, many of them work in stressful conditions that are a part of the greater problems in health care organization and management today.

By May of 2001 I had developed a sense of urgency to explore alternative measures to continue her care. While administering Reiki to her I began to hear “sounds” that intuitively I knew would have healing effects on her body, but I was puzzled as to how to understand and use this information. This led me to Carolyn Myss, Ph.D. and Norm Shealy, M.D. I flew from Dallas to St. Louis to enroll in their class in Vision, Creativity, and Intuition. While there I learned of Holos University and met Robert Nunley, Ph.D, the Dean of Academic Affairs, who welcomed me with open arms. I enrolled in Holos at that seminar, and excitedly departed with this news for my sister. She died while I was in flight back to Dallas. Her death became the catalyst that quickened my resolve to explore the nature of body, mind, and spirit, and to pursue alternative and non-invasive therapies and methods of honoring and healing the bodymind.

The long-standing Cartesian notion that mind and body are distinct and separate components is reflected in Western medicine’s division of medical practice into discrete areas of specialty. This influence has obscured a clear understanding of the myriad of connections between bodily components and the modern or holistic view of the interconnectedness of mind and body. Never do we see “Bach”, “Mozart” or “drumming or toning as needed” written on a doctor’s prescription pad.

Throughout history, rhythm, vibration, and song have been used in the healing arts recognizing the fact that we are pure vibration. The ancient priests and healers knew that sacred geometry was used to produce harmonics, musical intervals and rhythm which created the world soul. Using this knowledge, music has been used to reach the inner essence of the individual and hence to help them harmonize with their own inner note.<sup>1</sup>

When I read this paragraph from the text of Dr. Norman Shealy's class in Clinical Applications in Energy Medicine in the summer of 2001, the words resounded in my bodymind. I did not know where this was leading, but like a song that continues to reverberate, I continued to hear this melody. I read one of the books referenced on this section on Sound: *Toning: The Creative Power of the Voice* by Laurel Elizabeth Keyes. I was inspired by her creativity and her approach to healing with the use of the voice. Exploring the therapeutic benefits of sound became my passion and the focus of my research.

How do we find our inner note and harmonize and heal our body? I became intrigued with the work of researcher Hans Jenny, who illustrated his experiments on the effects of sound in his book *Cymatics*. He sought to "hear" the systems of Nature, whether in the cosmic or the mineral-chemical sphere, and to perceive them in a way equivalent to the perception of sound in acoustic space. Nature includes biological systems, the animal and vegetable kingdoms, and most importantly, the human body. He found the same rhythmicities of formation and periodicities throughout nature and in the body. His experiments traced the action of acoustic vibrations, specifically the effects of tone, musical sound and speech sound.

Peter Hamel studied music, psychology, and sociology in Munich in the late 1960's and 70's. He maintained that the ancients already knew that the inner self

possesses all the proportions as a primal creative force.<sup>2</sup> His book, *Through Music to the Self* has provided inspiration and a rich tapestry linking sound to our spirituality and the roots of these ancient cultures, and correlating this information with the body.

Don Campbell has devoted his life and energy to exploring and teaching the healing effects of music and sound. His energy and enthusiasm are contagious, and his teaching, books, and music continue to provide all of us with the tools we need to experience the transformative effects of music and sound and to become self-healers. I had the opportunity to participate in a “Sound School” he taught at Texas A & M University in Corpus Christi, and I am grateful to him for sharing original research manuscripts that have been invaluable to me in pursuing this study.

As a measurement tool for this research I have utilized a computerized electronic electrodermal instrument that measures energetic response of the acupuncture meridians. For several years my family and I have received treatments from practitioners who use this meridian stress assessment tool in health care, and I had personal experience on the effectiveness of this equipment in diagnosing energy imbalances and pathogens in the body and recommending appropriate homeopathic remedies. The inspiration and assistance that Dr. Norman Shealy has provided in the use of this equipment for this study at Holos has inspired and supported my efforts, and I would hope that this effort contributes to the body of knowledge on both sound therapy and the uses of the Asyra™.

The objective of this study is to explore the effects of sound, specifically toning and the use of a crystal bowl on the energetic balance of the body. The Asyra™ provides a measurement of the energetic balance of the acupuncture meridians. A change in the energetic balance in the body after these interventions would indicate that the vibrations

of toning the vowels and the resonance of the crystal bowl produce effects in the body as registered in the energetic readings. The effects can be both an increase in the energetic patterns and a calming or lowering in energetic readings in particular regions of the body. My goal is promoting the benefits of the self-produced sounds of toning, humming, and chanting as tools for personal psychotherapy, emotional balance, energy, self-healing and transformation. The primary purpose of this study is to determine if the effects of toning and crystal bowl sounds can be measured with an electrodermal scanner, and the secondary purpose is to reinforce that self-produced sounds do not require musical ability or knowledge. I feel that sound healing has great potential in alternative medicine in the future.

Chapter 2 of this dissertation reviews the foundations and principles of sound and their ancient and spiritual roots. Recent research on toning and its effects on the body and information on crystal and quartz crystal bowls is explored. I have also included information on the correlation of the chakras and the acupuncture meridians of the body and their relationship to sound. Although sound has been a part of man's existence from the beginning of time, and has been used for its curative and therapeutic effects throughout civilizations, very little research has been done on toning, and I could not locate empirical research on crystal bowl sounds. The remaining chapters focus on the research method and results and conclude with a discussion and recommendations for future research.

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<sup>1</sup>Shealy, Norm. *Alternative, Holistic, Complementary and Energy Healing*, class text from Clinical Applications of Energy Medicine, Holos University, 2001

<sup>2</sup>Hamel, Peter. *Through Music to the Self*. Longmeade, Shaftsbury, Dorset, England: Element Books, Ltd. (1978) 121

## CHAPTER 2

### REVIEW OF THE LITERATURE

Five topics are explored in the review of literature. The historical, spiritual, and therapeutic roots of sound are founded in ancient cultures, providing a rich tapestry confirming the spiritual and social validity of sound and its curative effects. The scientific basis of sound examines philosophies from the early Greeks to quantum physics and emphasizes research theorizing the creative principle of sound and vibration as part of the harmonic interrelatedness of the universe. Principles of sound and their effects in the body reviews recent research results and current applications of sound therapy. The effects of self-produced sounds, such as toning, humming, and chanting and their effects in the body are specifically reviewed and methods of toning included in this chapter. Acupuncture meridians and chakras and their correlations in the body and relationship to sound lead into the research methods and conclude the literature review.

### **VIBRATION AND SOUND: FOUNDATIONS IN ANCIENT SPIRITUAL TRADITIONS**

*Nada-Yoga*

*He who knows the secret of the sounds knows the mystery of the whole universe.*

*Hazrat Inayat Khan*

Ancient cultures knew about the power of sound long before the term *science* was coined. The spiritually wise men of India knew that the world *is* sound. From India's Vedic scriptures comes the term *Nada Brahman*—that primal sound of being or sound *is* God. Even four thousand years ago, India's scholars and religious leaders understood that we live in a state of vibration from which sound derives and on which sound has profound influences. Philosophers and prophets of old shared a common belief in the divine origin and nature of sound. In ancient philosophies and religions sound (vibration) is the lead character in the creation of myths. The genesis of the universe is ascribed to the “Word” or the “One Sound”. Cutting across historical, religious, and political lines, Egyptians, Hebrews, Native Americans, Celts, Chinese, and Christians all have spoken of sound as a divine principle.<sup>1</sup>

The roots of sound are sourced in the non-European cultures, in ancient India, Egypt, Greece, early Christianity, and the Middle Ages. The Greeks theorized that music and sound were part of a terrestrial blueprint of the foundation of the world, even the world-soul itself. The Harmony of the Spheres, a symbol of cosmic world order, comprised the notes or sounds that man chose from the profusion that the cosmos placed at his disposal.<sup>2</sup>

Music arose from the polar tension between the audible and the inaudible. The cosmos could either be a myth or a likeness of the divine, spiritual order. It all depended on what man believed. Either he chose the myth and found a symbol for it, or he created that symbol out of the spirit of cosmic order. The unheard substance of the cosmos, the Essential, was in both cases sound and tone. These demanded expression and representation by means of notes and instruments.<sup>3</sup>

Audible sound was considered to be an earthly reflection of a vibratory activity taking place beyond the physical world. Inaudible to human ear, this cosmic vibration was thought to be the origin and basis of all the matter and energy in the universe.<sup>4</sup>

The Hindus knew this cosmic sound as OM, a primal vibration that was believed to differentiate into a number of more greatly defined superphysical vibrations. These different frequencies or cosmic tones were thought to be present in differing combinations throughout the universe. Not only were they present within all substances and forms, in differing vibratory combinations, but they were the substances and forms.<sup>5</sup>

And thus we find ourselves throwing light upon the widely-held belief that all matter is comprised of one basic substance or energy. According to the great thinkers of old, this energy was Vibration. In modern times, the physical sciences are now arriving back at this original point of departure. Once again, science is beginning to suspect that matter is all composed of one fundamental something, and that the frequencies or rhythms of this something determine the specific nature of each object and atom.<sup>6</sup>

According to the Hindu sacred scriptures, the Upanishads, the cosmos was created out of the primal ethers through uttering of the primal sound —*shabda*—embodied in the sacred syllable “OM”:<sup>7</sup>

The word OM is the imperishable, all this its manifestation. Past, present, future—everything is OM.

--Mandukya Upanishad

In India there is a secret knowledge based on notes and on the various kinds of vibration corresponding to the various levels of consciousness... and since each of our centers of consciousness is directly linked with a particular one of these levels, it is possible, via the repetition of certain sounds, to link up with the corresponding levels of consciousness....The fundamental notes or nuclear sounds wherein resides the power to establish this link are called *mantra*. . . they are literally vibrations or waves, rhythms that take over those of the seeker, penetrating deep within him.<sup>8</sup>

Mantras are a way of being held in knowing, safe with understanding, in close harmony with oneself. Mantras are composed mostly of short, simple syllables, such as Om or Hum, arranged in patterns so that their meaning relates to a sacred text. The purpose of mantras is to emit the power of sound.<sup>9</sup>

Lama Anagarika Govinda, a German who became a Tibetan monk, speaks of mantras as primordial sounds that are archetypal word symbols. “All mantras are modifications of an original underlying vibration which sustains the whole energy pattern of the world.”<sup>10</sup> Through his Western origins and spiritual training he has interpreted for Westerners the whole Buddhist tradition, and in particular the deep meaning of mantra. A mantra is spoken inwardly, generally not even whispered, and visualized as lying in an inner center, as a flame or white dot, as the Sanskrit sign for OM.<sup>11</sup> After the continual practice of listening to the sound inwardly and visualizing the flame or dot, and after sometimes years of practicing the inward speaking of a mantra, psychic centers begin to open in ascending order. Through the third, fourth and into the fifth centers voices are heard that bring all kinds of influence to bear. There is clairaudience on the astral planes, and experiencing the sixth center confers experiences such as half-perceived landscapes and colors. When the pituitary is activated (third eye) it becomes a bridge to the astral plane. At the seventh center one is able to leave the body while fully conscious. The chakras (and their colors) can be brought into communication with other centers in the body by seed-syllables of that same color. OM is considered the most powerful seed syllable. The power of a mantra is directly linked to the state of consciousness of its performer.<sup>12</sup>

Since OM is an expression of the highest consciousness, the three elements A, U and M are explained as three degrees of consciousness – A as waking consciousness, U as dream consciousness and M as the consciousness of deep sleep – while OM as a whole is the all-embracing ‘cosmic’ or ‘fourth’ consciousness of the fourth dimension. In other words, the subjective consciousness of the outer world, the consciousness of our own inner world (i.e., the thoughts, feelings, wishes, and desires that we call mental consciousness) and the consciousness of undifferentiated Oneness, at repose in itself, are no longer split into subject and object.<sup>13</sup>

Lama Govinda makes it clear that the sound of the syllable OM opens a person’s innermost being to the vibrations of a higher Reality. OM is a means of tearing down the walls of our ego. OM is the original, deep note of timeless Reality which thrills through us out of a beginningless past, and whose sound comes to meet us when we have developed our sense of inner hearing through stilling of the mind . . . when it is spoken in the heart.<sup>14</sup>

These powerful patterns set in motion the vibration necessary to modify internal blocks in the psychological and physiological systems within the body. They also ‘open the ears of God.’<sup>15</sup>

Seed syllables of the mantras, and some of the mantra sounds, belong to the Sanskrit alphabet. This raises the question as to whether only Sanskrit ascribes meaning to these ancient syllables or whether other cultures consider them in the roots of their language and spiritual traditions. In the Qabalah, and in Greek and Hebrew cultures each letter is given a numerical value. The Greek alphabet has also been construed in similar ways. In our own Western language, the vowels A E I O U, when imagined during the inbreath and spoken inwardly open up a particular part of the human body.<sup>16</sup>

This ‘opening’ by means of the vowels is to be understood quite concretely, in the sense that the breath penetrates more or less deeply into the region concerned. The U fills the lower regions of the body, the I the uppermost regions and so on. But the breath also takes with it the subtle *prana*, the spiritual breath which the Greek initiates called *pneuma*, the breath of God. The whole region filled with *pneuma* could thus be seen as a manifestation of the Divine.<sup>17</sup>

Greco-Egyptian papyri speak of the ruler of the gods, the king Adonai, as ‘Lord I – E – O – U – E – Y’. The Jewish composition of the name of God, *Jehovah*, based on the vowels ‘I – E – O – U – A’. Christ said: ‘I am the Alpha and Omega’. This means the beginning and the end, and thus the whole alphabet, i.e., Lord of heaven and earth.<sup>18</sup>

The practical use of mantras is known even in the West, especially in initiated mystic circles. Hamel credits the survival of one of the oldest mantras of Egyptian origin with the fact that these vowels were translated into German:<sup>19</sup>

A  
 E E  
 Ae Ae Ae  
 I I I I  
 O O O O O  
 U U U U U U U

It is interesting that the translation forms the shape of a pyramid.

In light of scientific research into ultrasound and the properties of ultrasonic tones even the legendary tradition that the Egyptian pyramids were built with the aid of ‘chanted spells and deep tones’ seem less far-fetched than before.<sup>20</sup>

Ancient Egyptians called these universal vibratory energies the Word or Words of their gods; the Pythagoreans of Greece called them the Music of the Spheres; and the ancient Chinese knew them to be the celestial energies of perfect harmony. The cosmic tones, as differentiations of the OM, were the most powerful force in the universe according to the ancients, for these tones *were* the universe—the very source of Creation itself. Audible or earthly sounds, such as music and speech, were believed to be a reflection of the Cosmic Tones.<sup>21</sup>

Physician-priests in Egypt sang their medical scriptures in specific, curative tones. The Greek mathematician Pythagoras proposed that music might in some patients restore proper balance among the four humors and their associated temperaments. For millennia, witch doctors and other spiritual healers have used drums, bells, and rattles to chase diseases from the body.<sup>15</sup> These practices reflected their belief that music and sound have a direct and transformative effect on the whole bodymind.<sup>22</sup> With the Egyptians we see indications of the esoteric concepts beneath the material accomplishments and public religious rituals. The pyramids, temples, sacred emblems, ceremonies, paintings, sculptures and perhaps also music, often conceal ideas once reserved for a small number of initiates: and the secret of these ideas....can be rediscovered by those who study in depth all the types of teachings remaining of the ancient beliefs and the ceremonies they prescribed.<sup>23</sup>

Sound and music therapy have ancient roots, and cultures throughout time have utilized their curative effects in combination with dance, art, and healing rituals. Michael Harner states, "It seems unlikely that these world traditions of music and healing could have survived for 30 thousand years unless they had been found to be empirically effective."<sup>24</sup>

Ancient civilizations and indigenous cultures have made use of both music and sound in healing for thousands of years. Sound was the very basis of all music, and was thought to be intimately related in some way to non-physical and sacred dimensions or planes of existence. Sound brings us together in ceremony, ritual, and celebration. It harmonizes and unifies us as a culture. Sound is also used in the cry of battle, and to signal conflict and war. A recent television program documented the military strength

and the superior organization and skill of the Roman army that enabled them to conquer other armies and build their empire. When they came up against the Celtic armies, who utilized the “shock and awe” tactic of shouting battle sounds and banging their armor, the stunned Romans were defeated.

In Biblical times, one of the most dramatic accounts of the use of sound is recorded in The Book of Joshua, detailing the journey and military conquests of the Israelites as they crossed into Canaan.

Joshua’s destruction of the walls of Jericho is a powerful account of the vibratory effect of sound combined with intent. Jericho, a city rampant with evil, was prepared to withstand the siege of righteous Joshua and his forces. On his way into the city, Joshua encountered a man who called himself the captain of the hosts of the Lord, who told Joshua how to destroy the mighty walls of Jericho through the use of sound produced in sequences of seven. Joshua and his legions marched around the city, headed by seven priests blowing seven trumpets of ram’s horns. Joshua’s forces were commanded to be absolutely silent, uttering not a word. They marched around the city once, and again the next day, repeating this march for a total of seven days. On the seventh day they circled the city seven times, and on the seventh time Joshua told his people to shout along with the sound of the trumpets. This they did—and the walls fell down flat. The city was then stormed and taken.<sup>25</sup>

Peter Hamel refers to ‘objective music’ as based solely on the ‘inner octaves,’ which can produce not only definite psychological phenomena, but also definite physical phenomena. The Biblical legend of the destruction of Jericho through music is a legend of such objective music.

Very often it is a single note that is extremely long-drawn-out and rises and falls but little, but within this one note 'inner octaves' and 'inner octave tunes' are continually operative, inaudible to the ear but sensed by the feeling centre.<sup>26</sup>

These long notes are also reminiscent of the chanting of the Tibetan monks and the magic music of the Mongolians. Other nature-religions had knowledge of the application of musical powers as a means of penetrating the esoteric laws of nature. Hamel states that there is a whole range of substantiated parapsychological phenomena known to have been produced by means of sung or inwardly spoken vibrations.<sup>27</sup>

On the subject of speech the letters are the simplest of concepts, not only speech but also of thought, and if with the aid of our thoughts and imagination we can suffuse our whole body first with the vowels and then with the consonants we teach its every fiber and cell to speak with the spirit. And here I come to the most important secret of these exercises, namely that one must *begin with the feet*. Man is linked with the higher worlds not via his head but via his feet. We know for a fact that a person dying of natural causes first loses all sense of feeling in his feet and all control over them. The same happens when the astral body leaves the physical body, for then, too, everybody feels the feet stiffen first.<sup>28</sup>

The creative power of sound was continued to some extent in early Christianity. The Gospel of St. John begins with the mysterious words: 'In the beginning was the Word, and the Word was with God, and the Word was God . . . . . And the Word was made flesh . . . . .'<sup>29</sup>

If these profound teachings, which were about to link up Christianity with Gnostic philosophy and with the traditions of the East had been able to maintain their influence, the universal message of Christ would have been saved from the pitfalls of intolerance and narrow-mindedness.<sup>30</sup>

There can be no doubt that these groups of vocalic seed-syllables derive from a pre-Christian Gnostic school. Since the influence of particular sequences of linguistic sounds is a significant means of communication with the soul, the relics of this ancient knowledge can be detected in all religious chants and liturgies. Many Gregorian chants end with an elaborate, several-minute long AMEN. And there are also medieval chants, especially those of the blessed Hildegard von Bingen (1098-1179), which conclude in antiphon with a kind of Christian *mantra* consisting purely of vowels.<sup>31</sup>

These phonemic improvisations of seed sounds are easily heard in the American Indian chants such as “Hey – ya – ya, Ho – ya – ya, Hey – ya – ya. When the seed sounds are emphasized in sacred texts, the meaning and power of the text are amplified.<sup>32</sup>

While toning is usually extended breath and sound on one tone, chanting can include a variety of tones. Usually, however, mantras are one two, or three tones with one acting as the anchor or root of the others.<sup>33</sup>

Toning, as we know it in the West, derives from these seed-syllables or vowels, in a vocal chanting or repetition. In the East, the tradition of inward speaking and simultaneous outward recitation of a *mantra* is still alive, but this practice is looked down upon by some Eastern spiritual leaders who warn that the *mantra* should be spoken inwardly, avoiding the slightest murmuring or movement of the lips.

Toning is a personalized practice that can be individualized, but therapists in the West who promote the benefits of toning advocate sounding the vowels, much like the ancient Egyptian mantra above. There is a gradual transition from one vowel to another, with each vowel sounded in an elongated tone, breathing when necessary.

It matters not whether an individual believes in it or not for toning deals directly with energy vortexes. The smallest vibration from feeling or sound, eventually to manifest as form, can disturb these. This, in turn, affects the electromagnetic energy of the individual. Thoughts by everyone are literally thrown into an energy force, creating either positive or negative frequencies. One can well understand that since we are living amidst a “sea of personalities” it is important and essential to clean and re-establish our field pattern each day.<sup>34</sup>

*--Elyse Beth Coulson*

Laurel Elizabeth Keyes, who lived in Colorado and practiced and promoted the art and practice of toning, felt that it offered spiritual, restorative and creative energy to the body. She advocated standing erect, feet several inches apart, arms stretched high and then dropped back, with the eyes closed and the focus inward. Beginning with the “Ah” sound, which she says is the natural progression, then sounding “Oh,” and “E”; the voice releases the power in the body.<sup>35</sup>

The “Voice of the Body” is vibrational activity manifesting itself upward and outward through the vehicle of the body. It is creative sound acting as movement through various levels of consciousness.<sup>36</sup>

*Elyse Beth Coulson*

## **THE SCIENTIFIC BASIS OF SOUND**

*All things are arranged in a certain order, and this order constitutes the form by which the universe resembles God.*

**Dante**

Sound is defined as oscillating energy waves within an audible range that travels from one source to another as waves. Each sound has its own velocity and intensity, and its own frequency, pitch, and wavelength. The intensity of the vibration, or the loudness of the sound, is measured in units called decibels.

Sound is vibratory energy; sound touches us and influences our emotions like no other source of input or expression; it is tone, timber, silence and noise.<sup>37</sup>

(Sound) . . . is a frequency of vibration that we audibly hear between 20 and 20,000 Hz. Traveling through the air at 770 miles per hour (its exact speed depends on temperature, humidity, and wind), sound moves almost a million times slower than the speed of light.<sup>38</sup>

At one point in history, philosophers were also scientists. Ancient Greek philosophers as well as Eastern religious leaders believed that the universe was an interconnected web of vibrating energy. What appeared to our senses as solid was a group of very small moving particles. They believed that the material world is energy because all things were in a constant state of motion, and that this energy was created at the instant that the universe was created.<sup>39</sup>

Recent advances in the study of physics demonstrates that modern science is finally catching up to those ancient mystics! Quantum theory now states that matter is always in a state of motion. This implies that energy is 'locked up' in the "mass" of an object and that mass can, therefore, be transformed into the other forms of energy. In other words, 'mass' is a form of energy! The smallest component of our material universe, what used to be referred to as the primary building blocks, are atoms.<sup>40</sup>

Peter Hamel, who studied music, psychology, and sociology in Munich and Berlin in the late 1960's and '70's, maintains that the ancients already knew that the inner being possesses all the proportions as a primal creative force.<sup>41</sup> Under the terms of the ancient techniques of acoustic self-realization, the knowledge of the interval subdivisions of the harmonic series took on the role of a link between nature and the soul. He found that basic laws reveal the connection between notes and numbers, and that intervals can be physically experienced and the ratios correspond to particular feelings. Since the proportions can be detected by the ear, and were recognized laws fundamental to all music, musical concepts became central to the ancient Greek view of the world. All the notes discovered by subdividing the string, and now reduced to written musical notation, together comprise the 'natural tone-row' or 'harmonic series'.<sup>42</sup> "The conformity of the harmonic series to natural law appertains on the one hand to the level of esoteric or mystical knowledge and on the other to that of scientifically demonstrable fact."<sup>43</sup>

Hamel states that in his books *Der hörende Mensch*, *Akroasis*, *Harmonia Planetarum* and above all in *Orphikon*, Hans Kayser demonstrates in rigorous scientific mathematical terms that, in chemistry, atomic physics, crystallography, astronomy, architecture, spectroanalysis, botany, etc. there exists an underlying framework of whole-number ratios such as we hear in notes—an octave, third, fifth, fourth. The natural phenomena of music have thus been once again recognized to be elements of the basic laws of physics. The *Harmony of the Spheres* is discussed in relation to Max Planck's law of quanta; the basic laws of acoustics find their equivalent in the ratios between the shells of the atomic nucleus. Observation of the radiation-spectrum shows that the

radiation-quanta released when an electron jumps from an outer to an inner orbit possess a sequence of gradation similar to that of the note-intervals.<sup>44</sup>

In the no-man's-land between scientific exactitude and intuitive hunches there stands the researcher Wilfried Kruger, whose chief work *Das Universum singt* was published privately, as it was too scientifically specialized for some publishers and too mystic and speculative for others.<sup>45</sup>

Kruger, self-taught in the fields of physics and music theory, succeeded in constructing a picture of the musical *modus operandi* of the atomic nucleus. "He returns constantly to the theme of the musical proportions governing intervals and notes, proportions which are to be found in the shells of the atomic nucleus."<sup>46</sup>

Thus, in a resume, Kruger refers to the structure of the major scale—i.e., the Gregorian Ionic mode—which can be demonstrated in the nucleus of the oxygen atom: The eighth atom of the periodic table, the oxygen atom (O), the basis of our breathing, reacts under radiation (heating, burning) with almost all elements. Its nucleus contains eight protons. Our scale has eight notes. The two notes at each end of the octave coincide almost exactly, and through their oscillation-ratio create the strongest resonance.<sup>47</sup>

These brief notes on the work of Kruger by no means cover all aspects of his discoveries, but they did make it clear to Hamel that the esoteric knowledge and intuitions of the ancients could be tied in with today's scientific method. He felt that Kruger's work paved the way for the scientific basis for speculative hypotheses and intuitive insights that would be accepted by both music researchers and the scientific community.

Even such obscure concepts as ‘objective music’ or ‘inner octaves,’ as proposed by the magician George Gurdjeff, could come to be regarded as ‘proven’ in terms of the harmonic series and its correspondence in the sphere of microphysics, and thus come to be seen in a completely new light.<sup>48</sup>

Physicist David Bohm acknowledged the work of the Greeks, and in particular, Aristotle. He believed that matter was in constant motion, and this theory continued from ancient times until the advent of the work of Copernicus, Kepler, Galileo, and Newton began to change the order of perception in physics. The ancients and the Greeks approached nature and the world from an artistic perception, which assimilated or sought to digest or understand facts and new notions. The basis for perception changed with the advent of Cartesian coordinates and the calculus, and the focus became fitting or accommodating the facts to fit the theory, or ‘establish a common measure.’ His examples of accommodation are fitting, cutting to a pattern, imitating, and conforming to rules.<sup>49</sup>

It is clear that in intelligent perception, primary emphasis has in general to be given to assimilation, while accommodation tends to play a relatively secondary role in the sense that its main significance is an aid to assimilation.<sup>50</sup>

He viewed fact and theory as two different aspects of one whole in which analysis into separate but interacting parts is non-relevant, and that undivided wholeness is not only implied in the content of physics, but in the manner of working in physics.<sup>51</sup>

The undivided wholeness of modes of observation, instrumentation and theoretical understanding was illustrated in his example of the close relationship between instrumentation and theory in considering the lens. With a lens, it was possible to see objects that were too far away, too big, too small, or too rapidly moving to be delineated

by means of unaided vision. Analysis into distinct and well-defined parts was no longer relevant. “Is there is an instrument that can help give a certain immediate perceptual insight into what can be meant by undivided wholeness, as the lens did for what can be meant by analysis of a system into parts?”<sup>52</sup>

He suggests that that word is *hologram* (from Greek words ‘holo’ meaning the ‘whole’, and ‘gram’ meaning ‘to write.’)<sup>53</sup> The order of a whole illumined structure is ‘enfolded’ and ‘carried’ in the movement of light. A similar occurrence happens with a signal that modulates a radio wave; the content or meaning that is ‘enfolded’ and ‘carried’ is primarily an order or measure, permitting the development of a structure. He theorized that this same order and measure can be ‘enfolded’ and ‘carried’ not only in electromagnetic waves, but also in other ways (by electron beams, sound, and in other countless forms of movement).

...we can abstract particular aspects of the holomovement (e.g., light, electrons, sound, etc.), but more generally, all forms of the holomovement merge and are inseparable. Thus, in its totality, the holomovement is not limited in any specifiable way at all. It is not required to conform to any particular order, or to be bounded by any particular measure. Thus, the *holomovement* is undefinable and immeasurable.<sup>54</sup>

He states that the primary significance of undefinable and immeasurable holomovement implies that it has no meaning to talk of a *fundamental* theory on which all physics could find a *permanent* basis, or be reduced. Rather, each theory will abstract a certain aspect that is relative only in some limited context, some appropriate measure.<sup>55</sup>

Bohm theorizes that the world is a vast ocean or sea of energy that he calls “the implicate order” because it cannot be seen or measured; it is potential energy. The world we see and measure is the “explicate order”, which includes space and time. Bohm posits that matter ranges in density from the most solid to the most subtle. Solid states of matter are all visible forms, including the body. Thoughts and consciousness are the most subtle forms of matter (and energy).<sup>56</sup>

Light and sound are energies that he saw as continually enfolding information in principle concerning the entire universe of matter into each region of space. He applied this to whether or not information is actually enfolded in the brain cells, and gave the following example:

....what takes place when one is listening to music . . . . is that at a given moment a certain note is being played but a number of the previous notes are still ‘reverberating’ in consciousness.... It is the simultaneous presence and activity of all these reverberations that is responsible for the direct and immediately felt sense of movement, flow and continuity. To hear a set of notes so far apart in time that there is no such reverberation will destroy altogether the sense of a whole unbroken, living movement that gives meaning and force to what is heard.<sup>57</sup>

The reverberations that make this experience possible are not memories, he posits, but are active transformations of what came earlier, in which are to be found not only a generally diffused sense of the original sounds, . . .but also various emotional responses, bodily sensations, muscle movements, and a wide range of further meanings, often of great subtlety. “This activity in consciousness evidently constitutes a striking parallel to the activity that we have proposed for the implicate order in general<sup>58</sup>. . . . .In listening to music one is therefore directly perceiving an implicate order.”<sup>59</sup>

In 1967, the late Hans Jenny, a Swiss doctor, artist, and researcher, after ten years of research published the book *Cymatics—The Structure and Dynamics of Waves and Vibrations*. In his book Jenny showed what happened when he took various materials like sand, spores, iron filings, water, and liquid substances, and placed them on vibrating metal plates. Astonishing shapes and patterns appeared that resembled many of the geometric shapes in nature. He utilized crystal oscillators and an invention he called the “tonoscope” in order to vibrate the plates. His work became known as Cymatics, which comes from the Greek kyma or wave. Cymatics has been interpreted as the study of wave form phenomena, or how vibrations, in the broad sense, generate and influence patterns, shapes, and moving processes.

The tonoscope was able to make the human voice visible without any electronic apparatus as an immediate link. This made possible an ability to view the physical image of a vowel, a tone or song that a human being produced directly. Thus, Jenny could not only hear a melody—he could also see it. Jenny believed that everything in nature was created out of a sound that creates an energetic pattern. In the beginning was the word or logos.

An interesting phenomena appeared when he took a vibrating plate covered with liquid and tilted it. The liquid did not yield to gravitational influence and run off the vibrating plate, but remained, constructing new shapes as though nothing had happened. If, however, the oscillation was then turned off, the liquid began to run. When he was able to begin the vibrations again, he could get the liquid back in place on the plate. According to Jenny, this was an example of an anti-gravitational effect created by the vibrations.

Dr. Jenny believed that the universe is harmonically interrelated, and this relationship can be found in the sounds reverberating throughout the universe. Like David Bohm, who felt that research should be approached with a more artistic perception, Jenny stated in his second volume of work that he had deliberately dispensed with the descriptions of experimental design and particularly the quantitative analysis of parameters. He was primarily concerned with bringing the phenomenon into the field of observation. He concluded that the phenomena of vibrational effects can be visualized and recorded in a variety of ways, and be produced directly by the human voice in the tonoscope.<sup>60</sup>

The real work is what is called melos, or speech. This brings the larynx and its action into the scope of our studies. We must learn about the larynx as a creative organ which displays a kind of omnipotent nature.<sup>61</sup>

To answer the question of how vibrations proceed in a concrete medium, and determine the effects wave phenomena produce in a specific material, Jenny's method was to sound tones into the liquid and observe the transparent media via transmitted light. The light was projected from underneath and passed through the liquid, and he observed and photographed the processes from above, adjusting the lens to capture the various planes within the liquid. The forms would pulsate and change instantly when the sound changed. He captured these changes in dramatic photographs presented in his book, *Cymatics*. He summarized the results by saying:<sup>62</sup>

- There is a morphology of vibration, an inventory of all the variety of forms in which it appears, concerned not with the play of the subjective mind but with the “objective play of Nature” or with physics.

- The resultants of harmonic vibrations are at all times so strictly law-ordered that it is possible to draw up a systematology of morphogenesis. Given a certain set of circumstances, Nature produces this form only and no other.
- Nothing here is diffuse and indeterminate; everything presents itself in a precisely defined form.
- The more one studies these things, the more one realizes that sound is the creative principle. It must be regarded as primordial.
- This power is inherent in tone and sound.<sup>63</sup>

First and foremost, he theorized, is developing a special sense for perceiving and observing the true nature of periodicities and rhythmicities.<sup>64</sup> He correlated the patterns of periodicity and orderliness with vibration and frequencies. The patterns of materials in his research changed when the amplitude and vibration were modified. He stated that if two frequencies are made to impinge on one and the same liquid system, a figure appears which is the result of these actions. Each frequency produced a definite figure of its own. He theorized that where organization is concerned, the harmonic figures of physics are in fact similar to the harmonic patterns of organic nature. There exists an alternation and equidistance in his configurations that also occurs in a flower, an identity of configuration.<sup>65</sup> From his experiments he concluded that:

- Harmonic systems arise from oscillations in the form of intervals and harmonic frequencies.
- The style of nature is characterized throughout by rhythmicities and periodicities; biological periodicity and oscillation are seen in the regular repetition of polar phases as a function of time and space.
- There is an interplay of factors in the organic world: antagonisms and synergisms, inhibition and excitation, damping and stimulation, suppression and liberation, etc.
- These processes are adjusted “to one another”; there is a delicate interplay of regulatory factors governing the way they occur, and they are often correlated with and proportional to each other.
- If biological processes on and in the biological substrate proceed in an interval like manner, there must be a corresponding pattern in this field of operation. If biological rhythms operate as generative factors at the interval-like frequencies appropriate to them, then harmonic patterns must necessarily be forthcoming.
- If harmonic configurations appear in organic nature (morphological and physiological), then what we see before us is the result of rhythms, intervals and frequencies of the generative factors. In other words: harmonic phenomena appear where the generative factors operate within a harmonic order.<sup>66</sup>

If Jenny's speculations are correct, then particular forms and frequencies of sound might therapeutically alter the vibratory and physical structures of living systems; the key to sound healing would be knowing which and how sonic frequencies should be applied for various disorders.<sup>67</sup>

Wave motion is the phenomenon of a transfer of energy (or information) from one source to another. The vibration is the information. The wave is the impulse that carries the information outward. The wave motion is propulsion of that information out into the world. This propelling of the wave is accomplished through what is called *compression and rarefaction*, a process involving the alternating density of molecules in the air and how information is passed. It is through compression and rarefaction that the actual energy of sound is transmitted.<sup>68</sup>

The body itself might be intrinsically musical, right down to the DNA that makes up our genes, according to Larry Dossey, M.D.

The idea that DNA and music might be connected comes from the work of Dr. Susumu Ohno, a geneticist at the Beckman Research Institute of the City of Hope in Duarte, CA. In order to understand Dr. Ohno's insights, recall that every organism's genes are composed of strands of DNA, which in turn are made up of four so-called nucleotides containing the bases adenine, guanine, cytosine, and thymine, arranged in sequences that are unique for each species. In an imaginative leap Dr. Ohno assigned musical notes to these substances—*do* to cytosine C, *re* and *mi* adenine (A), *fa* and *sol* to guanine (G), and *la* and *ti* to thymine (T). Then, having assigned musical notes to each base, Dr. Ohno chose a particular key and timing, as well as the duration of each note. The result was a melodic composition that was finally fleshed out with harmonies by his wife, Midori, a musician. When completely transcribed, professional musicians on instruments such as the piano or organ, violin, and viola then performed the scores. Dr. Ohno has notated over fifteen songs of the DNA of a variety of living organisms during the past two years. He finds that the more evolved an organism, the more complicated is the music.<sup>69</sup>

## THE PRINCIPLES OF SOUND AND THEIR EFFECTS IN THE BODY

*The mind forgets, but the body remembers.*

*Freud*

We respond to sound vibrations in two main ways: entrainment and resonance. According to Johnathan Goldman, entrainment is actually an aspect of resonance, the frequency at which an object most naturally wants to vibrate. With resonance, the natural vibration of an object is stimulated with its own vibrational frequency, which sets it into motion. He views resonance as being passive in nature and entrainment as being active. With entrainment the natural oscillatory patterns of another object are changed, and replaced with the different oscillatory patterns, actively changing the vibrations (the frequency or rhythm) of one object to another rate. Entrainment is also used as another word for harmony, and defined as the synchronization of beats of music with natural body functions and processes.<sup>70</sup>

McClellan defines resonance as the ability of a substance such as wood, air, metal, and living flesh to vibrate sympathetically to a frequency imposed from another source. “The ability of a substance to resonate sympathetically is the result of its elasticity. Among the most elastic substances are air, water, some woods, the human body and our earth itself.”<sup>71</sup>

Entrainment can also include the voice, such as guided imagery. Belleruth Naparstek is well known for her work in guided imagery and music for surgical patients. She developed a tape of guided imagery and music that transports them to a place of safety, suggesting positive surgical outcomes: the body knitting together bone and skin to speed healing, the blood delivering needed nutrients in the area. Listeners are encouraged to visualize supportive entities that they might want to be with them in the O.R. The tape, which is intended to promote a sense of spiritual connectedness, is scored with specially composed music to evoke images and to offer its own soothing effects. This tape was used in a study by Henry Bennett, M. D., who reported positive results at statistically significant levels, with the patients listening to Naparstek's tape experiencing less blood loss, and one full day less in the hospital than those in the control group.<sup>72</sup>

Other principles of sound healing include rhythm, which has measurable effects on the physiology of the body, and the effects of sound on states of consciousness. Included in sound therapies which affect consciousness are music, drums, singing bowls, and most importantly, the use of the human voice. In Yogic medicine sound is the guidance system for directing and correcting consciousness. The word Yoga translates to "yoked" or "union" and means a union of the subconscious, conscious, and superconscious mind. The sound or toning techniques of yogic medicine awaken the dormant potential of the mind and help eliminate the subconscious blocks impeding the development.<sup>73</sup>

All the systems of our body—muscular, nervous, respiratory, and circulatory—are meant to operate according to a set of rhythms. Our hearts and pulses beat a constant tattoo that constitutes a measurement of health and vitality. Our breathing is meant to be slow and rhythmic; our blood flows in rhythmic pulses based on our heartbeat.<sup>74</sup>

Mitchell Gaynor, M. D., is Director of Medical Oncology and Integrative Medicine at the Strang-Cornell Cancer Prevention Center, affiliated with New York Hospital. In his book, *Sounds of Healing*, he details the numerous ways in which he utilizes sound therapy in the treatment of patients with cancer. He states that research over the past two decades has revealed the myriad ways in which the human body responds to sound and musical stimuli through the process of entrainment.<sup>75</sup>

- When Beethoven's Fifth Symphony was played for twenty-two college students during a music appreciation class, noticeable changes were recorded in their heart rates that directly correlated with changes in the tempo of the first movement.
- Researcher Johannes Kneutgen demonstrated that babies who fell asleep to the sound of lullabies began to breathe in rhythm with the music.
- In a series of studies that examined how music affects blood pressure, pulse rate, breathing, and other aspects of the autonomic nervous system, participant's heart rates were found to respond both to the volume and the rhythm of the music. And in some cases, the heart rate or respiratory rhythm actually synchronized with the beat of the music.

Gaynor also cites the work of Jeanne Achterberg when she analyzed shamanic drumming. The rhythmic beats encompass a frequency range of .8 to 5.0 cycles per second, which she notes as having “theta driving capacity” or theta brain waves attained in profound states of relaxation. “This research suggests that sound can entrain brain waves in a manner that is clinically significant, both for altered states of consciousness and for healing.” Theta states are considered a bridge between conscious and unconscious processes.<sup>76</sup>

Music is organized sound, so all the principles that apply to sound apply to music as well. Anesthesiologist Ralph Spintge, M. D., a researcher in the use of music in medicine, summarized the physiological impact of music in medical treatment:<sup>77</sup>

Physiological parameters like heart rate, arterial blood pressure, salivation, skin humidity, blood levels of stress hormones like adrenocorticotrophic hormone ACTH, prolactin, human growth hormone HGH, cortisol, beta-endorphin, show a significant decrease under anxiolytic music compared with usual pharmacological premedication. EEG studies demonstrated sleep induction through music in the preoperative phase. The subjective responses of the patients are the most positive in about 97 percent of (59,000). These patients state that music is a real help to them to relax in the preoperative situation and during surgery in regional anesthesia.”

Sound produces measurable vibratory feeling throughout the body, depending on the frequency and amplitude of the sound used, according to Richard Gerber, M.D. Certain sounds most likely have a healing influence upon the body because they influence the geometric patterns and organization of cells and living systems.<sup>78</sup>

Because the ear is not only the primary organ of hearing, but also has powerful influences on eye movement, the rhythms of the physical body, pre-birth brain growth, and general regulation of stress levels in the body, greater emphasis is now placed on the therapeutic union of sound and healing. Sound can alter skin temperature, reduce blood pressure, and muscle tension, and influence brain-wave frequencies.<sup>79</sup>

Sound is linked to the physical body by the eighth and tenth cranial nerves. These carry sound impulses through the ear and skull to the brain. Motor and sensory impulses are then sent along the vagus nerve (which helps regulate breathing, speech, and heart rate) to the throat, larynx, heart, and diaphragm. The vagus nerve and the emotional responses to the limbic system (specific areas of the brain responsible for emotion and motivation) is the link between the ear, the brain, and the autonomic nervous system that may account for the effectiveness of sound therapy in treating physical and emotional disorders. Various elements of sound influence separate parts of the brain. The body has its own rhythmic patterns and there is growing evidence that rhythms of the heart, brain, and other organs enjoy a special synchronicity. Illness can arise when these inner rhythms are disturbed.<sup>80</sup>

Dr. Alfred Tomatis, a French otolaryngologist who is considered by some to be the Einstein of sound, devoted his whole life to understanding the ear and the many dimensions of listening. He believed that sound is a nutrient for the nervous system, and that the ear should be considered differentiated skin, that actually the entire surface of the body perceives sound. He believes that the body *hears*. This takes place through the perception of vibration.<sup>81</sup> “In auditory function, the ear is an entity capable of perceiving and analyzing acoustic pressure. In precision and speed of operation it defies the possibilities of any laboratory machine, no matter how advanced.”<sup>82</sup>

The ear is the first organ to develop in the embryo.<sup>83</sup> During the nine months of fetal life the infant stores up the greater part of its human experiences, those which will weave the web of its post-natal existence. The fetus hears from four and a half months of prenatal life.<sup>84</sup>

Our research indicates that it perceives well before this moment and that it gathers numerous memories and establishes an outline of psychic life from its sensory experiences of communication within the womb. . . . Among these listening to the mother's voice remains the most fundamental perception. It constitutes the very basis of the desire to communicate.<sup>85</sup>

Preterm infants are high-risk patients who have more developed hearing than visual abilities, with an apparent linkage between auditory and visual activity. The premature infant has an intense need for sleep due to immaturity and lack of oxygen reaching the brain once the baby is born. The neonatal brain is vulnerable at birth and in need of an enriched environment to achieve normal sensory development. Since stress levels and low birth weight can negatively affect the premature infant, a stabilizing sound environment is needed to bring the baby to normal levels of breath and function.<sup>86</sup>

In a study conducted in the Neonatal Intensive Care Unit of a hospital in Utah, infants in the experimental group received a 4-day intervention with three 20-minute segments, consisting of three randomly ordered periods of male/female, singing/speaking, and NICU noise. The voices of three male baritones and three female mezzo-sopranos were prerecorded on audiotape at the Brigham Young University recording studio. Each singer recorded 20 minutes of sung lullabies and 20 minutes of spoken lullabies. Heart rate and oxygenation equipment were used for monitoring as the recorded music was played from speakers placed 3 to 5 inches behind the baby's head and cameras

videotaped their movements.

Singing lowered heart rate, increased oxygen saturation, and reduced distress behaviors. Infants responded equally to male and female voices. Compared to the control group, infants in the experimental group left the NICU 3 days earlier, and experienced significantly higher caloric intake and weight gain (  $p < .05$  ). Researchers concluded that male and female singing voices have positive physiological and behavioral effects on premature infants.<sup>87</sup>

### **TONING, HUMMING, AND CHANTING: THE EFFECTS OF SELF-PRODUCED SOUND**

*There will come a time when a diseased condition of the soul life will not be described as it is today by the psychologists, but it will be spoken of in musical terms, as one would speak, for instance, of a piano that was out of tune.*

*Rudolph Steiner*

In an address to a conference on integrative healing, Mitchell Gaynor, M.D. summarized his work on healing with sound. “Most people live their lives with worry, frustration, concern with the future and guilt about the past. This is a form of disharmony. Disharmony is another way of saying disease.”<sup>88</sup>

Disease, he stated, manifests in the form of disharmony. It may be a disharmony of cells not knowing when to stop dividing, such as in cancer. Or it may be a disharmony of the endocrine system, such as in chronic stress or depression. In this case the system pours out stress hormones that affect brain waves and cell differentiation. It is naïve to believe that we can live our whole lives with worry and frustration every day without having a manifestation at some point. The real challenge, and our mission in life, he

states, is to create harmony out of disharmony. “When you can do that, you have attained a sense of real power. There is a Greek saying, ‘The hidden harmony overcomes all manifestation.’<sup>89</sup>”

“The human voice is the most powerful tool ever discovered for self-healing,” Gaynor states. Our voice is intimately linked to our breath. It is audible breath, and learning to use your voice through chanting and toning enables you to make profound leaps in your own transformation.<sup>90</sup>

It is important to consider the effects of sounds on the human body, mind, and spirit. Hearing is the first sense to become operational; it develops 4.5 months before a baby is born. The ability to feel vibration occurs before that because you feel with every developing cell. The human body is 70% water, an incredibly good conductive material for vibration. Chanting, toning, and listening to singing bowls is heard by your ears, but is also felt by every cell in your body. You can look at the body as a vessel to receive and emit vibration.<sup>91</sup>

In France, Fabien Maman, a composer and bio-energeticist, further explored and documented the influence of sound waves on the cells of the body. He was fascinated with energetic healing techniques, and wondered if we are really touched or even changed by music, and if so, how deeply does sound travel into our bodies. He began a year-and-a-half study with Helene Grimal, an ex-nun who left the convent to become a drummer, and supported herself as a biologist at the French National Center for Biological Research in Paris. Together they studied the effect of low volume sound (30-40 decibels) on human cells.<sup>92</sup>

They met in a laboratory at the University of Jussieu in Paris from midnight to 5 a.m., when the Paris subway stopped for the night, so its vibration would not affect the vibration of the sounds they produced around the cells. The goal of these experiments was to observe the effect of sound in the nucleus and electromagnetic fields of human cells, both healthy blood cells and hemoglobin, as well as cancer cells, under a microscope as they sounded different acoustical instruments or voice.<sup>93</sup>

In the first experiments a camera mounted on a microscope where they had placed slides of human uterine cancer cells photographed the inside structure of each cell as it reacted to the sounds produced. The photographic results show cells from uterine cancer tissue exposed to different ranges of sound coming from acoustic instruments and the human voice.<sup>94</sup>

In the second group of experiments electrophotography (Kirlian photography) was utilized to record changes in the electromagnetic fields of the cells as they received the sounds. The photographs in this experiment revealed the changes in the aura of the cells.

They proceeded to play various acoustical instruments (guitar, gong, xylophone) for periods of twenty-minute duration. After fourteen minutes playing the Ionian Scale (nine musical notes C-D-E-F-G-A-B and C and D from the next octave above) the structure quickly disorganized. Fourteen minutes was enough time to explode the cell when nine different frequencies were used. The most dramatic influence on the cells came from the human voice when Maman sang the same scale into the cells. In this experiment the cancer cells experienced a total explosion within nine minutes. “The

human voice carries something in its vibration that makes it more powerful than any musical instrument: consciousness.... It appeared that the cancer cells were not able to support a progressive accumulation of vibratory frequencies and were destroyed.”<sup>95</sup>

In Webster’s dictionary, one of the definitions of ‘healing’ is ‘To create sound.’

Gregg Braden, in his book, *The Isaiah Effect*, documents another example of the power of the voice in healing. In a “medicineless hospital” of Huaxia Zhineng Qigong Clinic and Training Center in Qinhuangdao, China, a nurse practitioner moves an ultrasound wand across the taut, smooth surface of a woman’s stomach. She is fully awake and conscious, not anesthetized, lying on her back on a treatment table in a clinical setting. Behind the patient three male practitioners dressed in white medical jackets stand only inches from her side. The men appear to be very focused as one of them begins a motion with his hands, silently moving them through the air above the woman’s face and chest.<sup>96</sup>

The cancerous form begins to quiver, as if responding to some unseen force. As the movement continued, with the image clearly focused on the video screen, the entire mass begins to fade from view. Within seconds the tumor appeared to melt. In two minutes and forty-five seconds, the tumor was gone. The patient, still awake and conscious, appeared to be relieved by what she heard in the room. The nurse and three men conferred among themselves, agreeing that the process had been successful.<sup>97</sup> This video of the effect of sound on tissues and organs was viewed by Gregg Braden and is included in his presentation to audiences around the world.

Alfred Tomatis, M.D., a French physician was consulted to determine the resultant malaise of monks in a French monastery when chanting was eliminated from the daily routine. A return to the practice of daily chanting restored their energy. He stated that Gregorian chanting, which emphasizes elongated tones, directly affected the cortex of the brain, increasing awareness and charging the brain.<sup>98</sup> Toning, he proposed, is a mechanism that involves high frequency stimulation of the brain. He described a model in which the “ciliform cells of the Corti are much more densely packed in the part of the basilar membrane reserved for the perception of high frequencies. . . . so that energy toward the cortex is much more intense when it comes from the zone of the high frequencies than when it emanates from the part reserved for the low frequencies.”<sup>99</sup>

Toning, or chanting, has been applied as one of the more esoteric forms of sound-based therapies. The traditional Gregorian chant for 8 hours a day still continues. These monks sustain a legendary work schedule that consists of arising at 5 a.m., with the only interruption of manual labor being mealtime and 8 hours of Gregorian chant. This type of chant does not have a meter; thus, the timing is based on the human breath. The controlled exhalation necessary for the tone slows down respiration, heartbeat, and blood pressure of those who are chanting. Therefore, eight times a day the monks experience a form of respiratory yoga. Others listening to the monks unconsciously alter their rate of breathing as well. The traditional Gregorian chant with traditional church architecture creates a sound rich in overtones ranging in frequencies from 2,000 to 4,000 Hz. Tomatis hypothesized that a charge to the cortex is created by the chant, thereby increasing energy levels, concentration, and alertness. Documented clinical reports of toning include responses of excitation, release of emotional trauma and physical discomfort, at the same time instilling mental unity and spiritual love.<sup>100</sup>

Activation of deep breathing is one of the proposed mechanisms accounting for the healthful benefits of toning, according to Rider. Deep breathing has been found to activate the parasympathetic nervous system and terminate the hyperventilated syndrome

and is central to many relaxation strategies. In clinical studies, improved pulmonary functioning has resulted from the reduced hyperventilation of asthmatics due to wind instrument playing.<sup>101</sup>

Rider makes a distinction between toning and singing by stating that one of the conceptual differences may be the more prolific use of vowels and melody in toning, compared with consonants and rhythm in singing. Singing activities have been found to facilitate expressive language in speech language delayed children, in those with cleft palate disorders, and in aphasics. “It is very likely that rhythm was the predominant element accounting for the acquisition of language through these procedures.” Musical performance, including singing, has also led to increased social development in the mentally retarded.<sup>102</sup>

Toning is the use of vocal sounds to restore vibratory patterns of the body within a perfect electro-magnetic field, thereby enabling the body and all of its parts to function in harmony.<sup>103</sup> It is the conscious elongation of a sound by using the breath and voice, no matter what the pitch or quality.<sup>104</sup> Toning is the use of personal vocal sound to change a particular state of the body. The vocal sounds are made by the individual making the change. The focus of toning is to attend to the state of the body.<sup>105</sup>

Toning is a technique in which the voice is used as a therapeutic tool for healing and revitalization. Toning is different from singing in that it consists of sustained vowel sounds on individual pitches with fewer consonants and textual material than singing of familiar songs. Chanting sustained, repeated vowel sounds for resonance of specific body organs is an ancient art practiced by various cultures, which purportedly promotes internal awareness and increases concentration.<sup>106</sup> The breath is deepened, the vibration

can regulate blood flow and increased oxygenation, and gland secretions may be increased or decreased. “The method requires total involvement and concentration with the process, a commitment of will, conscious awareness of breath, a heightened awareness of hearing, and a highly sensitized internal feedback system.”<sup>107</sup>

The process of toning involves producing musical and non-musical sounds with the intention of freeing the “body voice” to work with vocal resonance.<sup>108</sup> Laurel Keyes discusses the body-voice at length, adding that the voice “is dominated by intellectual direction and is allowed to express only as the mind dictates”.<sup>109</sup> She advocates freeing the voice from mental constraints in the same way that a groan, sign, or laughter emerges “unhindered by the mind”.<sup>110</sup>

Margaret Deak, in her thesis, states that toning also brings increased understanding of self through body awareness and may lead to a creative venue of self-expression. Important messages from the body assist the individual to gain access to the various parts of him/herself, what sounds and music are contained with the body parts, and how the various parts relate to one another. Producing a tone requires the self to integrate all of its life forces, while resonating with the tone penetrates blockages and liberates the life forces.<sup>111</sup>

Freeing the body-voice is allowing the self free vocal expression without initial mental direction other than to allow the sounds to emerge. This state of vocal freedom has been found by this writer to be a prerequisite to working with vocal resonance, because it relieves tension, which, in turn, increases vocal resonance. Toning has energizing, calming, cathartic, and pain reducing features.<sup>112</sup>

When the voice is free to explore vocal tones, the individual can begin to experience resonance within and around the body. Vocal resonance and its physiological effects are fuel for future research.<sup>113</sup>

Deak states that making vocal sounds is a natural, innate, tendency, which is frequently pleasant, and these sounds are tonal in nature. Herein lie the roots of toning. For over eight years she used toning as the impetus to make adjustments to her present state of being in order to reach a state of balance and homeostasis. “The attention is placed on the physical self and adjustments are made through the vocal mechanism.” Attention to the breath and sounding of the breath focused attention on areas of tension and holding which were released through sustaining a sound. She found that raising and lowering pitch could alter energy levels, sustained resonance reduced pain, and toning increased vocal range and creative expression.<sup>114</sup> Her research findings as a music therapist indicated that there is a measurable vibration which radiates from the vocal apparatus and impacts the person who tones internally, through resonance and bone-conducted hearing, and externally, by way of the external auditory canal. This measurable vibratory effect may affect the human cellular structure. Although pre-music, sustained vocal sound may affect the limbic system, as does music.<sup>115</sup>

Deak cites the work of work of G. Von Bekesy in *Experiments in Hearing*, stating that his experiments demonstrated that self-produced vocal sound does produce measurable vibrations over a major portion of the body.<sup>116</sup>

Von Bekesy’s (1960) experiments in bone conduction provide further information of how vocal sound affects the body. He found that the skull vibrates like a ‘rigid body.’ With low frequencies, the bones of the skull show ‘simple parallel movements in the same direction.’ As the frequency increases to the ‘resonance frequency’, the forehead and back of the skull vibrate equally in opposing directions. Above the resonance frequency, the vibratory pattern returned to the forehead. For a male with a 30 cm head circumference, the resonance frequency was 1800 Hz.<sup>117</sup>

To find out about the radiation of sound during vocalization, von Bekesy measured the sound pressure near the mouth and head. He states that the 'vibrations from the vocal cords are distributed over the whole body'. He measured the dampening effects with curves of equal amplitude, and found that with a low frequency (100 Hz) the vibrations could be measured from the root of the nose to the navel and out to the shoulders.<sup>118</sup>

Self-produced vocal sound travels the auditory pathway to the brain. The production of the sound, its perceptions, and the neural stimulation caused by the sound all have a physical, mental, and emotional impact on the human organism. "Vocal sound impacts the listener; it is important to consider the impact of hearing one's self-produced sounds."<sup>119</sup>

Self-produced vocal sound creates vibrations that are felt as tactile sensations in the chest and head. The sound waves travel through bone to the inner ear where they are transformed into electrical signals and then sent to the brain cortex. The sound waves also travel through the air and enter the ear; here the speaker also becomes the listener.<sup>120</sup> Toning can produce a relaxing effect on the body; Deak cites the work of two authors in stating:

Methodically speaking, relaxation is associated with the decline in tension which is effected when pitches are lower. By humming a melody an agitated, hyperactive person can create his or her own sense of calm through the vibratory effect of the music as well as the emotional gratification it affords.<sup>121</sup>

Researchers at the Karolinska Hospital in Sweden discovered that humming increases ventilation in the paranasal sinus cavities. Humming creates a vibration along the roof of the mouth and in the nasal cavity and sinuses. Sinuses are major producers of nitric oxide, which helps dilate capillary beds and increase blood flow. Researchers

found that nitrous oxide levels were 15 times higher during breathing than during humming. During humming the gas exchange between the nasal passages and the sinuses was 98 percent during just one exhalation, almost a complete exchange. During normal exhalation, without humming, the gas exchange rate was only 4 percent. Poor gas exchange and poor circulation in the sinus cavities promote the perfect environment for bacterial growth and infections. This simple sound vibration can have a profound effect on the exchange of gases and circulation in the upper respiratory tract, as well as increasing mental clarity during the humming of mantras. They recommend humming several times a day.<sup>122</sup>

Arden Mahlberg, Ph.D. is a psychologist in Madison, Wisconsin, and the Director of the Integral Psychology Center. He has published in the areas of archetypes and morphic resonance, Jungian personality type theory, and the resolution of somatic conflicts. In his practice he has for several years used the humming sound as an image for meditation with clients who are working to establish a stronger sense of identity from which to make personal changes. He found that with humming his patients were able to achieve calmness which facilitated a shift in their identity perspective and deepened their sense of self to strengthen the ego. He hypothesizes that the “M” sound is an auditory archetype, and the phonetic associations are where the archetypal presents itself.<sup>123</sup>

James Markham, a Transpersonal Counseling Psychologist and Music Therapist, presented his thesis on “The Effects of Elongated Vowel Singing (Toning) on Galvanic Skin Response and Skin Temperature” to the Naropa Institute. His study was conducted with 29 healthy adult participants with a balance of experienced and non-experienced toners in each group. The experimental group toned the vowel sound

“Ahhh” for 10 minutes, with physiological measures taken before, during, and after toning. In the control group a 10-minute period of deep abdominal breathing replaced the toning. Results showed a significant difference in galvanic skin temperature between toners and breathers, with toners increasing and breathers decreasing almost equally. Skin temperature increased for both toners and breathers, but not enough to be statistically significant. Both groups found the experience to be relaxing.<sup>124</sup>

Laurel Keyes recommended daily toning for at least 10 minutes to “tune” the body and bring oneness to our divided nature.<sup>125</sup> Relaxing the body in a standing position or sitting erect in a chair, she would begin with the “Ah” sound, letting the tongue lie in a relaxed manner, and then “Oh,” which begins to draw the lip muscles into form and tighten the control of the tongue. The “U” or oo-sound, as in *muse*, further controls the lips and raises the tongue. In the “E” sound, the tongue and breath are raised and all of the sound seems lifted from the throat to the head. “The ‘E’ sound is very powerful, especially if one consciously causes it to resonate in the upper part of the head.”<sup>126</sup> Certain sounds carry more power than others, according to Keyes. The “H” or “K” sounds, such as *Hi*, *Hah*, *Hoh*, *Hu*, *Kah*, and *Koo* appear to stimulate the glandular system. She recommends standing erect and in a very declarative manner, repeat “*Hi-Ho-Hu-Ha-Hi!*” to activate the energy field and lift depression. Other sounds considered to have an effect on the glands and organs are:<sup>127</sup>

<i>Ah</i> (as in hard)	Stimulates upper lungs
Deep <i>O</i> (as in home)	Stimulates lower lungs
<i>Ohm</i>	Stimulates heart
<i>OO</i> (as in broom)	Stimulates sex glands
<i>Ea</i> (as in head)	Stimulates thyroid, parathyroid, and throat
<i>Ee</i> (as in seed)	Stimulates pituitary and pineal glands, and head in general
<i>Rahm</i>	Toned from the solar plexus releases a sense of authority and power.
<i>Eh-He-Ah</i>	Toned softly is soothing and relaxing. drifting off in a sigh. <sup>128</sup>

Don Campbell states that practicing toning requires only the abandon of a childlike spirit, the willingness to begin to sound the vowels or tone the sounds that are natural to your body. He recommends beginning with sighs and groans, and not being concerned with musicality or words, which can get in the way.<sup>129</sup>

According to Don Campbell “in the most elemental and basic sense, each person is a musician, subconsciously conducting many system and organs within the body”. Entering into the initiation of sound, vibration, and mindfulness is taking a step toward knowing the soul.<sup>130</sup>

Toning can massage the body internally. Don Campbell believes that to sound the voice is to massage, oxygenate, and vibrate ourselves internally, from the inside out.

“Singing and speaking move the vibratory epicenters so quickly that there is no time for the body to balance itself with sound.”<sup>131</sup>

Toning can relieve pain, according to Laurel Keyes:

When one has a pain somewhere in the body one begins Toning as low as the voice can reach, and slowly raises the pitch, as a siren sound rises. One will find that *there is a Tone which resonates with the pain and relieves the tension. . . .* Every pain has its companion Tone and by pulsating the Tone softly for a time—so long as it feels good, 15 minutes or an hour—the pain will be relieved or eliminated. It is an escape valve for the pain because it is breaking up the tension which we label ‘pain’ and it brings new life energy to that place. It is an inner sonar massage. Think of toning as release.<sup>132</sup>

Toning can increase energy level, according to Deak:

Begin with deep sighs to release tension; allow the voice to sound a comfortably low pitch on the vowel sound “U”. Sustain the tone through several exhalations, and then very gradually, allow the pitch to rise. As the pitch moves upwards and the resonance is felt in different locations, e.g. shifts from abdomen to chest, change to the corresponding vowel sound, U - O - A - E - I. It is important to allow the tone to rise slowly, at its own rate.<sup>133</sup>

Toning can promote creativity. Deak cites the work of C. B. Kenny in *The Mythic Artery: The Magic of Music*. “Kenny suggests that when an individual taps into personal creativity the door is opened for such things as responsibility for self, freedom, action, and self-expression, self determination, and choices. These all feed into and are fed by creativity. She states:

Creativity exists in every individual and awaits only the proper conditions to be released and expressed. There are, in general, three conditions necessary for creativity to emerge:

- 1) lack of rigidity
- 2) an expressive situation and availability of tools for expression
- 3) spontaneous playing with patterns, shapes, sounds, colors, ideas, relationships.<sup>134</sup>

Deak states that initially, the intent in toning is to free the voice and use it to break through pain and tension. As the voice emerges, unfettered by physical and emotional dross, the person has a most expressive tool with which to explore the world of melody, timbre, and rhythm—to explore one’s own music.<sup>135</sup>

Hamel also admonished finding one’s own note, and states that in finding your own fundamental tone you should not regard as reliable the note-names as represented by the family piano.<sup>136</sup> This can be interpreted both literally and metaphorically. Your own personal fundamental note is contained within your harmonic series, and this is not dependent on “tuning” to an instrument. He states that the note C on an old, out-of-tune piano will often produce an A lying one and one half tones lower, and a violinist accustomed to a high concert pitch will regard C as too low.

It is very important at this point that the encounter with this ‘own voice’ can be an archetypal experience: you are *immediately* aware of it when you are singing your ‘own’ note! In many cases, after weeks of sensitizing practice, encountering your own note comes as a flash of light, or an inner quivering and shaking. . . . . It is an interesting fact, but you will never again lose that note, as long as you do not ‘lose yourself’, i.e., become irritable or aggressive or otherwise ‘out of tune’.<sup>137</sup>

A person who has found his 'own note', whatever its pitch, gradually becomes able to speak uninhibitedly and naturally, without strain, and yet clearly and distinctly, and above all, convincingly. . . . The most important result of these exercises is the fact of having come one step further in one's own self-realisation.<sup>138</sup>

## **ACUPUNCTURE AND THE CHAKRAS: CORELATIONS AND RELATIONSHIPS TO SOUND IN THE BODY**

*...tones and sounds will be the channel through which the coordinating  
of forces for the body may make for the first of perfect reactions . . .*

Edgar Cayce, Reading # 758-38

How do these findings further enhance our knowledge of how toning and sound affect the body and the individual? John Blacking, an ethnomusicologist, believes "that we ought to look for the relationship between patterns of human organization and patterns of sound produced as a result of organized interaction."<sup>139</sup>

That relationship can perhaps best be illustrated in Peter Hamel's description of the proportions of the human body that he associated with the inner organs, the physiological glands, and their "underlying chakras, which already must have been known, empirically at least, to the Mongolian shamans and the Tibetan lamas with their strange chants."<sup>140</sup> Hamel explored the correlations between music, body, and soul:

The original music ratios  $\frac{1}{2}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$ , etc. were discovered throughout nature. And it was one of the most important achievements of the astronomer and astrologer Johannes Kepler to show the correspondences between these intervals and the spacings of the planets. Kepler deduced from this that the musical proportions must be inborn in the human soul, a notion reminiscent of C. G. Jung's archetypes of the unconscious. Present-day study of these correspondences between man, the planetary cycles and note-relationships is a razor-edged path between intuition and exact science. Among other things, Thomas Michael Schmidt, who like Wilfried Kruger is pursuing this path, shows in his book *Music and Kosmos als Schopfungswunder*, the proportional correspondences in man himself.<sup>141</sup>

Hamel subdivided the body into measurements and detailed the correspondences between these measurements and their ratios to the monochord. He then correlated the proportions of the human body to the mathematical relationships between the planetary cycles.<sup>142</sup>

For every proportion of the human body that has a musical counterpart, a corresponding relationship between two or three planetary cycles can be demonstrated..... Thus the two supposedly unconnected worlds of sound and planetary motion also find in the human body a direct, visible expression. Here the links between man and the cosmos are the musical ratios, which thus represent in the truest sense of the term a principle of universal order.<sup>143</sup>

The correspondences between man's most important proportions and the world of sound are of prime relevance to the arrangement of the glands controlling the inner secretions and of the *chakras* that lie behind them.<sup>144</sup>

Hamel makes an analogy between the vowels and the natural harmonic series based on the rise and fall of sound, the vowel sung, and the mouth position that produces the vowel. The gradual transition from one vowel to another and the adjustment of the mouth position to elicit a guttural pressure and mental concentration creates the second voice, or 'overtone voice'. Tibetan lamas practice this type of chanting or toning in

particular. “There is thus a correspondence between the overtones, the mathematical ratios 2:1, 3:1, 4:1 and so on, and the vowel sequence U, O, A, E, I.<sup>145</sup>

Production of the overtones through the mouth-positions consequent upon particular vowels, and concentration on the body regions corresponding to those vowels, can permit, even for Western adepts, the tangible experience of an inner awakening of the psychic centers.<sup>146</sup>

The average resonance-frequencies for the vowels range from approximately 300 Hz. The ascending order of the vowels is U - O - A - E - I with the “U” at the 300 Hz level and the “I” at the upper end. Phonetically, these sounds are oo, ah, eh, ee.<sup>147</sup>

Hamel also found a “connection between the vowels and the natural harmonic series” and “a further correspondence between the individual vowels and the parts of the body” based on his experience with “various breathing schools, above all that of Professor Middendorf in Berlin” where “mutually confirmatory experiments have been carried out to determine which zones of the body can be ‘opened’ by which vowels”. Sounding the vowel E sound produces an outward ‘motion’, while O produces an inward one, and so on. The different correspondences between the vowels and the breath cavities are:<sup>148</sup>

Head cavity	I
Throat and upper chest (but also the sides)	E
Chest cavity (but also the body as a whole)	A
Abdomen (as far as the navel)	O
Pelvis and lower body	U

After correlating parts of the body with the harmonic series, it seemed reasonable to Hamel that the bodily proportions between their associated inner centers also reflected the harmonic series. The relationship between the basic vowels, the breath cavities and the associated psychic centers also has a bearing on the fact that the chakras are affected:<sup>149</sup>

Chakras are ‘awakened’ by the vocalic seed-syllables; the spacings of the overtones corresponding to inner-body cavities become smaller and smaller, to the point where countless micro-intervals are contained within the space on a single tone, just like the countless petals of the topmost lotus in the *sahasara* center.<sup>150</sup>

Because of the extended length of time we hold vowels in toning, we create especially strong internal vibrations of sound that wash through our organs and bones, stimulate the frontal lobes of the brain, and touch every cell of the body. In many non-Western traditions, Zen, for example, toning is believed to reestablish the original resonance of different organs. Working with the Indian system of mind/body healing, many toning practitioners use extended vowel sounds to cleanse the chakras (the wheel-like vortices of life energy that interpenetrate the physical body) and rebalance the body’s energy systems. Specific vowel sounds are believed by some to have particular resonance with certain organs or chakras. The sound “Ah”, for instance, is usually associated with the heart chakra.<sup>151</sup>

“In the past, the chakras and meridians have been largely ignored by Western scientists as magical constructs of unsophisticated and primitive Eastern thinkers. But the chakras, along with their acupuncture meridians, are now finding their eventual validation with the evolution of subtle energy technologies which can measure their existence and function.”<sup>152</sup>

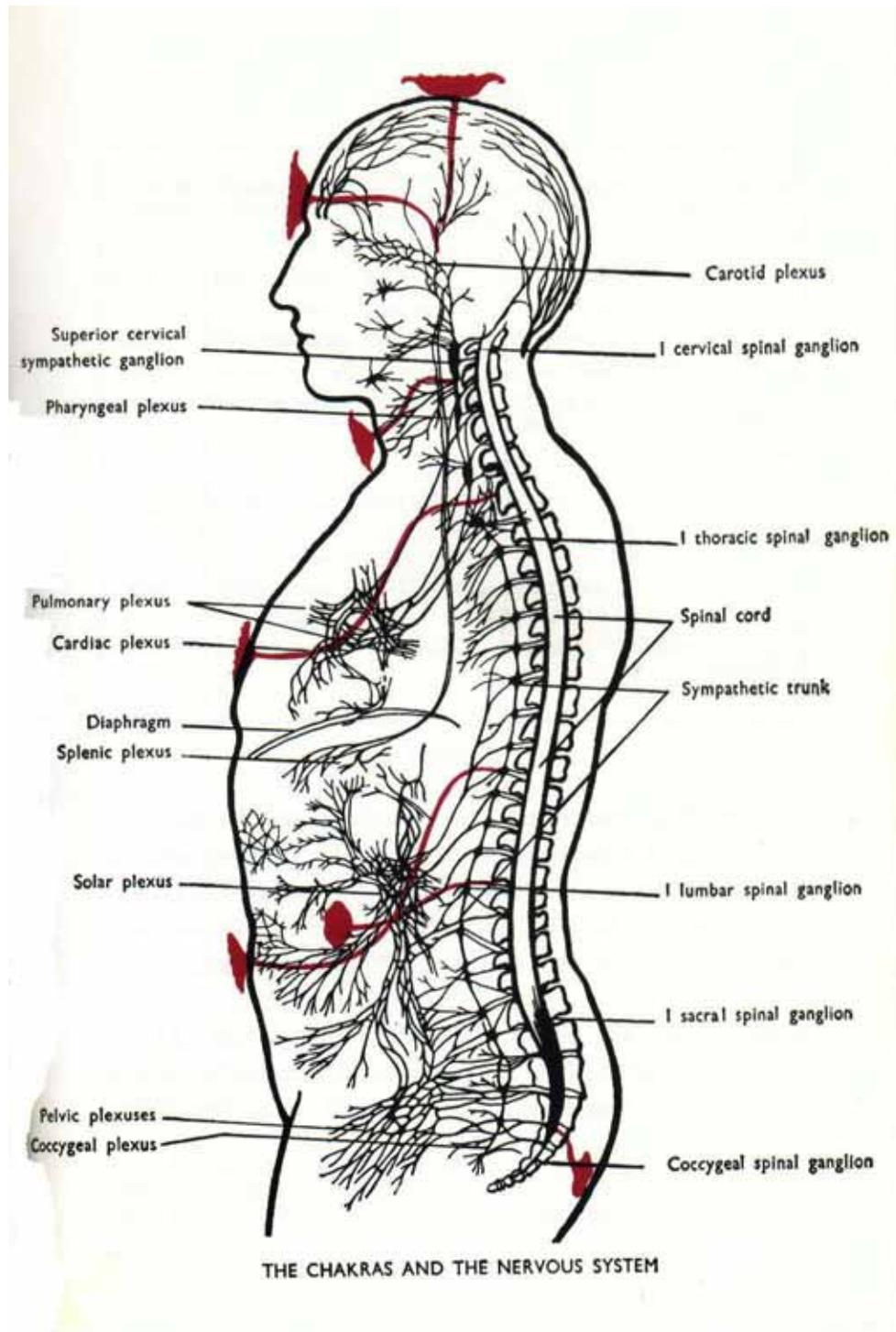
Anatomically, each major chakra is associated with a major nerve plexus and endocrine gland. Each of the seven major chakras is also reported to be associated with a particular type of perceptual functioning.<sup>153</sup> The chakras translate energy of a higher frequency or dimension into some type of glandular-hormonal output which subsequently affects the entire body. “There are corresponding energy centers in the higher frequency vehicles (i.e. the astral body). The primary chakras originate at the level of the etheric body.”<sup>154</sup> The chakras are connected to each other and to portions of the physical-cellular structure via fine subtle-energetic channels known as “nadis”.<sup>155</sup>

The nadis are formed by fine threads of subtle energetic matter. They are different from the meridians, which actually have a physical counterpart in the meridian duct system. The nadis represent an extensive network of fluid-like energies which parallel the bodily nerves in their abundance. In the Eastern yogic literature, the chakras have been metaphorically visualized as flowers. The nadis are symbolic of the petals and fine roots of the flowerlike chakras that distribute life-force and energy of each chakra into the physical body.<sup>156</sup>

The multidimensional anatomical aspects of the chakras and nadis are represented in Figure 1 on the following page, illustrating the locations of the seven chakras.<sup>157</sup>

The chakras represent our energy anatomical system. “Chakras are traditionally pictured as lotus blossoms, with varying numbers of petals, each inhabited by the energy affiliated with a sacred deity, with a characteristic color, sacred syllable, and animal symbol attached to it.”<sup>158</sup>

Figure 1 - The Seven Chakras & Autonomic Nerve Plexuses

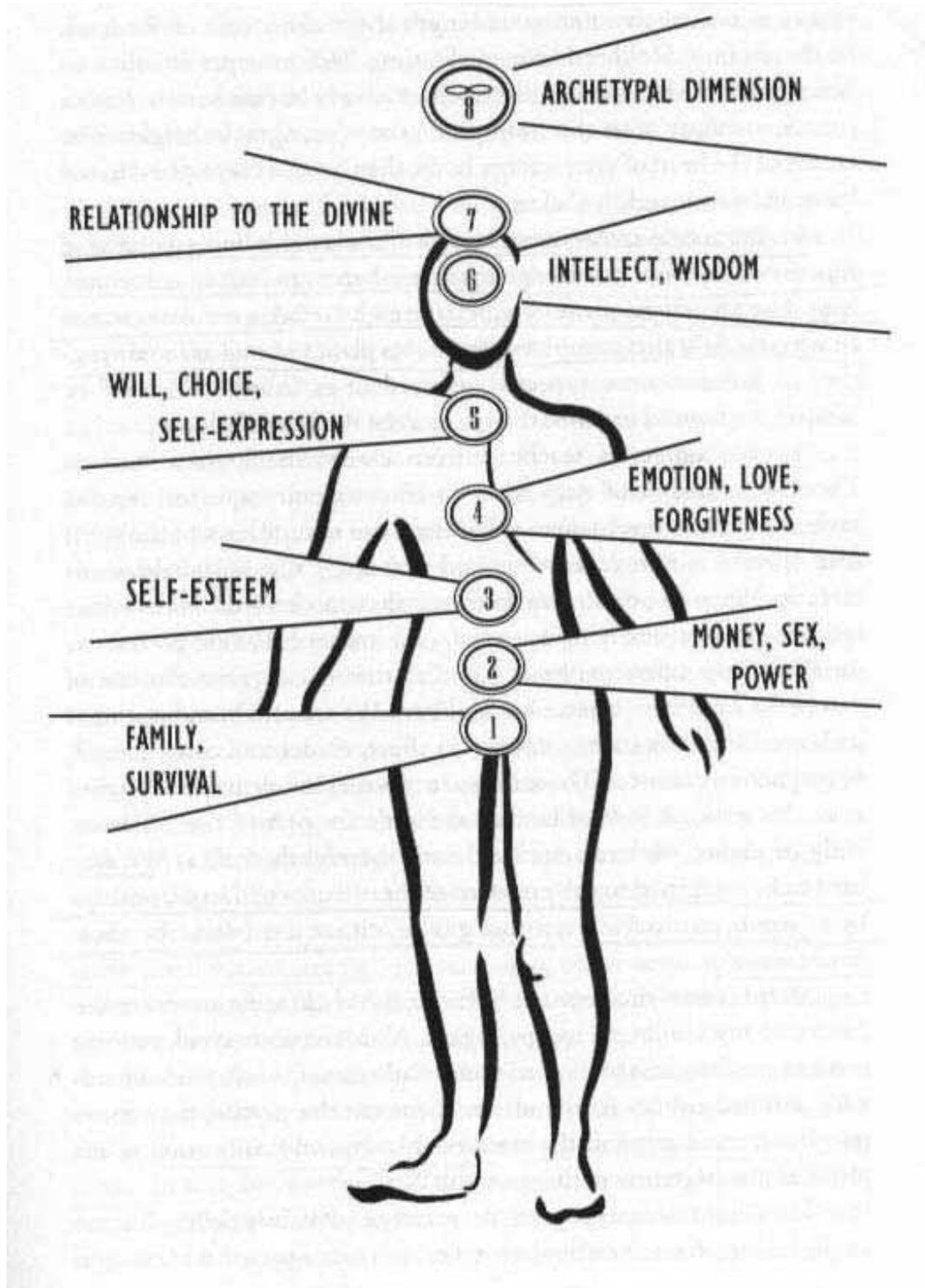


According to the spiritual systems of the East, the chakras ascend in a line from the first, or root, chakra at the base of the spine through the seventh chakra, just above the crown of the head. Between them, in ascending order, the other five chakras correspond to the genitals and lower intestine; solar plexus and navel; heart; throat; and pineal gland or “third eye”.<sup>159</sup>

“While the seven lower chakras are largely personal in nature, relaying information that reflects the physical, emotional, psychological, and spiritual details of our life, the eighth chakra is transpersonal.”<sup>160</sup> Unlike the seven chakras that are directly involved in the physical anatomy, the eighth chakra links the literal and symbolic dimensions, between the personal unconscious and the collective unconscious. The eighth chakra contains the archetypal patterns for an individual, and is said to hold patterns of experience and soul knowledge that are inherent in human consciousness. “The archetypal plane to which the eighth chakra connects acts as a magnetic field that organizes life on this planet as well as in our psyche.” Its influences are variously referred to as the natural order of things, or even the laws of physics.<sup>161</sup>

Figure 2 on the next page<sup>162</sup> illustrates the correspondences between the chakras and different parts of the body. The chakras are not material, and actually reside within subtle energy sheaths that surround the body, where physical and psychic energies interpenetrate each other. “These invisible but highly potent sheaths, or levels of psychic energy, are sometimes called the mental, emotional, etheric, and astral bodies, and they extend well beyond the physical dimensions of our frame.”<sup>163</sup>

**Figure 2: The Chakras and Their Correspondences to Physical and Psychic Energies**



In traditional Chinese medicine, it is believed that there is a life force or Qi (Chi') that comes into each of us through the breath and gives us our aliveness. Deeper breathing through expanding and relaxing the stomach increases energy and the feeling of alertness and aliveness. Breath is intimately connected to self-produced sounds.

The meridians are channels through which vital energy (Chi or Qi) flows to each body system. Meridians are a microtubular channel which carries a subtle nutritive energy (Chi') to the various organs, nerves, and blood vessels of the body.<sup>164</sup> Ancient acupuncturists intuited the meridians as they treated patients, and yogis discerned the meridians through meditation.<sup>165</sup>

The Chinese divide Qi or Chi', the vital force, into different categories, and consider it a shield surrounding the body, preventing environmental forces from affecting the inner channels.<sup>166</sup> The twelve meridians are the principal circuits for energy circulation.<sup>167</sup>

Meridian theory assumes that disorder within a meridian generates derangement in the pathway and creates a disharmony along that meridian, or that such derangement is a result of disharmony of the meridian's connecting organ.....Disharmonies in an organ may manifest themselves in corresponding meridians.....The goal of all treatment methods in Chinese medicine is to rebalance those aspects of the body's Yin and Yang whose harmonious proportion and movement have become disordered.<sup>168</sup>

The word meridian came from the French translation of the Chinese term 'Jing Luo'. Jing means "to go through," or a thread in a fabric. Luo translates as "something that connects or attaches," or a net. Meridians are the channels or pathways that carry Qi and blood through the body, comprising an invisible network linking together the

fundamental substances and organs. Because this meridian system unifies all parts of the body, it is essential for the maintenance of harmonious balance. The meridians connect the interior and exterior of the body, regulate the correspondences of Yin and Yang, moisten the tendons and bones, and benefit the joints. The basis for acupuncture theory is that working with points on the surface of the body will affect what goes on inside the body because it affects the activity of substances that are traveling through the meridians.<sup>169</sup> It is essential in traditional Chinese medicine to keep the Qi or Chi' flowing through the meridians to maintain health.<sup>170</sup>

Acupuncture is the oldest known form of energetic medicine. Amazingly, there is more valid scientific proof of its effectiveness than any other nonconventional therapy. Acupuncture may be considered the foundation for an understanding of electromagnetic principles in healing.<sup>171</sup>

Dr. Robert Becker, exploring the body's semiconductive capabilities, demonstrated that the tissues around nerves were such semiconductors. He postulated that acupuncture points were areas of amplifier boosters built along transmission cables to propagate electrical signals.<sup>172</sup>

Dr. William Tiller, Stanford University professor of materials science, postulates there is a magnetic field above acupuncture channels that creates a battery-like effect or acupuncture points with increased electrical conductivity. This battery would then represent part of a complex electrical system emanating from individual organs. Ukrainian nuclear physicists postulate such a vector system. For instance, heart DNA cells resonate at 52 to 78 billion cycles per second and radiate a vector along specific pathways (meridians) to the tips of fingers or toes, with a resonating circuit back to the organ. Dr. Hans Popp, a German scientist, believes there are many charged oscillators in the body that send out a variety of electromagnetic waves, some of which are emitted from the body. Dr. Nordstrom, a Swedish physician, postulates that living electrical circuits travel in the facial tissue around blood vessels, as well as interconnecting with the electrical circuits of nerves.<sup>173</sup>

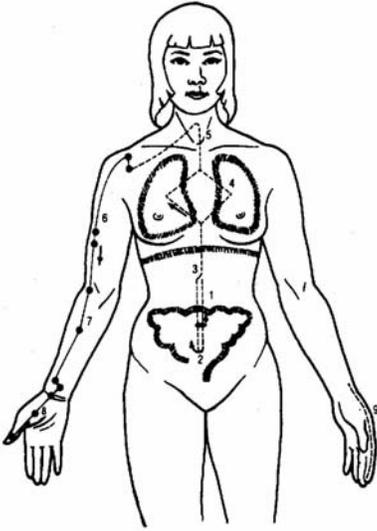
Meridians flow along the surface of the body and through internal organs, and each meridian is given the name of the organ through which it flows, such as “Liver” or “Large Intestine.” Organs can be accessed for treatment through their specific meridians, and illness can occur when there is blockage of Qi or chi’ in these channels.<sup>174</sup>

Figure 3 on the following page illustrates the location of the lung meridian and the large intestine meridian and their access points located on the fingers.<sup>175</sup> Figure 4 on page 61 illustrates the location of the bladder and stomach meridians and their access points located on the feet.<sup>176</sup> The solid lines are meridian surfaces on the body, the broken lines are meridians inside the body.<sup>177</sup> All of the meridians are assumed to have bilateral symmetry, even though only one side of the body is shown. “Representation of the internal organs is for the convenience of the modern reader. In the traditional system the Chinese would not be concerned with this type of anatomy.”<sup>178</sup>

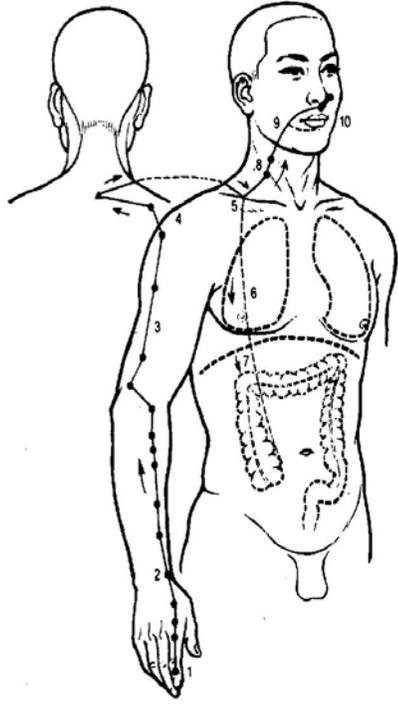
It is well known in naturopathy and acupuncture that all the human organs and parts of the body are ‘present’ or represented in the foot, i.e., that given zones or points in the foot correspond to particular parts of the body. The mantric exercise already mentioned that places the seed-syllables and letters in the feet is based on the same knowledge. The hands, too, have just such a correspondence with the body’s breath regions.<sup>179</sup>

These correspondences will be further discussed in Chapter 3, in the Measurements Section. The diagrams in Figures 3 and 4 on the following pages are presented to illustrate an example of the location of meridians and their access points on the fingers and toes. The sequencing of points for the readings on the Asyra™ electrodermal instrument is presented in Table 3 on page 82, and an example of a reading is illustrated in Figure 8 on page 83.

**Figure 3: Diagram of Lung and Large Intestine Meridians and Location of Access Points on the Fingers**

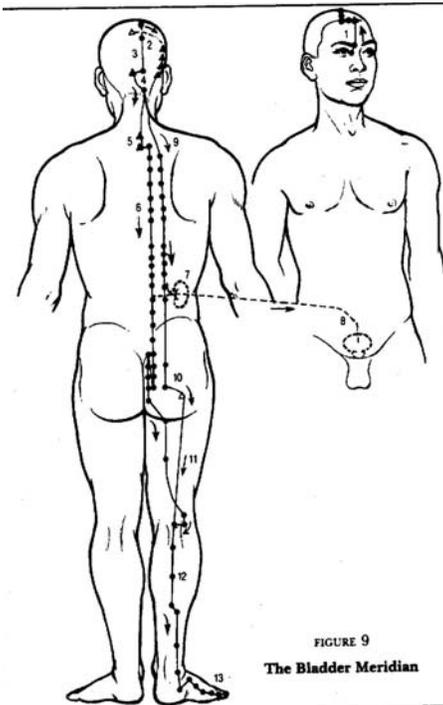


**Lung Meridian**  
 Access points:  
 Bilaterally on the lateral side of the thumb.  
 Dots are surface points of meridians, broken lines linear meridians inside body.

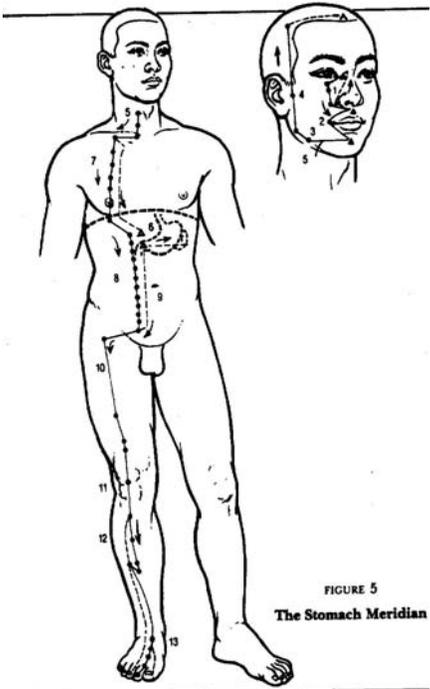


**Large Intestine Meridian**  
 Access points:  
 Bilaterally on the medial side of index finger. Dots are surface points of meridians, broken lines linear meridians

**Figure 4: Diagram of Bladder and Stomach Meridians  
Location of Access Points on the Feet**



**Bladder Meridian**  
Access points:  
Bilaterally on the lateral side of the tip of the small toe. Dots are surface points of meridians, broken lines linear meridians inside body



**Stomach Meridian**  
Access points:  
Bilaterally on the lateral side of the second toe. Dots are surface points of meridians, broken lines linear meridians inside body

Because the primary energies flowing through the meridians are of a subtle energetic nature, the electrical parameters of the acupoints provide the closest indirect information that is possible with our conventional level of instrumentation. Utilizing these new systems of diagnosis, we will be able to understand more about the mechanisms and benefits of many different types of subtle energy therapies which may be useful in treating human illnesses. It will be through the exploration of the physical-etheric interface, as provided by measurements of the acupuncture meridian system, that medicine will slowly evolve toward a more subtle energetic orientation of diagnosis and treatment.<sup>180</sup>

“Chinese medicine represents a different way of organizing information about health and disease, and is not concerned much with cause and effect, or the origin of disease. They speak of three categories as precipitating factors in illness or disharmony: environment, emotional outlook, and way of life.”<sup>181</sup> They feel an inappropriate life style can be both a generative factor of disharmony and a manifestation of disharmony itself. “Inappropriate life style accompanies disharmony; there is no beginning or end.”<sup>182</sup>

In Chinese medicine a distinct and separable cause is unimportant; the relationships within a pattern are crucial. Any one factor is another piece of the whole. The complete patient is treated for his or her unique configuration of signs and symptoms. The idea of causality is ultimately a means of identifying and qualifying the importance of relationships between environment, emotional character, personal life style, and health and illness.<sup>183</sup>

The relationships between sound and the energetic patterns in the body, as measured in the meridians, will continue to be explored in the following chapters. There

are twelve major meridians with the terminal or access points located on the fingers and toes. These access points are used as the source of measurement in this study for the electrical or energetic response of the body to sound, and are described in the research methods in Chapter 3.

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CHAPTER 2

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## CHAPTER 3

### RESEARCH METHODS

There are five categories discussed in Chapter 3. The subject demographic information is reviewed and summarized in Table 1. The design of the study outlines the Toning and Crystal Bowl Sound Conditions utilized to explore the effects of sound therapy in this study. The materials section describes the equipment used in this study, with illustrations of the instrumentation. The measurements of electrical response in the meridians, the access points, and the corresponding organs and glands are reviewed in the measurements section, and the hypothesis concludes this chapter.

#### **SUBJECTS**

Subjects ranged in age from 14 to 83, and included 35 females and 7 males. Subjects were primarily recruited from a health club in Tyler, Texas frequented by the Principal Investigator, participants in a newly organized local toning group, and their referrals. Participants also included residents in or near Fair Grove, Missouri, recruited through Holos University. Subjects were self-evaluated to be healthy, not pregnant, and not wearing a pacemaker or defibrillator. They were informed that this study evaluated the effects of sound on the body, as measured with an electronic electrodermal instrument, and included listening to the sounds of a crystal bowl and toning. Forty-two subjects completed testing in one visit, lasting approximately one hour, and all subjects participated in both conditions. Table 1 on page 70 illustrates subject demographics.

**Table 1 - Subject Demographics**

No. of Subjects	Average Age	No. of Females	No. of Males
42	52	35	7

**DESIGN**

The design was repeated measures, pretest posttest control, with each subject participating in each of two conditions. Each subject acted as their own control, with two pretest readings at five minute intervals on the acupuncture meridians taken on the Asyra™, a computerized electronic electrodermal instrument. The two pretest readings were averaged for a baseline means. Half of the subjects received Condition A before B, and half received Condition B before A to determine the effect of order. A posttest reading was taken on the Asyra™ immediately after each condition which lasted for 10 minutes. Each subject reviewed, signed, and received a copy of the Consent Form (Appendix B) prior to testing. Total time for testing each subject was approximately one hour, with the four readings and two conditions experienced during that hour.

- Condition A – Toning

Each subject sat on a stool provided for testing, with the Principal Investigator standing behind him or her, holding a Marcel Vogel crystal. For ten minutes the Principal Investigator toned into the subject’s back, in the chakra regions, beginning with the sacral area, as presented in Table 2

on page 72. The toning consisted of sounding the vowel related to the appropriate chakra on the corresponding musical note. The tip of the Marcel Vogel crystal was placed on the subject's back in the region of the chakra as each related note was sounded, beginning at the sacral area with "C" and concluding at the top of the head with "B". Each tone was sounded for approximately one and one-half minutes on the related chakra. At the completion of the 10 minute session the subject returned to a chair where a posttest reading on the access points for acupuncture meridians was taken on the Asyra™ and the numbers were stored in the computer. If toning preceded listening to the crystal bowl, the subject immediately went to Condition B, crystal bowl sounds. If toning were after the bowl, the subject left after the posttest reading.

- Condition B – Quartz Crystal Bowl

The subject reclined on a yoga mat and was comfortably situated with pillows and blankets. They were instructed to relax and nap if they wished while the Principal Investigator played a 10 inch quartz crystal bowl for ten minutes. The bowl was positioned approximately three feet from the subject's feet, with their head farthest from the bowl. The playing of the bowl began with the Principal Investigator tapping the outside rim of the bowl three times with a rubber ball at the end of a 10 inch wooden-handled mallet, and then rotating the mallet around the outside rim of the bowl in a clockwise direction, adjusting the speed and

point of contact on the bowl to achieve maximum sound and resonance. After ten minutes of bowl sounding, the subject returned was directed to a chair for the posttest reading on the Asyra™. The computerized reading was stored in the computer. If listening to the crystal bowl occurred before toning, the subject was asked to move to the stool for the toning condition. If listening to the bowl were the second condition experienced, the subject was free to depart after the posttest reading.

**Table 2**

**Chakra Correspondences in the Body and Related Sounds**

<b>Chakra</b>	<b>Correspondence in the Body</b>	<b>Note</b>	<b>Toning Sound</b>
1	(Root) Base of Spine	C	UH
2	(Sacral) Lower Back	D	OO
3	(Solar Plexus) Waist	E	OH
4	(Heart) Mid-back	F	AH
5	(Throat) Back of Neck	G	I
6	(3 <sup>rd</sup> Eye) Back of Head	A	AY
7	(Crown) Top of Head	B	EE

## **MATERIALS**

### **Asyra™**

The Asyra™ system is a computerized electronic electrodermal instrument that measures the energetic response of the acupuncture meridians (microtubular channels which carry subtle nutritive energy called “chi” to the various organs, nerves and blood vessels of the body). The Asyra™ system outputs two permanent filters (frequencies) that link all of the body’s meridians and stabilizes the data access points located on the fingers and toes. The result is an interconnected network linking the internal body systems to the data access points, creating a type of holographic stress map of the body.

The frequency filters are designed to stress the body with certain conditions. If the body can maintain homeostasis, the reading will stay in the green zone; however, if any energetic component, cellular component, tissue, organ or system responds adversely—indicating an existing or underlying problem—an imbalanced reading (above 55 or below 45) will result.

Introducing a low voltage electrical charge into the body and then measuring the electrical conductance of the skin can locate acupuncture points. The acupuncture points, or homeopathic acupuncture points, are more conductive (have less electrical resistance) than the surrounding tissue. The Asyra™ is an instrument for meridian stress assessment, is non-invasive, with no known dangers, and used as a diagnostic tool to determine energy imbalances in the body. The energetic response of the body to the introduction of various stimuli is used to determine appropriate homeopathic remedies for various conditions. An illustration of the instrument is presented in Figure 5 on page 79.

## **Quartz Crystal Bowl**

A 10” quartz crystal bowl tuned to the musical note “F”, corresponding metaphysically to the heart chakra frequency, was used for testing in condition B. A yellow rubber mallet measuring approximately 1 and ½ inches in diameter, with a 6 inch wooden handle was used for playing the bowl. This high energy, multi-use bowl made of 99.8% silicon quartz, a medium of intense energy for growing crystal silicon chips in the high tech industry. Information from the manufacturer indicates that quartz crystal as a holographic light template is able to hold, transmit, and receive thought forms and is fundamental to the “mother boards” of all computers. Pure silicon crystal is also used in most advanced telecommunications systems and in watches because of its accuracy in timekeeping. The tone of the crystal bowls produces a vibrational sound field, which resonates the light body chakra and corresponding physical area. Pure quartz contains the full spectrum of light that is related to seven energy centers (chakras) is used as a therapeutic tool for the listener by bringing pure light through sound as specific color into the human aura. Crystal acts as an oscillator, magnifying and transmitting pure tone,<sup>1</sup> and physically is known to receive, transmit, and store electromagnetic energy. This is the result of its piezoelectric qualities. Human bone, tendon, and muscles, and intestines are also piezoelectric. It is easier for them to resonate with quartz because they share the same properties.

Crystal bowls create a pure waveform, a sine wave that carries through physical objects. The human body contains millions of crystals. Our bones are made of a combination of collagen, which is a protein in the form of a double intertwined helix.

This forms the framework for a type of calcium phosphate crystal called “apatite” crystals.<sup>2</sup> Robert Becker, an orthopedic surgeon and researcher, looked for a direct test of semi conduction in living tissues to study how bone fractures heal. He states that “the electron microscope shows that the association between collagen and apatite is highly ordered, right down to the molecular level, and that . . . . this intricacy continues at higher levels of organization.”<sup>3</sup>

Renee Brodie, author of *The Healing Tones of Crystal Bowls*, writes:

Apatite crystals exist throughout the body, throughout the skull, and in our teeth. As with all crystals, there is a certain resonance potential. When we work with crystals and sound, such as the quartz crystal bowls, we believe there is a resonance, a harmonization, an integration process that goes on between the external and internal vibration. The resonance vibrates the body cavities. (It) vibrates the crystals and affects the crystalline structure of our bones as well. It is this vibration, which has a great effect on the spine (a powerful sound resonator) diffusing along the nerve pathways to the organs, and the effects touch systems, tissues, and cells, in turn affecting blood circulation, metabolism, endocrine and chakra balance, cleansing the auric field, and also balancing the hemispheres of the brain .<sup>4</sup>

Researchers Norman Mikesell and Marcel Vogel found that there is such a thing as liquid crystal in biological organisms. According to Renee Brodie, they found that healthy tissue in the body is more liquid crystalline in nature than fluid. It has more of an organized crystalline structure than non-healthy tissue. “Somehow in the decay, destruction or disease process the level of atomic organization is broken down.”<sup>5</sup>

As Gerber points out, the crystalline structure will respond in unique and precise ways to a spectrum of energies, including sound. Quartz crystal bowls vibrate at frequencies that produce powerful sound waves, and these sounds are the energetic manifestation of the crystalline structure of the bowls themselves.<sup>6</sup>

Thus, the bowl sound may resonate in a uniquely harmonious fashion with the human body, since, as Marcel Vogel says, our healthy human tissues are more crystalline than fluid in nature. Moreover, the framework partly comprised of calcium phosphate crystal. All these crystals must have a ‘resonation potential,’ and no doubt the sounds produced by quartz crystal are more harmoniously in tune with our own crystalline structures than sounds emitted by other bowls or instruments.<sup>7</sup>

### **Marcel Vogel Crystal**

A Marcel Vogel crystal is used in the toning Condition A. According to Richard Gerber, M.D., the key concept presented by Dr. Vogel is that the quartz is capable of amplifying and directing the natural energies of the healer. The subtle energies of the healer’s field are reported to become more focused and coherent in a manner similar to laser. Energy transference occurs partly because of a resonance effect between the quartz crystal and those cellular crystal systems with quartz-like properties.<sup>8</sup> The crystal is used to augment and amplify the toning. The crystal is a cylindrical shape, with two points, and measures approximately 12.5 cm. in length and 6 cm. in diameter at the widest point.

### **Measurements**

The Asyra™ computerized software program measures the energetic response to the low voltage electrical charge and converts the response to a number between 1 and 100, with the average reading for balanced energy being in the 45 to 55 range. The computerized program illustrates and can print each reading, with the balanced response (45 – 55) of an organ or system indicated by a green block next to the number. The stressed or excess energy responses (above 55) appear with a red block next to the

number. The weakened (below 45) organ or system appear as a yellow block next to the number. An example of a reading is presented in Figure 8 on page 83.

Readings are obtained by pressing a contact probe to the two access points located on each finger and toe, just above and to the outside edge of the nail, approximately .2 to .4 cm above the cuticle. The subject holds a cylindrical brass rod in the opposite hand from which the reading is being taken, and in either hand for readings on the feet. As the access points are pressed, the system analyzes the energetic response appearing on the computer screen in the designated space for each meridian. A total of 40 points are measured in each reading.

Figure 6 on page 80 is an illustration of the location of the access points on the hand, in proximity to the fingernail. Figure 7 on page 81 is an example of the Asyra™ method for obtaining measurements. Figure 8 on page 83 illustrates an actual computerized Baseline 1 reading for a participant. Table 3 on page 82 is an example of the total reading for each of the dependent variables and the numbers that are entered into the SPSS software. Measurements begin with the right hand, then left hand, right foot, and left foot, in that order. The process begins with readings on the thumb of the right hand, moving to the index finger, then outwardly toward and ending with the little finger. The left hand is next, in the same order, beginning with the medial side of the thumb, moving outwardly and ending with the lateral side of the little finger. The right foot is next, starting with the big toe and moving to the small toe, and then the left foot, in the same order.

- Two baseline readings on 40 points each were taken at five-minute intervals before testing. The numbers were added and divided by 80 to determine the mean baseline. The means is computed by SPSS software. The totals for 40 points on each hand and each foot into were entered into SPSS software after each reading. Table 4 on page 87 illustrates the reading totals for all 42 subjects.
- A reading was taken on each subject immediately following the A and B conditions. Each of these conditions lasted for ten minutes. Half of the subjects received Condition A before B, and half received Condition B before A.
- A total of four computerized readings were taken on each subject. The Principal Investigator performed all the readings. The time required for each reading was approximately five to ten minutes. The total testing time per subject required approximately one hour.

### **Hypothesis**

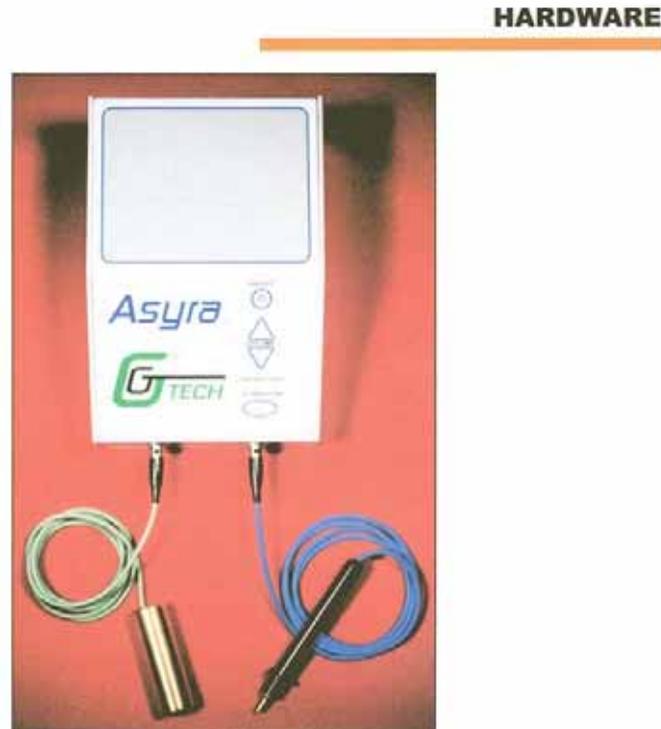
Toning or crystal bowl sounds or both will change the energetic balance of the acupuncture meridians on the average in relation to the baseline means, as measured by the Asyra™.

The hypothesis for Condition A: There will be an increase in the average energetic reading of the acupuncture meridians compared to baseline means.

The hypothesis for Condition B: There will be a decrease in the average energetic reading of the acupuncture meridians compared to the baseline means.

**Figure 5**

**The Asyra™ Electronic Electrodermal Instrument**



The Asyra™ refers to “the physician or healer who utilizes resonance analysis.” The first three letters (Asy) come from an ancient word that means “physician” or “healer”. The letters (ra) stand for “resonance analysis”, which is the methodology utilized for the filter applications and for scanning.

From Asyra™ Manual  
By Mark Galloway  
G Tech  
3736 Panarama Dr.  
Saratoga Springs, UT 84043-3247

**Figure 6**

**Position of Access Points on Fingers**



From the Asyra™ Manual  
By Mark Galloway  
G Tech  
3736 Panarama Dr.  
Saratoga Springs, UT 84043

Figure 7

Asyra™ Method for Obtaining Measurements

**POINTS**



These photos illustrate examples of the proper way to hold the probe, correct measurement angle, and approximate location of data access points.

Press with continuous and very slightly increasing pressure while taking readings. This may be uncomfortable for the client, but it is essential that firm, consistent contact be maintained.

If firm, constant pressure is maintained, the point reading displayed on the graph will level off by itself.

You can tell that you are using an appropriate amount of pressure at the correct angle if you see a complete, circular indentation in the skin where you have just taken a reading.

If the indentation looks like a half-circle or crescent, you are using the incorrect angle. If the circle is barely visible—or not visible at all—you are not using adequate pressure.



**Table 3**  
**Example of Baseline 1 Reading and Meridian Access Points**

10	RH-LY	50	Right hand – lymph meridian – access point thumb – medial side
10	Rh-LU	78	Right hand – lung meridian – access point thumb – lateral side
10	Rh-LI	41	Right hand – large intestine meridian – access point index finger – medial
10	Rh-NE	39	Right hand – nervous system – access point index finger – lateral side
10	Rh-CI	57	Right hand – circulation – access point third (middle) finger – medial side
10	Rh-AL	58	Right hand – allergies – access point third (middle) finger – lateral side
10	Rh-Or	64	Right hand – organ/cellular metabolism – access pt – ring finger - medial
10	Rh-TW	68	Right hand - endocrine system – access pt – ring finger – lateral side
10	Rh-HE	67	Right hand – heart meridian – access point – small finger – medial side
10	Rh-SI	76	Right hand – small intestine meridian – access pt – small finger – lateral
	<b>Total</b>	<b>598</b>	<b>Total of 598, the sum of Baseline 1 readings from 10 access points on the right hand, entered on Table 4 in row 11, column B</b>
10	Lh-LY	67	Left hand – lymph system meridian – access point thumb – medial side
10	Lh-LU	68	Left hand – lung meridian – access point thumb – lateral side
10	Lh-LI	45	Left hand – large intestine meridian – access point index finger –medial
10	Lh-NE	47	Left hand – nervous system – access point index finger – lateral side
10	Lh-CI	74	Left hand – circulation - access point third (middle) finger – medial side
10	Lh-AL	50	Left hand – allergies - access point third (middle) finger – lateral side
10	Lh-OR	45	Left hand - organ/cellular metabolism – fourth (ring) finger – medial side
10	Lh-TW	68	Left hand - endocrine meridian – fourth (ring) finger – lateral side
10	Lh-HE	64	Left hand - heart meridian – small finger – medial side
10	Lh-SI	55	Left hand - small intestine meridian – small finger – lateral side
	<b>Total</b>	<b>583</b>	<b>Total of 583, sum for Baseline 1 readings from 10 access points on the left hand, entered on Table 4 in row 11, column C</b>
10	Rf-PA	77	Right foot – pancreas meridian – large toe access point - medial side
10	Rf-LV	87	Right foot – liver meridian - large toe access point - lateral side
10	Rf-JO	77	Right foot – joints - second toe access point - medial side
10	Rf-ST	87	Right foot – stomach meridian - second toe access point – lateral side
10	Rf-FI	72	Right foot – connective tissues - middle toe access point – medial side
10	Rf-SK	82	Right foot – skin meridian - middle toe accent point – lateral side
10	Rf-FA	74	Right foot – fatty tissues - fourth toe access point – medial side
10	Rf-GB	63	Right foot – gallbladder meridian – fourth toe access point – lateral side
10	Rf-KI	79	Right Foot – kidney meridian - small toe access point – medial side
10	Rf-UB	56	Right foot – bladder meridian - small toe access point – lateral side
	<b>Total</b>	<b>754</b>	<b>Total of 754, sum for Baseline 1 readings from 10 access points on Right foot, entered on Table 4 in row 11, column D</b>
10	Lf-SP	85	Left foot – spleen meridian – large toe access point - medial side – 85
10	Lf-LV	84	Left foot – liver meridian – large toe access point - lateral side
10	Lf-JO	84	Left foot – joints – second toe access point - medial side
10	Lf-ST	76	Left foot – stomach meridian – second toe access point – lateral side
10	Lf-FI	84	Left foot – connective tissue – middle toe access point – medial side
10	Lf-SK	78	Left foot – skin – middle toe accent point – lateral side
10	Lf-FA	73	Left foot – fatty tissue – fourth toe access point – medial side
10	Lf-GB	71	Left foot – gallbladder meridian – fourth toe access point – lateral side
10	Lf-KI	76	Left foot – kidney meridian – small toe access point – medial side
10	Lf-UB	18	Left foot – bladder meridian – small toe access point – lateral side
	<b>Total</b>	<b>729</b>	<b>Total of 729, sum for Baseline 1 readings from 10 access points on Left Foot, entered on Table 4 in row 11, Column E</b>



## Endnotes

### CHAPTER 3

- 
- <sup>1</sup> “Chakra Tuned Singing Quartz Crystal Bowls” brochure from The Crystal Distribution Company, Inc., 7320 Ashcroft, # 303, Houston, TX, 77081 (2003)
- <sup>2</sup> Brodie, Renee. *The Healing Tones of Crystal Bowls*. Delta, BC, Canada: Aroma Art, Ltd. (1996) 22
- <sup>3</sup> Becker, Robert O. and Selden, Gary. *The Body Electric: Electromagnetism and Foundation of Life*. New York, NY: William Morrow & Co., Inc. (1985) 119
- <sup>4</sup> Brodie, Renee. *The Healing Tones of Crystal Bowls*. Delta, BC, Canada: Aroma Art, Ltd. (1996) 22
- <sup>5</sup> Ibid. 23
- <sup>6</sup> Gaynor, Mitchell. *Sounds of Healing*. New York, NY. Broadway Books (1999) 116
- <sup>7</sup> Ibid. 116
- <sup>8</sup> Gerber, Richard. *Vibrational Medicine. The # 1 Handbook of Subtle Energy Therapies*. Third Edition. Rochester, VT. (2001) 339

## CHAPTER 4

### RESULTS

The hypothesis will be examined on the results of mean energetic readings on the acupuncture meridians in the body, as measured electrically on the Asyra™, a computerized electrodermal instrument. Changes in the mean readings are analyzed based on an increase or decrease after the conditions as compared to baseline readings, and compared to the balanced range of 45 to 55 for meridians. The comparison is presented in Table 3, Readings from Dependent Variables on All Subjects, followed by Table 4 presenting the Analysis of Means for All Subjects Across Time. Table 5 presents the Analysis of Variance Comparing Interaction of Order Effect. Table 6 presents the Average Readings for Four Subjects Comparing Posttest Means to Baseline and Balanced Range for Meridians. Table 7 presents the Comparison of Effects on Four Subjects.

#### Hypothesis

The prediction for the hypothesis is that toning or the crystal bowl sound or both will affect the average energetic balance of the acupuncture meridians in relation to the baseline means, as measured by the Asrya.™

The prediction for Condition A, Toning: There will be an effect in the average energetic readings from the 40 access points for acupuncture meridians, higher than the readings for Condition B, as compared to baseline means. The prediction for Condition B, Crystal Bowl: The bowl sounds will affect average energetic readings from the 40 access points for acupuncture meridians less than toning, as compared to baseline means.

Using SPSS software, paired sample t tests were computed for each of the two conditions. The paired t test was used because the same subjects were measured pre and post intervention, repeated measures design, and the mean pretest baseline of all subjects was compared with the mean posttest readings of all subjects. Half of the 42 subjects received Condition A before B, and half received Condition B before A.

The t test answers the question: Is the difference between the pretest mean and the posttest means greater than one would expect by chance. The t value obtained is compared to a critical value and if the obtained value is larger than the critical value, then the difference is significant. Significant differences indicating  $p < .05$  are presented in bold print.

Table 4 on the following page represents the readings for all subjects, and the numbers entered into the SPSS software for the Analysis of Means Across Time, Table 5 on page 89, and the Analysis of Variance Comparing Interaction of Order Effect, Table 6, on page 90. Figure 8 on page 84 represents an example of a computerized reading, and Table 3 on Page 83 indicates the source of the numbers that appear in the cells in Table 4. The numbers in row 11 are represented in Table 3

- The participant number appears in column A, and each of the dependent variables measured appear in columns B through Q.
- Column R represents the average baseline number for each subject. Column S is the toning means for each subject, and column T is the comparison of the toning means to the baseline means. Column U and V compare the bowl means to the baseline means. Columns T and V indicate the difference in means between the toning and the bowl sounds per subject

**Table 4**  
**Asyra™ Readings from Dependent Variables on all Subjects**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	PNUM	RHB1	LHB1	RFB1	LFB1	RHB2	LHB2	RFB2	LFB2	RHTONE	LHTONE	RFTONE	LFTONE	RHBOWL	LHBOWL	RFBOWL	LFBOWL	BaseAv	ToneAv	ToneTOBase	BowIAv	BowITOBase
2	1	603	516	611	514	558	606	607	534	581	579	608	547	543	456	481	429	57	58	1	48	-9
3	2	470	472	638	674	627	600	717	676	619	585	790	741	577	574	762	752	61	68	7	67	6
4	3	653	555	767	684	590	591	687	659	624	691	607	587	596	635	614	647	65	63	-2	62	-3
5	4	773	838	851	856	823	832	859	877	803	794	821	820	770	828	818	852	84	81	-3	82	-2
6	5	604	686	649	670	632	680	664	714	595	732	740	713	631	717	611	704	66	70	3	67	0
7	6	608	543	738	718	516	531	718	649	585	670	701	681	570	584	707	651	63	66	3	63	0
8	7	529	502	555	566	513	510	545	559	614	600	486	562	593	671	514	539	53	57	3	58	4
9	8	662	706	784	802	653	687	772	723	666	752	758	704	614	708	788	713	72	72	0	71	-2
10	9	519	567	593	555	595	506	608	542	619	560	540	578	561	557	558	530	56	57	1	55	-1
11	10	598	583	754	729	560	590	716	683	578	580	634	601	589	565	713	671	65	60	-5	63	-2
12	11	661	645	611	583	520	544	652	560	519	660	610	668	488	564	647	576	60	61	2	57	-3
13	12	574	616	769	706	604	619	680	778	687	744	679	709	704	666	701	743	67	70	4	70	4
14	13	510	510	722	677	522	545	727	753	592	637	788	802	567	536	722	774	62	70	8	65	3
15	14	454	513	645	587	547	530	646	633	605	549	640	602	561	583	624	563	57	60	3	58	1
16	15	534	600	490	464	452	434	540	460	657	600	498	506	543	496	547	600	50	57	7	55	5
17	16	643	600	612	582	690	671	642	570	676	656	706	623	684	628	660	606	63	67	4	64	2
18	17	598	619	627	597	552	614	546	569	629	657	569	583	575	591	552	595	59	61	2	58	-1
19	18	590	630	591	746	551	448	654	712	508	607	570	588	478	491	603	672	62	57	-5	56	-5
20	19	721	648	774	753	612	683	775	735	722	701	719	716	652	688	725	695	71	71	0	69	-2
21	20	751	782	860	829	753	763	747	753	675	596	783	766	645	586	797	786	78	71	-7	70	-8
22	21	652	649	444	479	711	639	427	524	789	676	430	546	687	693	468	612	57	61	4	62	5
23	22	418	555	618	638	499	583	587	641	534	516	591	643	585	601	675	608	57	57	0	62	5
24	23	565	425	470	418	490	321	519	468	469	535	451	412	577	524	498	455	46	47	1	51	5
25	24	632	595	815	796	641	673	810	806	650	580	812	778	614	614	784	811	72	71	-2	71	-2
26	25	781	804	848	824	703	762	737	775	705	751	689	648	579	673	654	722	78	70	-8	66	-12
27	26	532	586	673	775	576	470	692	747	507	628	765	794	485	570	681	793	63	67	4	63	0
28	27	674	626	566	490	607	530	515	544	590	608	523	532	628	523	467	344	57	56	-1	49	-8
29	28	683	646	643	602	687	657	687	644	588	664	667	678	602	619	615	700	66	65	-1	63	-2
30	29	569	544	458	401	439	534	462	464	430	583	513	507	504	480	510	454	48	51	2	49	0
31	30	633	672	595	735	714	743	715	645	761	726	745	761	736	762	721	638	68	75	7	71	3
32	31	695	758	602	618	642	759	617	604	681	770	530	578	678	768	539	555	66	64	-2	64	-3
33	32	702	647	734	728	690	624	679	686	655	657	626	673	653	589	567	589	69	65	-3	60	-9
34	33	678	652	657	701	585	689	637	664	526	555	658	581	535	588	564	632	66	58	-8	58	-8
35	34	607	704	756	819	607	674	624	697	596	709	681	717	686	633	572	656	69	68	-1	64	-5
36	35	475	623	635	671	509	597	632	678	504	581	622	689	495	560	582	714	60	60	0	59	-1
37	36	545	509	585	589	563	582	617	648	580	548	677	692	491	534	699	657	58	62	4	60	2
38	37	564	553	681	572	540	489	679	587	521	560	642	505	549	551	623	528	58	56	-3	56	-2
39	38	709	669	641	717	693	733	684	791	711	669	654	690	748	634	605	729	70	68	-2	68	-3
40	39	603	523	675	733	577	665	668	677	568	553	606	609	556	504	580	607	64	58	-6	56	-8
41	40	629	748	750	827	656	751	810	849	673	710	815	840	654	742	835	811	75	76	1	76	1
42	41	681	615	751	805	596	623	755	833	662	679	707	770	659	634	694	681	71	70	0	67	-4
43	42	537	537	809	801	573	519	809	787	480	451	796	782	530	494	728	779	67	63	-4	63	-4

**Table 5**  
**Analysis of Means for All Subjects Across Time**  
**Comparing**  
**Mean Baseline to Posttest Means for Toning and Crystal Bowl Sounds**

<b>Figure # for Graph Plotting Means</b>	<b>Dependent Variable Measured</b>	<b>DF</b>	<b>F</b>	<b>p value</b>
Figure 9	Right Hand	(3, 123)	0.953	.417
Figure 10	Left Hand	(3, 123)	2.926	<b>.037</b>
Figure 11	Right Foot	(3, 123)	4.043	<b>.009</b>
Figure 12	Left Foot	(3, 123)	1.818	.147

**Within Subjects Effects**

- Statistically significant effects are noted in bold print.
- SPSS graphs plotting means for each dependent variable are on following pages as indicated.
- Figure 9 – Right Hand, page 90: There were no significant changes across time, comparing baseline readings to the two conditions.
- Figure 10 - Left Hand, page 91: There is a significant increase in the means for the toning, Condition A, and then a return to approximate baseline means after the crystal bowl sounds, Condition B. There are no significant changes between the baseline means and the crystal bowl means. The significant differences were between the toning and all other conditions.
- Figure 11 – Right Foot, page 92: Baseline readings remain flat. There is a decrease in means in toning, Condition A, and a significant drop in means with the crystal bowl sounds, Condition B. The significant differences were between the bowl sounds and the baseline means.
- Figure 12 – Left Foot, page 93: There are no significant differences between the baseline readings and the toning and bowl sound conditions across time.

**Table 6**

## Analysis of Variance Comparing Interaction of Order Effect

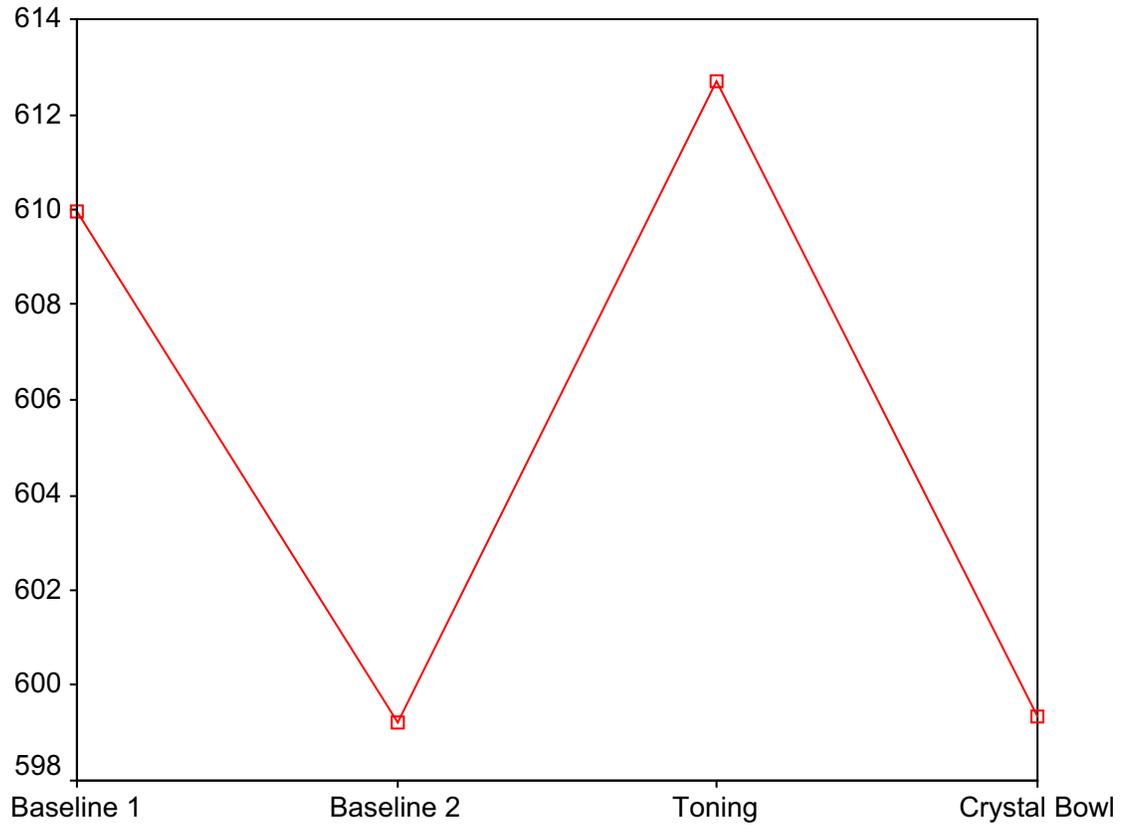
### Tests of Within Subject Effects

Figure # for Graph Plotting Means	Dependent Variable Measured	DF	F	p value
Figure 13	Right Hand	(3, 123)	1.475	.225
Figure 14	Left Hand	(3, 123)	3.34	<b>.018</b>
Figure 15	Right Foot	(3, 123)	3.34	<b>.022</b>
Figure 16	Left Foot	(3, 123)	0.995	.396

- Statistically significant effects are noted in bold print.
- SPSS graphs plotting means for each dependent variable are on following pages as indicated.
- Figure 13: Right Hand, page 94: There are no significant differences for all subjects across time for the interaction of order effect on the right hand. There were no differences in the effects of toning or bowl first or second in order.
- Figure 14: Left Hand page 95: There is a main effect for order effect in readings on the left hand. The variances between the green (bowl) and the red (toning) lines plotted on the graph in Figure 14 are significantly different across all repeated measures. Toning first produced a significantly greater effect than bowl sounds first. The left hand = right brain, see Discussion on page 109, paragraph 1.
- Figure 15: Right Foot, page 96: There is a main effect for order effect, with readings from toning significantly higher across time for all subjects. There is no significant interaction effect between the two conditions. This is true across time for all repeated measures. As with Figure 14, there was a significantly greater order effect with toning first, bowl sounds second, as presented in Figure 14.
- Figure 16: Left Foot, page 97: There is no significant interaction effect, and there is no order effect.

## Figure 9 – Analysis of Means for All Subjects Across Time

## Marginal Means of Asyra: Right Hand



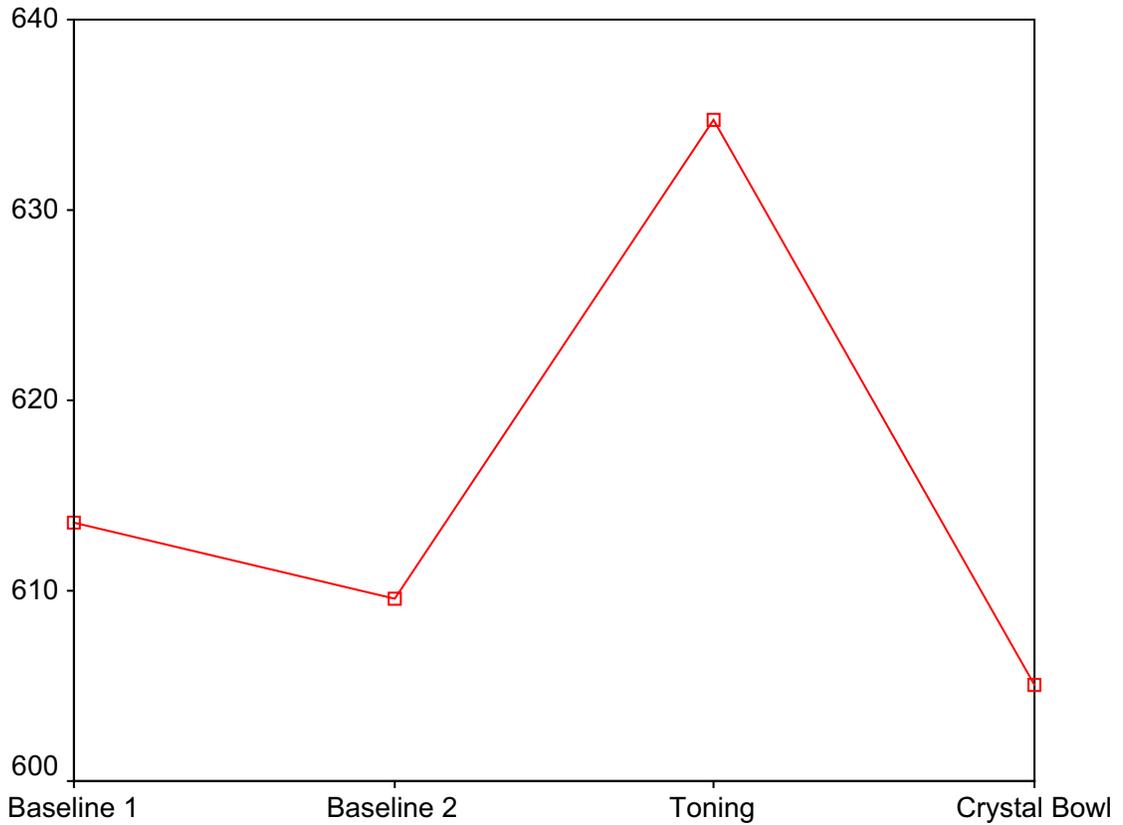
### Tests of Within-Subjects Effects

Measure: MEASURE\_1

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
RH	Sphericity Assumed	6265.780	3	2088.593	.953	.417
	Greenhouse-Geisser	6265.780	2.339	2678.577	.953	.401
	Huynh-Feldt	6265.780	2.490	2516.852	.953	.405
	Lower-bound	6265.780	1.000	6265.780	.953	.335
Error(RH)	Sphericity Assumed	269462.970	123	2190.756		
	Greenhouse-Geisser	269462.970	95.908	2809.599		
	Huynh-Feldt	269462.970	102.071	2639.962		
	Lower-bound	269462.970	41.000	6572.268		

**Figure 10 – Analysis of Means for All Subjects Across Time**

**Marginal Means of Asyra: Left Hand**



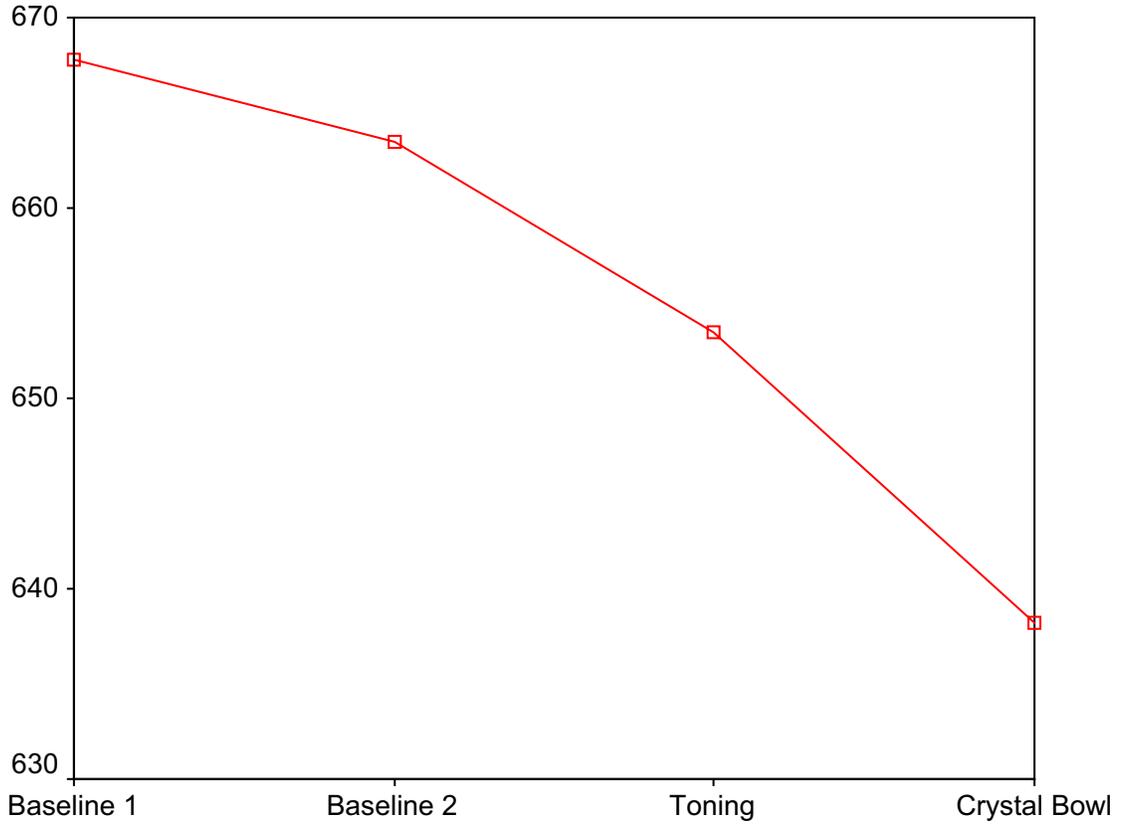
**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
LH	Sphericity Assumed	21721.732	3	7240.577	2.926	.037
	Greenhouse-Geisser	21721.732	2.463	8819.880	2.926	.047
	Huynh-Feldt	21721.732	2.632	8252.258	2.926	.044
	Lower-bound	21721.732	1.000	21721.732	2.926	.095
Error(LH)	Sphericity Assumed	304343.518	123	2474.338		
	Greenhouse-Geisser	304343.518	100.975	3014.036		
	Huynh-Feldt	304343.518	107.921	2820.061		
	Lower-bound	304343.518	41.000	7423.013		

**Figure 11 – Analysis of Means for All Subjects Across Time**

**Marginal Means of Asyra: Right Foot**



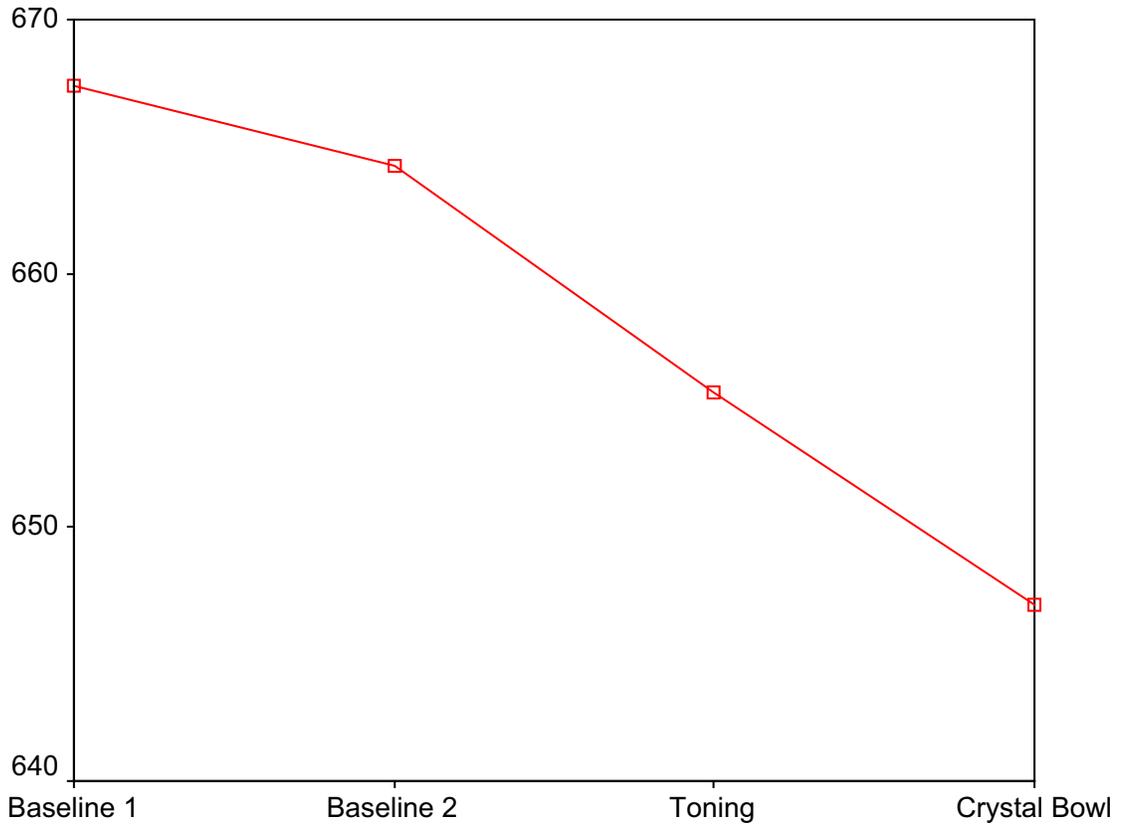
**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
RF	Sphericity Assumed	21688.018	3	7229.339	4.043	.009
	Greenhouse-Geisser	21688.018	2.154	10070.405	4.043	.018
	Huynh-Feldt	21688.018	2.277	9524.856	4.043	.017
	Lower-bound	21688.018	1.000	21688.018	4.043	.051
Error(RF)	Sphericity Assumed	219919.232	123	1787.961		
	Greenhouse-Geisser	219919.232	88.299	2490.614		
	Huynh-Feldt	219919.232	93.357	2355.689		
	Lower-bound	219919.232	41.000	5363.884		

**Figure 12 – Analysis of Means for All Subjects Across Time**

**Marginal Means of Asyra: Left Foot**

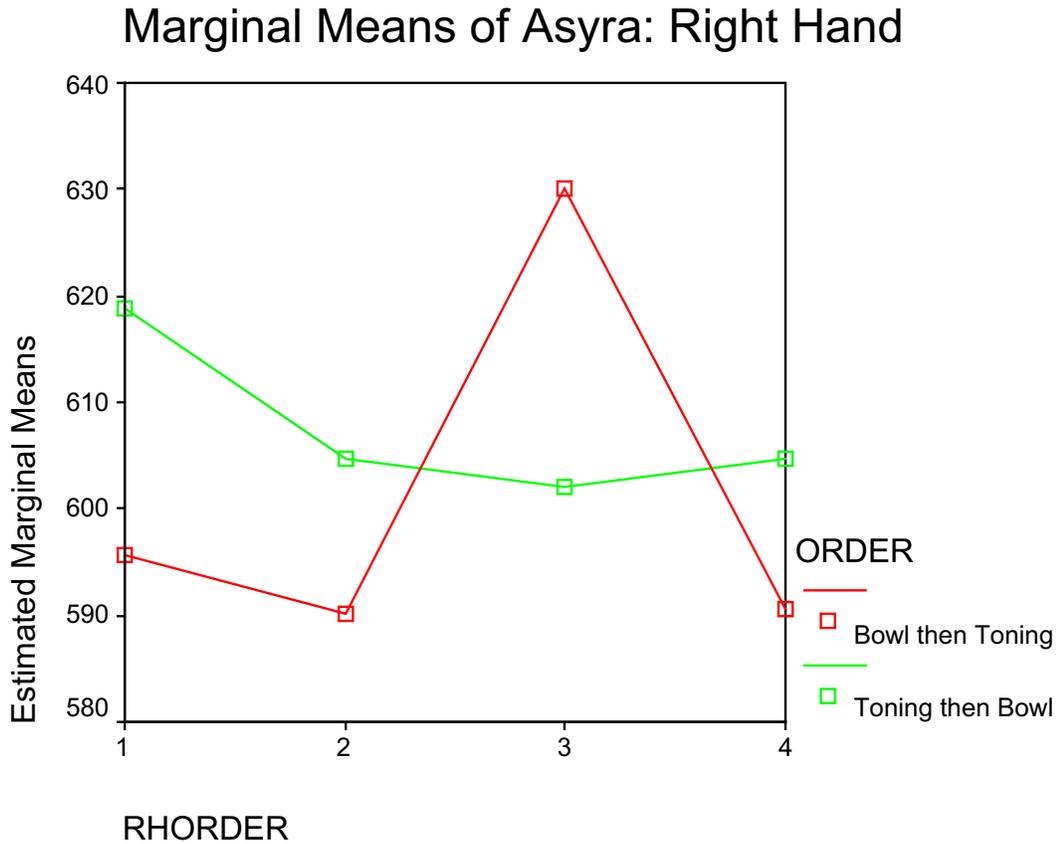


**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
LF	Sphericity Assumed	10724.619	3	3574.873	1.818	.147
	Greenhouse-Geisser	10724.619	2.455	4368.545	1.818	.159
	Huynh-Feldt	10724.619	2.623	4088.489	1.818	.155
	Lower-bound	10724.619	1.000	10724.619	1.818	.185
Error(LF)	Sphericity Assumed	241821.881	123	1966.032		
	Greenhouse-Geisser	241821.881	100.654	2402.518		
	Huynh-Feldt	241821.881	107.548	2248.499		
	Lower-bound	241821.881	41.000	5898.095		

**Figure 13 – Analysis of Means for Interaction of Order Effect**

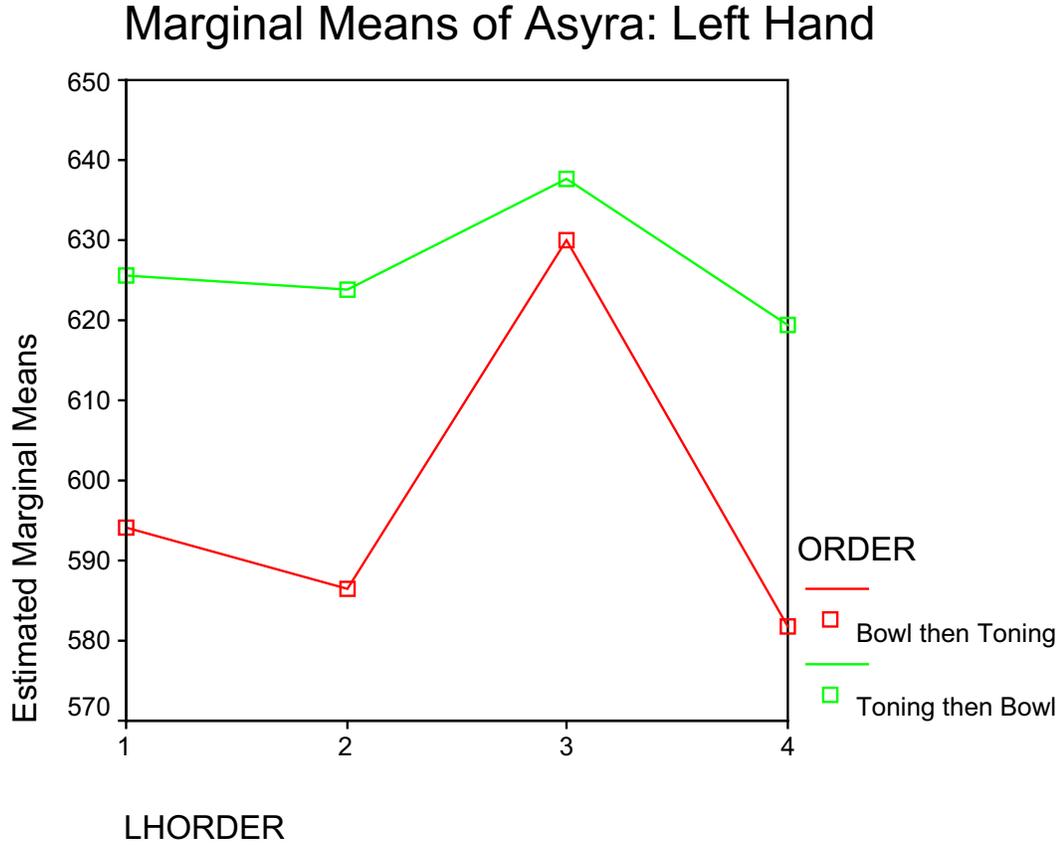


**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
RHORDER	Sphericity Assumed	9358.108	3	3119.369	1.475	.225
	Greenhouse-Geisser	9358.108	2.286	4094.390	1.475	.233
	Huynh-Feldt	9358.108	2.492	3754.836	1.475	.231
	Lower-bound	9358.108	1.000	9358.108	1.475	.232
RHORDER * ORDER	Sphericity Assumed	15651.536	3	5217.179	2.467	.065
	Greenhouse-Geisser	15651.536	2.286	6847.911	2.467	.083
	Huynh-Feldt	15651.536	2.492	6280.004	2.467	.078
	Lower-bound	15651.536	1.000	15651.536	2.467	.124
Error(RHORDER)	Sphericity Assumed	253811.434	120	2115.095		
	Greenhouse-Geisser	253811.434	91.424	2776.210		
	Huynh-Feldt	253811.434	99.691	2545.975		
	Lower-bound	253811.434	40.000	6345.286		

**Figure 14 - Analysis of Means for Interaction of Order Effect**

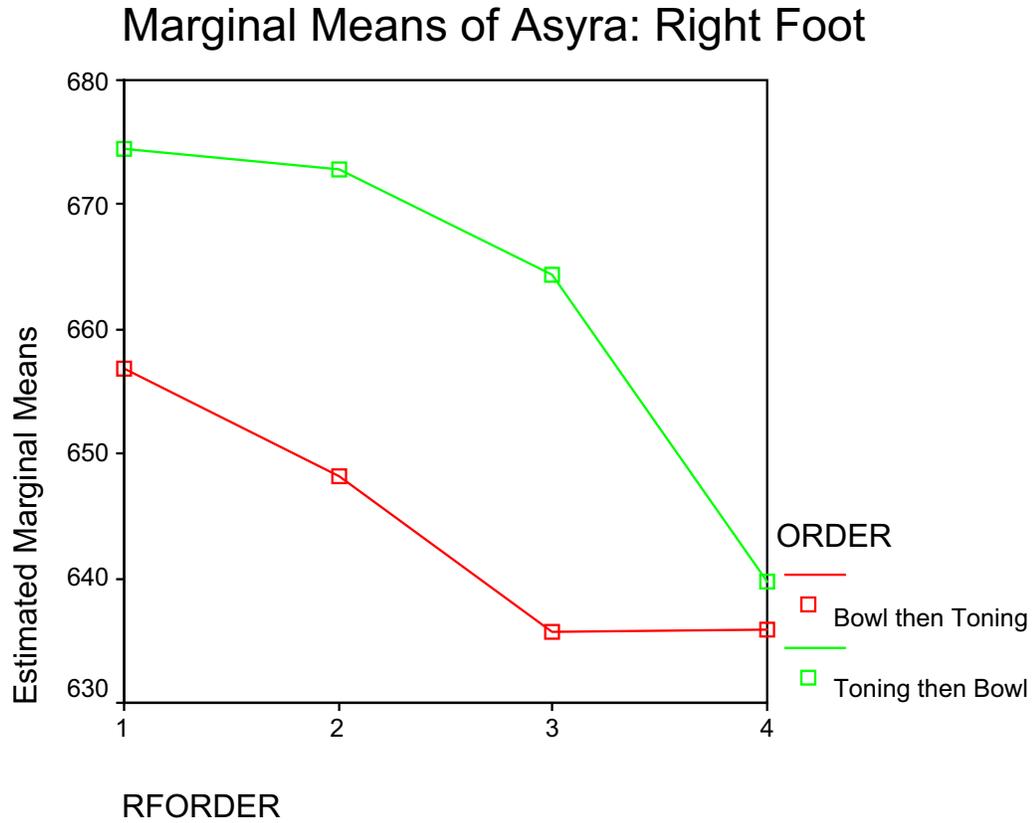


**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
LHORDER	Sphericity Assumed	26017.426	3	8672.475	3.487	.018
	Greenhouse-Geisser	26017.426	2.438	10672.396	3.487	.026
	Huynh-Feldt	26017.426	2.673	9734.879	3.487	.022
	Lower-bound	26017.426	1.000	26017.426	3.487	.069
LHORDER * ORDER	Sphericity Assumed	5907.949	3	1969.316	.792	.501
	Greenhouse-Geisser	5907.949	2.438	2423.452	.792	.478
	Huynh-Feldt	5907.949	2.673	2210.564	.792	.488
	Lower-bound	5907.949	1.000	5907.949	.792	.379
Error(LHORDER)	Sphericity Assumed	298435.569	120	2486.963		
	Greenhouse-Geisser	298435.569	97.513	3060.470		
	Huynh-Feldt	298435.569	106.904	2791.623		
	Lower-bound	298435.569	40.000	7460.889		

**Figure 15 – Analysis of Means for Interaction of Order Effect**

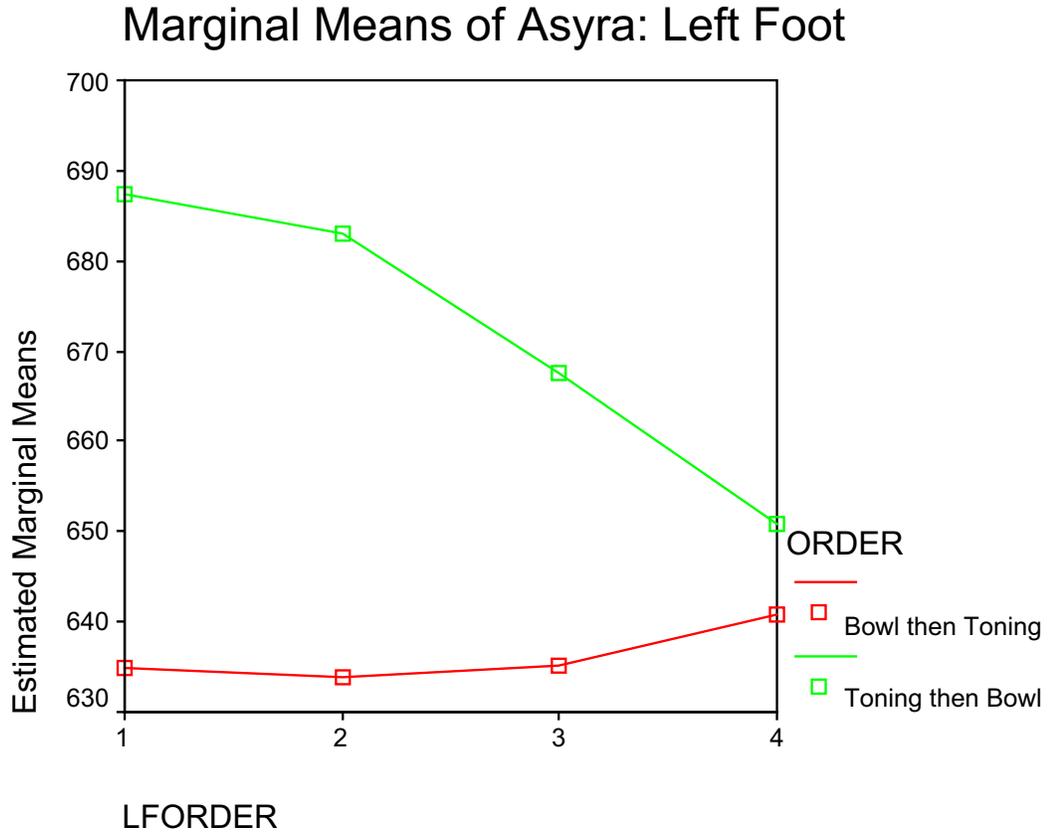


**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
RFORDER	Sphericity Assumed	18076.525	3	6025.508	3.342	.022
	Greenhouse-Geisser	18076.525	2.118	8534.282	3.342	.037
	Huynh-Feldt	18076.525	2.296	7874.529	3.342	.034
	Lower-bound	18076.525	1.000	18076.525	3.342	.075
RFORDER * ORDER	Sphericity Assumed	3565.001	3	1188.334	.659	.579
	Greenhouse-Geisser	3565.001	2.118	1683.107	.659	.528
	Huynh-Feldt	3565.001	2.296	1552.992	.659	.540
	Lower-bound	3565.001	1.000	3565.001	.659	.422
Error(RFORDER)	Sphericity Assumed	216354.231	120	1802.952		
	Greenhouse-Geisser	216354.231	84.724	2553.627		
	Huynh-Feldt	216354.231	91.823	2356.216		
	Lower-bound	216354.231	40.000	5408.856		

**Figure 16 - Analysis of Means for Interaction of Order Effect**



**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
LFORDER	Sphericity Assumed	5738.006	3	1912.669	.995	.398
	Greenhouse-Geisser	5738.006	2.493	2301.482	.995	.388
	Huynh-Feldt	5738.006	2.739	2095.288	.995	.393
	Lower-bound	5738.006	1.000	5738.006	.995	.325
LFORDER * ORDER	Sphericity Assumed	11129.530	3	3709.843	1.930	.128
	Greenhouse-Geisser	11129.530	2.493	4463.992	1.930	.140
	Huynh-Feldt	11129.530	2.739	4064.055	1.930	.134
	Lower-bound	11129.530	1.000	11129.530	1.930	.172
Error(LFORDER)	Sphericity Assumed	230692.351	120	1922.436		
	Greenhouse-Geisser	230692.351	99.727	2313.235		
	Huynh-Feldt	230692.351	109.541	2105.988		
	Lower-bound	230692.351	40.000	5767.309		

**Table 7**

**Average Readings for Four Subjects Comparing Posttest Means to Baseline and Balanced Range of 45-55**

The balanced range for meridians is 45-55, represented on Asyra™ readings as a green block next to the number. Readings above 55 indicate the organ or system is stressed, and presented as a red square next to the number. Numbers below 45 are weakened areas, represented as a yellow block. The following comparisons are presented for four subjects, comparing posttest means to the balanced average of 50, and comparing the effect of conditions to the baseline means. Individual readings and additional analysis on each subject are presented on the following pages, and are referenced by page numbers next to the Subject #.

<i>SUBJECT # 33</i>	<i>Means</i>	<i>Comp to 50</i>	<i>Effect comp/base</i>
(pages 99 – 105)			
Baseline Means	65.8	+ 15.8	Increased
Means After Bowl	57.9	+ 7.9	Energy
Means After Toning	58	+ 8	
<b>SUBJECT # 10</b>			
(pages 106 – 112)			
Baseline Means	65.2	+ 15.2	Increased
Means After Bowl	63.4	+ 13.4	Energy
Means After Toning	59.8	+ 9.8	
<b>SUBJECT # 13</b>			
(pages 113 – 119)			
Baseline Means	62	+ 12	
Means After Bowl	64.9	+ 14.9	Increased
Means After Toning	70.4	+ 20.4	Energy
<b>SUBJECT # 32</b>			
(pages 120 – 126)			
Baseline Means	68.6	+ 18.6	
Means After Toning	65.2	+ 15.2	Decreased
Means After Bowl	59.9	+ 9.9	Energy

**Table 8 Subject # 33 Comparisons**

Subject # 33

<b>PNum</b>	<b>Meridian</b>	<b>B-1</b>	<b>B-2</b>	<b>Avg</b>	<b>Tone</b>	<b>+ / -</b>	<b>% CHG</b>	<b>Bowl</b>	<b>+ / -</b>	<b>% CHG</b>
33	RH-LY	71	67	69	54	-15	-22%	48	-21	-30%
33	Rh-LU	80	64	72	60	-12	-17%	56	-16	-22%
33	Rh-LI	72	53	62.5	50	-12.5	-20%	61	-1.5	-2%
33	Rh-NE	70	45	57.5	52	-5.5	-10%	55	-2.5	-4%
33	Rh-CI	53	61	57	50	-7	-12%	67	10	18%
33	Rh-AL	64	61	62.5	55	-7.5	-12%	60	-2.5	-4%
33	Rh-Or	66	70	68	56	-12	-18%	55	-13	-19%
33	Rh-TW	61	55	58	49	-9	-16%	43	-15	-26%
33	Rh-HE	60	55	57.5	45	-12.5	-22%	48	-9.5	-17%
33	Rh-SI	81	54	67.5	55	-12.5	-19%	42	-25.5	-38%
	<b>Total</b>	678	585	63.15			-17%			-15%
33	Lh-LY	73	65	69	56	-13	-19%	77	8	12%
33	Lh-LU	64	79	71.5	64	-7.5	-10%	73	1.5	2%
33	Lh-LI	66	65	65.5	51	-14.5	-22%	62	-3.5	-5%
33	Lh-NE	62	67	64.5	68	3.5	5%	60	-4.5	-7%
33	Lh-CI	66	68	67	52	-15	-22%	45	-22	-33%
33	Lh-AL	63	60	61.5	50	-11.5	-19%	69	7.5	12%
33	Lh-OR	64	64	64	63	-1	-2%	47	-17	-27%
33	Lh-TW	66	71	68.5	47	-21.5	-31%	56	-12.5	-18%
33	Lh-HE	65	67	66	52	-14	-21%	37	-29	-44%
33	Lh-SI	63	83	73	52	-21	-29%	62	-11	-15%
	<b>Total</b>	652	689	67.05			-17%			-12%
33	Rf-PA	73	60	66.5	61	-5.5	-8%	59	-7.5	-11%
33	Rf-LV	75	58	66.5	72	5.5	8%	55	-11.5	-17%
33	Rf-JO	72	71	71.5	66	-5.5	-8%	60	-11.5	-16%
33	Rf-ST	71	61	66	66	0	0%	50	-16	-24%
33	Rf-FI	75	62	68.5	63	-5.5	-8%	62	-6.5	-9%
33	Rf-SK	65	60	62.5	60	-2.5	-4%	63	0.5	1%
33	Rf-FA	59	74	66.5	85	18.5	28%	53	-13.5	-20%
33	Rf-GB	61	70	65.5	62	-3.5	-5%	80	14.5	22%
33	Rf-KI	73	69	71	70	-1	-1%	47	-24	-34%
33	Rf-UB	33	52	42.5	53	10.5	25%	35	-7.5	-18%
	<b>Total</b>	657	637	64.7			3%			-13%
33	Lf-SP	76	79	77.5	75	-2.5	-3%	80	2.5	3%
33	Lf-LV	67	82	74.5	67	-7.5	-10%	77	2.5	3%
33	Lf-JO	73	66	69.5	60	-9.5	-14%	69	-0.5	-1%
33	Lf-ST	70	86	78	55	-23	-29%	60	-18	-23%
33	Lf-FI	75	67	71	45	-26	-37%	71	0	0%
33	Lf-SK	81	67	74	60	-14	-19%	34	-40	-54%
33	Lf-FA	79	72	75.5	67	-8.5	-11%	61	-14.5	-19%
33	Lf-GB	67	57	62	63	1	2%	60	-2	-3%
33	Lf-KI	71	56	63.5	48	-15.5	-24%	67	3.5	6%
33	Lf-UB	42	32	37	41	4	11%	53	16	43%
	<b>Total</b>	701	664	68.25			-14%			-4%

### Comparisons for Subject # 33

Comparisons of readings for Subject # No. 33, a 46 year-old female, are presented in Table 8, with the actual readings from the Asyra™ presented in Figures 17A, 17B, 17C, and 17D on the following pages:

Figure 17A – Baseline 1	102
Figure 17B – Baseline 2	103
Figure 17C – Reading 3 (after Toning)	104
Figure 17D – Reading 4 (after Bowls)	105

#### Right Hand

- There is an overall reduction of 17% in the mean energetic readings of the right hand after Toning, with the greatest variance in the meridians for the lymph system (-22%), the heart (-22%), and the small intestine (19%).
- There is an overall reduction of 15% in the mean energetic readings of the right hand after the Crystal Bowl, with the greatest variance in the meridians for the small intestine (38%), the lymph system (30%), the endocrine system (28%).

#### Left Hand

- There is an overall reduction of 17% in the mean energetic readings of the left hand after the Toning, with the greatest variance in the meridians for the endocrine system (-31%), the small intestine (-29%), and large intestine (-22%), and the circulation (-22%).
- There is an overall reduction of 12% in the mean energetic readings of the left hand after the Crystal Bowl, with the greatest variance in the meridians of the heart (-44%), the circulation (-33%) and organ and cellular metabolism (-27%).

#### Right Foot

- There is an overall increase of 3% in the mean energetic readings for the right foot after Toning, with the greatest variance in the meridians of the fatty tissues (+ 28%), bladder and reproductive organs (+ 25%), and the liver (+ 8%).
- There is an overall decrease of 13% in the mean energetic readings for the right foot after Crystal Bowl, with the greatest variance in

the meridians of the kidneys (-34%), the stomach (-24%), and the fatty tissues (-20%).

#### Left Foot

- There is an overall decrease of -14% in the mean energetic readings for the left foot after Toning, with the greatest variance in the meridians of the connective tissue (-37%), stomach (-29%), and the kidney (-24%).
- There is an overall decrease of -4% in the mean energetic readings in for the left foot after the Crystal Bowl, with the greatest variance in the meridians of the skin (-54%), the bladder and reproductive organs (+ 43%), and the stomach (-23%).

Figure 17A – Subject # 33

Clinic	
Physicians	
Address	
Phone	Email

**Participant 33**

Confidential Client Information

- Baseline 1,

Visit # 1

Date 01/12/2004

Gender F

Age 46

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	81	SI-small intestine (RH)	6	75	LV-liver (RF)
2	81	SK-skin (LF)	7	75	FI-connective tissues (RF)
3	80	LU-lung (RH)	8	75	FI-connective tissues (LF)
4	79	FA-fatty tissues (LF)	9	73	LY-lymph (LH)
5	76	SP-spleen (LF)	10	73	PA-pancreas (RF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
71	LY-lymph	73	PA-pancreas
80	LU-lung	75	LV-liver
72	LI-large intestine	72	JO-joints
70	NE-nervous system	71	ST-stomach
53	CI-circulation	75	FI-connective tissues
64	AL-allergies	65	SK-skin
66	OR-organ/cellular metabolism	59	FA-fatty tissues
61	TW-endocrine	61	GB-gallbladder
60	HE-heart	73	KI-kidney
81	SI-small intestine	33	UB-bladder/reproductive organs
<b>Left Hand</b>			
73	LY-lymph	76	SP-spleen
64	LU-lung	67	LV-liver
66	LI-large intestine	73	JO-joints
62	NE-nervous system	70	ST-stomach
66	CI-circulation	75	FI-connective tissues
63	AL-allergies	81	SK-skin
64	OR-organ/cellular metabolism	79	FA-fatty tissues
66	TW-endocrine	67	GB-gallbladder
65	HE-heart	71	KI-kidney
63	SI-small intestine	42	UB-bladder/reproductive organs
<input checked="" type="checkbox"/> Stressed <input type="checkbox"/> Weakened <input checked="" type="checkbox"/> Balanced <input type="checkbox"/> Untested			

1/12/2004

Figure 17B – Subject # 33

Clinic	
Physicians	
Address	
Phone	Email

**Participant 33**

Confidential Client Information

- Baseline 2,

Visit # 1

Date 01/12/2004

Gender F

Age 46

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	86	ST-stomach (LF)	6	74	FA-fatty tissues (RF)
2	83	SI-small intestine (LH)	7	72	FA-fatty tissues (LF)
3	82	LV-liver (LF)	8	71	TW-endocrine (LH)
4	79	LU-lung (LH)	9	71	JO-joints (RF)
5	79	SP-spleen (LF)	10	70	OR-organ/cellular metabolism (RH)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
67	LY-lymph	60	PA-pancreas
64	LU-lung	58	LV-liver
53	LI-large intestine	71	JO-joints
45	NE-nervous system	61	ST-stomach
61	CI-circulation	62	FI-connective tissues
61	AL-allergies	60	SK-skin
70	OR-organ/cellular metabolism	74	FA-fatty tissues
55	TW-endocrine	70	GB-gallbladder
55	HE-heart	69	KI-kidney
54	SI-small intestine	52	UB-bladder/reproductive organs
<b>Left Hand</b>			
65	LY-lymph	79	SP-spleen
79	LU-lung	82	LV-liver
65	LI-large intestine	66	JO-joints
67	NE-nervous system	86	ST-stomach
68	CI-circulation	67	FI-connective tissues
60	AL-allergies	67	SK-skin
64	OR-organ/cellular metabolism	72	FA-fatty tissues
71	TW-endocrine	57	GB-gallbladder
67	HE-heart	56	KI-kidney
83	SI-small intestine	32	UB-bladder/reproductive organs
67	HE-heart		
83	SI-small intestine		

■ Stressed     
 ■ Weakened     
 ■ Balanced     
  Untested

2/11/2004

Figure 17C – Subject # 33

Clinic	
Physicians	
Address	
Phone	Email

Participant 33

Confidential Client Information

- Toning 3,

Visit # 1

Date 01/12/2004

Gender F

Age 46

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	85	FA-fatty tissues (RF)	6	67	LV-liver (LF)
2	75	SP-spleen (LF)	7	67	FA-fatty tissues (LF)
3	72	LV-liver (RF)	8	66	JO-joints (RF)
4	70	KI-kidney (RF)	9	66	ST-stomach (RF)
5	68	NE-nervous system (LH)	10	64	LU-lung (LH)

All Points:

	Value	Acupoint		Value	Acupoint
<b>Right Hand</b>			<b>Right Foot</b>		
<input checked="" type="checkbox"/>	54	LY-lymph	<input checked="" type="checkbox"/>	61	PA-pancreas
<input checked="" type="checkbox"/>	60	LU-lung	<input checked="" type="checkbox"/>	72	LV-liver
<input checked="" type="checkbox"/>	50	LI-large intestine	<input checked="" type="checkbox"/>	66	JO-joints
<input checked="" type="checkbox"/>	52	NE-nervous system	<input checked="" type="checkbox"/>	66	ST-stomach
<input checked="" type="checkbox"/>	50	CI-circulation	<input checked="" type="checkbox"/>	63	FI-connective tissues
<input checked="" type="checkbox"/>	55	AL-allergies	<input checked="" type="checkbox"/>	60	SK-skin
<input checked="" type="checkbox"/>	56	OR-organ/cellular metabolism	<input checked="" type="checkbox"/>	85	FA-fatty tissues
<input checked="" type="checkbox"/>	49	TW-endocrine	<input checked="" type="checkbox"/>	62	GB-gallbladder
<input checked="" type="checkbox"/>	45	HE-heart	<input checked="" type="checkbox"/>	70	KI-kidney
<input checked="" type="checkbox"/>	55	SI-small intestine	<input checked="" type="checkbox"/>	53	UB-bladder/reproductive organs
<b>Left Hand</b>			<b>Left Foot</b>		
<input checked="" type="checkbox"/>	56	LY-lymph	<input checked="" type="checkbox"/>	75	SP-spleen
<input checked="" type="checkbox"/>	64	LU-lung	<input checked="" type="checkbox"/>	67	LV-liver
<input checked="" type="checkbox"/>	51	LI-large intestine	<input checked="" type="checkbox"/>	60	JO-joints
<input checked="" type="checkbox"/>	68	NE-nervous system	<input checked="" type="checkbox"/>	55	ST-stomach
<input checked="" type="checkbox"/>	62	CI-circulation	<input checked="" type="checkbox"/>	45	FI-connective tissues
<input checked="" type="checkbox"/>	50	AL-allergies	<input checked="" type="checkbox"/>	60	SK-skin
<input checked="" type="checkbox"/>	63	OR-organ/cellular metabolism	<input checked="" type="checkbox"/>	67	FA-fatty tissues
<input checked="" type="checkbox"/>	47	TW-endocrine	<input checked="" type="checkbox"/>	63	GB-gallbladder
<input checked="" type="checkbox"/>	52	HE-heart	<input checked="" type="checkbox"/>	48	KI-kidney
<input checked="" type="checkbox"/>	52	SI-small intestine	<input checked="" type="checkbox"/>	41	UB-bladder/reproductive organs

Stressed       Weakened       Balanced       Untested

2/11/2004

Figure 17D

Clinic	
Physicians	
Address	, ,
Phone	
	Email

Subject # 33

Confidential Client Information

- Bowls 4,

Visit # 1

Date 01/12/2004

Gender F

Age 46

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	80	GB-gallbladder (RF)	6	71	FI-connective tissues (LF)
2	80	SP-spleen (LF)	7	69	AL-allergies (LH)
3	77	LY-lymph (LH)	8	69	JO-joints (LF)
4	77	LV-liver (LF)	9	67	CI-circulation (RH)
5	73	LU-lung (LH)	10	67	KI-kidney (LF)

All Points:

	Value	Acupoint		Value	Acupoint
<b>Right Hand</b>			<b>Right Foot</b>		
	48	LY-lymph		59	PA-pancreas
	56	LU-lung		55	LV-liver
	61	LI-large intestine		60	JO-joints
	55	NE-nervous system		50	ST-stomach
	67	CI-circulation		62	FI-connective tissues
	60	AL-allergies		63	SK-skin
	55	OR-organ/cellular metabolism		53	FA-fatty tissues
	43	TW-endocrine		80	GB-gallbladder
	48	HE-heart		47	KI-kidney
	42	SI-small intestine		35	UB-bladder/reproductive organs
<b>Left Hand</b>			<b>Left Foot</b>		
	77	LY-lymph		80	SP-spleen
	73	LU-lung		77	LV-liver
	62	LI-large intestine		69	JO-joints
	60	NE-nervous system		60	ST-stomach
	45	CI-circulation		71	FI-connective tissues
	69	AL-allergies		34	SK-skin
	47	OR-organ/cellular metabolism		61	FA-fatty tissues
	56	TW-endocrine		60	GB-gallbladder
	37	HE-heart		67	KI-kidney
	62	SI-small intestine		53	UB-bladder/reproductive
		Stressed			Weakened
		Balanced			Untested

1/12/2004

**Table 9 – Subject # 10 Comparisons**

Subject # 10
--------------

<b>PNum</b>	<b>Meridian</b>	<b>B-1</b>	<b>B-2</b>	<b>Avg</b>	<b>Tone</b>	<b>+ / -</b>	<b>% CHG</b>	<b>Bowl</b>	<b>+ / -</b>	<b>% CHG</b>
10	RH-LY	50	45	47.5	69	21.5	45%	45	-2.5	-5%
10	Rh-LU	78	65	71.5	68	-3.5	-5%	79	7.5	10%
10	Rh-LI	41	48	44.5	62	17.5	39%	52	7.5	17%
10	Rh-NE	39	54	46.5	51	4.5	10%	37	-9.5	-20%
10	Rh-CI	57	54	55.5	47	-8.5	-15%	60	4.5	8%
10	Rh-AL	58	35	46.5	43	-3.5	-8%	63	16.5	35%
10	Rh-Or	64	67	65.5	58	-7.5	-11%	63	-2.5	-4%
10	Rh-TW	68	66	67	50	-17	-25%	63	-4	-6%
10	Rh-HE	67	63	65	57	-8	-12%	61	-4	-6%
10	Rh-SI	76	63	69.5	73	3.5	5%	66	-3.5	-5%
	<b>Total</b>	<b>598</b>	<b>560</b>	<b>57.9</b>			<b>2%</b>			<b>2%</b>
10	Lh-LY	67	76	71.5	63	-8.5	-12%	65	-6.5	-9%
10	Lh-LU	68	69	68.5	52	-16.5	-24%	63	-5.5	-8%
10	Lh-LI	45	48	46.5	53	6.5	14%	57	10.5	23%
10	Lh-NE	47	60	53.5	67	13.5	25%	52	-1.5	-3%
10	Lh-CI	74	44	59	68	9	15%	56	-3	-5%
10	Lh-AL	50	53	51.5	68	16.5	32%	51	-0.5	-1%
10	Lh-OR	45	48	46.5	31	-15.5	-33%	39	-7.5	-16%
10	Lh-TW	68	71	69.5	45	-24.5	-35%	60	-9.5	-14%
10	Lh-HE	64	60	62	67	5	8%	60	-2	-3%
10	Lh-SI	55	61	58	66	8	14%	62	4	7%
	<b>Total</b>	<b>583</b>	<b>590</b>	<b>58.65</b>			<b>0%</b>			<b>-3%</b>
10	Rf-PA	77	84	80.5	79	-1.5	-2%	74	-6.5	-8%
10	Rf-LV	87	82	84.5	76	-8.5	-10%	87	2.5	3%
10	Rf-JO	77	71	74	60	-14	-19%	81	7	9%
10	Rf-ST	87	80	83.5	71	-12.5	-15%	78	-5.5	-7%
10	Rf-FI	72	79	75.5	54	-21.5	-28%	68	-7.5	-10%
10	Rf-SK	82	68	75	53	-22	-29%	66	-9	-12%
10	Rf-FA	74	71	72.5	68	-4.5	-6%	71	-1.5	-2%
10	Rf-GB	63	66	64.5	53	-11.5	-18%	46	-18.5	-29%
10	Rf-KI	79	49	64	74	10	16%	83	19	30%
10	Rf-UB	56	66	61	46	-15	-25%	59	-2	-3%
	<b>Total</b>	<b>754</b>	<b>716</b>	<b>73.5</b>			<b>-14%</b>			<b>-3%</b>
10	Lf-SP	85	84	84.5	75	-9.5	-11%	86	1.5	2%
10	Lf-LV	84	80	82	68	-14	-17%	76	-6	-7%
10	Lf-JO	84	76	80	71	-9	-11%	81	1	1%
10	Lf-ST	76	70	73	59	-14	-19%	66	-7	-10%
10	Lf-FI	84	76	80	76	-4	-5%	73	-7	-9%
10	Lf-SK	78	73	75.5	83	7.5	10%	72	-3.5	-5%
10	Lf-FA	73	63	68	50	-18	-26%	64	-4	-6%
10	Lf-GB	71	42	56.5	51	-5.5	-10%	69	12.5	22%
10	Lf-KI	76	79	77.5	62	-15.5	-20%	68	-9.5	-12%
10	Lf-UB	18	40	29	6	-23	-79%	16	-13	-45%
	<b>Total</b>	<b>729</b>	<b>683</b>	<b>70.6</b>			<b>-19%</b>			<b>-7%</b>

## Comparisons for Subject # 10

Comparisons of readings for Subject No. 10, an 83 year-old female, are presented in Table 9 with the actual readings from the Asyra™ presented in Figures 18A, 18B, 18C, and 18D on the following pages:

Figure 18A – Baseline 1	109
Figure 18B – Baseline 2	110
Figure 18C – Reading 4 (after Toning)	111
Figure 18D – Reading 3 (after Bowls)	112

### Right Hand

- There is an overall reduction of -2% in the mean energetic readings of the right hand after Toning, with the greatest variance in the meridians for the lymphatic system (+ 45%), the large intestine (+ 39%), and the endocrine system (-25%).
- There is an overall increase of 2% in the mean energetic readings of the right hand after the Crystal Bowl, with the greatest variance in the meridians for allergies (+ 35%) nervous system (-20%) and the large intestine (+ 17%).

### Left Hand

- The mean readings for the left hand remain flat as compared to baseline, with no change in the averages.
- There is an overall decrease of -3% in the mean energetic readings of the left hand after the Crystal Bowl, with the greatest variance in the meridians for the large intestine (+ 23%), the organ and cellular metabolism (-16%), and the endocrine system (- 14%).

### Right Foot

- There is an overall decrease of -3% in the mean energetic readings for the right foot after Toning, with the greatest variance in the meridians of the skin (-29%), the connective tissue (-28%), and the bladder and reproductive system (-25%).
- There is an overall decrease of -3% in the mean energetic readings for the right foot after Crystal Bowl, with the greatest variance in the meridians of the kidneys (+ 30%), the gall bladder (-29%), and the skin (-12%).

### Left Foot

- There is an overall decrease of -19% in the mean energetic readings for the left foot after Toning, with the greatest variance in the meridians for the bladder and reproductive organs (-79%), the fatty tissues (-26%), and the kidneys (-20%).
- There is an overall decrease of -7% in the mean energetic readings in for the left foot after the Crystal Bowl, with the greatest variance in the meridians for the bladder and reproductive organs (-45%), the gallbladder (+ 22%), and the kidneys (-12%).

Figure 18A – Subject # 10

Clinic	
Physicians	
Address	..
Phone	
	Email

Confidential Client Information

- Baseline 1,

Visit # 1

Date 12/16/2003

Gender F

Age 83

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	87	LV-liver (RF)	6	84	FI-connective tissues (LF)
2	87	ST-stomach (RF)	7	82	SK-skin (RF)
3	85	SP-spleen (LF)	8	18	UB-bladder/reproductive organs (LF)
4	84	LV-liver (LF)	9	79	KI-kidney (RF)
5	84	JO-joints (LF)	10	78	LU-lung (RH)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
50	LY-lymph	77	PA-pancreas
78	LU-lung	87	LV-liver
41	LI-large intestine	77	JO-joints
39	NE-nervous system	87	ST-stomach
57	CI-circulation	72	FI-connective tissues
58	AL-allergies	82	SK-skin
64	OR-organ/cellular metabolism	74	FA-fatty tissues
68	TW-endocrine	63	GB-gallbladder
67	HE-heart	79	KI-kidney
76	SI-small intestine	56	UB-bladder/reproductive organs
<b>Left Hand</b>			
67	LY-lymph	85	SP-spleen
68	LU-lung	84	LV-liver
45	LI-large intestine	84	JO-joints
47	NE-nervous system	76	ST-stomach
74	CI-circulation	84	FI-connective tissues
50	AL-allergies	78	SK-skin
45	OR-organ/cellular metabolism	73	FA-fatty tissues
68	TW-endocrine	71	GB-gallbladder
64	HE-heart	76	KI-kidney
55	SI-small intestine	18	UB-bladder/reproductive organs
<span style="color: red;">■</span> Stressed <span style="color: yellow;">■</span> Weakened <span style="color: green;">■</span> Balanced <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Untested			

2/11/2004

Figure 18B

Clinic	
Physicians	
Address	..
Phone	Email

Subject 10

Confidential Client Information

- Baseline 2, Visit # 1 Date 12/16/2003  
 Gender F Age 83

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	84	PA-pancreas (RF)	6	79	FI-connective tissues (RF)
2	84	SP-spleen (LF)	7	79	KI-kidney (LF)
3	82	LV-liver (RF)	8	76	LY-lymph (LH)
4	80	ST-stomach (RF)	9	76	JO-joints (LF)
5	80	LV-liver (LF)	10	76	FI-connective tissues (LF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
45	LY-lymph	84	PA-pancreas
65	LU-lung	82	LV-liver
48	LI-large intestine	71	JO-joints
54	NE-nervous system	80	ST-stomach
54	CI-circulation	79	FI-connective tissues
35	AL-allergies	68	SK-skin
67	OR-organ/cellular metabolism	71	FA-fatty tissues
66	TW-endocrine	66	GB-gallbladder
63	HE-heart	49	KI-kidney
63	SI-small intestine	66	UB-bladder/reproductive organs
<b>Left Hand</b>			
76	LY-lymph	84	SP-spleen
69	LU-lung	80	LV-liver
48	LI-large intestine	76	JO-joints
60	NE-nervous system	70	ST-stomach
44	CI-circulation	76	FI-connective tissues
53	AL-allergies	73	SK-skin
48	OR-organ/cellular metabolism	63	FA-fatty tissues
71	TW-endocrine	42	GB-gallbladder
60	HE-heart	79	KI-kidney
61	SI-small intestine	40	UB-bladder/reproductive organs
<b>Left Foot</b>			

Stressed     
  Weakened     
  Balanced     
  Untested

2/11/2004

Figure 18C

Clinic	
Physicians	
Address	
Phone	Email

Subject # 10

Confidential Client Information

- Toning 4,

Visit # 1

Date 12/16/2003

Gender F

Age 83

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	6	UB-bladder/reproductive organs (LF)	6	75	SP-spleen (LF)
2	83	SK-skin (LF)	7	74	KI-kidney (RF)
3	79	PA-pancreas (RF)	8	73	SI-small intestine (RH)
4	76	LV-liver (RF)	9	71	ST-stomach (RF)
5	76	FI-connective tissues (LF)	10	71	JO-joints (LF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
69	LY-lymph	79	PA-pancreas
68	LU-lung	76	LV-liver
62	LI-large intestine	60	JO-joints
51	NE-nervous system	71	ST-stomach
47	CI-circulation	54	FI-connective tissues
43	AL-allergies	53	SK-skin
58	OR-organ/cellular metabolism	68	FA-fatty tissues
50	TW-endocrine	53	GB-gallbladder
57	HE-heart	74	KI-kidney
73	SI-small intestine	46	UB-bladder/reproductive organs
<b>Left Hand</b>			
63	LY-lymph	75	SP-spleen
52	LU-lung	68	LV-liver
53	LI-large intestine	71	JO-joints
67	NE-nervous system	59	ST-stomach
68	CI-circulation	76	FI-connective tissues
68	AL-allergies	83	SK-skin
31	OR-organ/cellular metabolism	50	FA-fatty tissues
45	TW-endocrine	51	GB-gallbladder
67	HE-heart	62	KI-kidney
66	SI-small intestine	6	UB-bladder/reproductive organs
<b>Left Foot</b>			
75	SP-spleen		
68	LV-liver		
71	JO-joints		
59	ST-stomach		
76	FI-connective tissues		
83	SK-skin		
50	FA-fatty tissues		
51	GB-gallbladder		
62	KI-kidney		
6	UB-bladder/reproductive organs		

■ Stressed     
 ■ Weakened     
 ■ Balanced     
  Untested

2/11/2004

Figure 18D

Clinic	
Physicians	
Address	..
Phone	
	Email

Subject # 10

Confidential Client Information

- Bowls 3,

Visit # 1

Date 12/16/2003

Gender F

Age 83

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	87	LV-liver (RF)	6	81	JO-joints (LF)
2	86	SP-spleen (LF)	7	79	LU-lung (RH)
3	16	UB-bladder/reproductive organs (LF)	8	78	ST-stomach (RF)
4	83	KI-kidney (RF)	9	76	LV-liver (LF)
5	81	JO-joints (RF)	10	74	PA-pancreas (RF)

All Points:

	Value	Acupoint		Value	Acupoint
<b>Right Hand</b>			<b>Right Foot</b>		
	45	LY-lymph		74	PA-pancreas
	79	LU-lung		87	LV-liver
	52	LI-large intestine		81	JO-joints
	37	NE-nervous system		78	ST-stomach
	60	CI-circulation		68	FI-connective tissues
	63	AL-allergies		66	SK-skin
	63	OR-organ/cellular metabolism		71	FA-fatty tissues
	63	TW-endocrine		46	GB-gallbladder
	61	HE-heart		83	KI-kidney
	66	SI-small intestine		59	UB-bladder/reproductive organs
<b>Left Hand</b>			<b>Left Foot</b>		
	65	LY-lymph		86	SP-spleen
	63	LU-lung		76	LV-liver
	57	LI-large intestine		81	JO-joints
	52	NE-nervous system		66	ST-stomach
	56	CI-circulation		73	FI-connective tissues
	51	AL-allergies		72	SK-skin
	39	OR-organ/cellular metabolism		64	FA-fatty tissues
	60	TW-endocrine		69	GB-gallbladder
	60	HE-heart		68	KI-kidney
	62	SI-small intestine		16	UB-bladder/reproductive organs
		Stressed			Weakened
		Balanced			Untested

2/11/2004

**Table 10 – Subject # 13 Comparisons**

Subject # 13

<b>PNum</b>	<b>Meridian</b>	<b>B-1</b>	<b>B-2</b>	<b>Avg</b>	<b>Tone</b>	<b>+ / -</b>	<b>% CHG</b>	<b>Bowl</b>	<b>+ / -</b>	<b>% CHG</b>
13	RH-LY	60	49	54.5	45	-9.5	-17%	56	1.5	3%
13	Rh-LU	65	52	58.5	65	6.5	11%	66	7.5	13%
13	Rh-LI	51	52	51.5	53	1.5	3%	62	10.5	20%
13	Rh-NE	70	52	61	58	-3	-5%	47	-14	-23%
13	Rh-CI	42	56	49	81	32	65%	76	27	55%
13	Rh-AL	47	49	48	57	9	19%	47	-1	-2%
13	Rh-Or	36	44	40	58	18	45%	44	4	10%
13	Rh-TW	40	44	42	53	11	26%	56	14	33%
13	Rh-HE	45	67	56	60	4	7%	49	-7	-13%
13	Rh-SI	54	57	55.5	62	6.5	12%	64	8.5	15%
	<b>Total</b>	<b>510</b>	<b>522</b>	<b>51.6</b>			<b>17%</b>			<b>11%</b>
13	Lh-LY	43	36	39.5	69	29.5	75%	53	13.5	34%
13	Lh-LU	50	62	56	79	23	41%	52	-4	-7%
13	Lh-LI	50	52	51	58	7	14%	45	-6	-12%
13	Lh-NE	46	64	55	50	-5	-9%	54	-1	-2%
13	Lh-CI	38	40	39	70	31	79%	37	-2	-5%
13	Lh-AL	52	47	49.5	56	6.5	13%	56	6.5	13%
13	Lh-OR	53	60	56.5	60	3.5	6%	54	-2.5	-4%
13	Lh-TW	67	66	66.5	66	-0.5	-1%	69	2.5	4%
13	Lh-HE	59	56	57.5	69	11.5	20%	61	3.5	6%
13	Lh-SI	52	62	57	60	3	5%	55	-2	-4%
	<b>Total</b>	<b>510</b>	<b>545</b>	<b>52.75</b>			<b>24%</b>			<b>2%</b>
13	Rf-PA	79	82	80.5	88	7.5	9%	88	7.5	9%
13	Rf-LV	78	83	80.5	87	6.5	8%	88	7.5	9%
13	Rf-JO	80	74	77	89	12	16%	83	6	8%
13	Rf-ST	62	62	62	77	15	24%	64	2	3%
13	Rf-FI	87	78	82.5	92	9.5	12%	85	2.5	3%
13	Rf-SK	60	67	63.5	70	6.5	10%	67	3.5	6%
13	Rf-FA	84	86	85	92	7	8%	88	3	4%
13	Rf-GB	64	67	65.5	72	6.5	10%	57	-8.5	-13%
13	Rf-KI	78	75	76.5	81	4.5	6%	70	-6.5	-8%
13	Rf-UB	50	53	51.5	40	-11.5	-22%	32	-19.5	-38%
	<b>Total</b>	<b>722</b>	<b>727</b>	<b>72.45</b>			<b>8%</b>			<b>-2%</b>
13	Lf-SP	73	75	74	90	16	22%	82	8	11%
13	Lf-LV	82	87	84.5	93	8.5	10%	86	1.5	2%
13	Lf-JO	83	79	81	91	10	12%	92	11	14%
13	Lf-ST	85	90	87.5	90	2.5	3%	68	-19.5	-22%
13	Lf-FI	81	87	84	87	3	4%	85	1	1%
13	Lf-SK	69	87	78	87	9	12%	85	7	9%
13	Lf-FA	75	82	78.5	87	8.5	11%	89	10.5	13%
13	Lf-GB	57	78	67.5	62	-5.5	-8%	83	15.5	23%
13	Lf-KI	35	50	42.5	53	10.5	25%	57	14.5	34%
13	Lf-UB	37	38	37.5	62	24.5	65%	47	9.5	25%
	<b>Total</b>	<b>677</b>	<b>753</b>	<b>71.5</b>			<b>15%</b>			<b>11%</b>

## Comparisons for Subject # 13

Comparisons of readings for Subject # No. 13, a 66 year-old female, are presented in Table 10, with the actual readings from the Asyra™ presented in Figures 19A, 19B, 19C, and 19D on the following pages:

Figure 19A – Baseline 1	116
19B – Baseline 2	117
19C – Reading 4 (after Toning)	118
19D – Reading 3 (after Bowls)	119

### Right Hand

- There is an overall increase of +17% in the mean energetic readings of the right hand after Toning, with the greatest variance in the meridians for the circulatory system (+ 65%), the organ and cellular metabolism (+ 45%), and the endocrine system (+ 26%).
- There is an overall increase of 11% in the mean energetic readings of the right hand after the Crystal Bowl, with the greatest variance in the meridians for circulatory system (+ 55%) endocrine system (+ 33%) and the large intestine (+ 20%).

### Left Hand

- There is an overall increase of +24% in the mean energetic readings of the left hand after Toning, with the greatest variance in the meridians for the circulatory system (+79%), the lymphatic system (+75%), and the lungs (+ 40%)
- There is an overall increase of +2% in the mean energetic readings of the left hand after the Crystal Bowl, with the greatest variance in the meridians for the lymph system (+ 34%), allergies (+ 13%), and the large intestine (- 12%).

### Right Foot

- There is an overall increase of +8% in the mean energetic readings for the right foot after Toning, with the greatest variance in the meridians of the stomach (+ 24%), the joints (+16%), and the bladder and reproductive system (-22%).

- There is an overall decrease of -2% in the mean energetic readings for the right foot after Crystal Bowl, with the greatest variance in the meridians of the bladder and reproductive system (- 38%), the gall bladder (-13%), and the pancreas (+9%).

#### Left Foot

- There is an overall increase of +15% in the mean energetic readings for the left foot after Toning, with the greatest variance in the meridians for the bladder and reproductive organs (+ 65%), the kidneys (+ 25%), and the spleen (+ 25%).
- There is an overall increase of +11% in the mean energetic readings in for the left foot after the Crystal Bowl, with the greatest variance in the meridians for the kidneys (+ 34%), bladder and reproductive organs (+ 25%), the gallbladder (+ 23%).

Figure 19A

Clinic	
Physicians	
Address	..
Phone	Email

Subject # 13

Confidential Client Information

- Baseline 1,

Visit # 1

Date 12/18/2003

Gender F

Age 66

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	87	FI-connective tissues (RF)	6	81	FI-connective tissues (LF)
2	85	ST-stomach (LF)	7	80	JO-joints (RF)
3	84	FA-fatty tissues (RF)	8	79	PA-pancreas (RF)
4	83	JO-joints (LF)	9	78	LV-liver (RF)
5	82	LV-liver (LF)	10	78	KI-kidney (RF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
60	LY-lymph	79	PA-pancreas
65	LU-lung	78	LV-liver
51	LI-large intestine	80	JO-joints
70	NE-nervous system	62	ST-stomach
42	CI-circulation	87	FI-connective tissues
47	AL-allergies	60	SK-skin
36	OR-organ/cellular metabolism	84	FA-fatty tissues
40	TW-endocrine	64	GB-gallbladder
45	HE-heart	78	KI-kidney
54	SI-small intestine	50	UB-bladder/reproductive organs
<b>Left Hand</b>			
43	LY-lymph	73	SP-spleen
50	LU-lung	82	LV-liver
50	LI-large intestine	83	JO-joints
46	NE-nervous system	85	ST-stomach
38	CI-circulation	81	FI-connective tissues
52	AL-allergies	69	SK-skin
53	OR-organ/cellular metabolism	75	FA-fatty tissues
67	TW-endocrine	57	GB-gallbladder
59	HE-heart	35	KI-kidney
52	SI-small intestine	37	UB-bladder/reproductive organs
<span style="color:red">■</span> Stressed <span style="color:yellow">■</span> Weakened <span style="color:green">■</span> Balanced <span style="border:1px solid black; display:inline-block; width:10px; height:10px;"></span> Untested			

2/11/2004

Figure 19B

Clinic	
Physicians	
Address	..
Phone	Email

Subject # 13

Confidential Client Information

- Baseline 2,

Visit # 1

Date 12/18/2003

Gender F

Age 66

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	90	ST-stomach (LF)	6	83	LV-liver (RF)
2	87	LV-liver (LF)	7	82	PA-pancreas (RF)
3	87	FI-connective tissues (LF)	8	82	FA-fatty tissues (LF)
4	87	SK-skin (LF)	9	79	JO-joints (LF)
5	86	FA-fatty tissues (RF)	10	78	FI-connective tissues (RF)

All Points:

	Value	Acupoint		Value	Acupoint
<b>Right Hand</b>			<b>Right Foot</b>		
	49	LY-lymph		82	PA-pancreas
	52	LU-lung		83	LV-liver
	52	LI-large intestine		74	JO-joints
	52	NE-nervous system		62	ST-stomach
	56	CI-circulation		78	FI-connective tissues
	49	AL-allergies		67	SK-skin
	44	OR-organ/cellular metabolism		86	FA-fatty tissues
	44	TW-endocrine		67	GB-gallbladder
	67	HE-heart		75	KI-kidney
	57	SI-small intestine		53	UB-bladder/reproductive organs
<b>Left Hand</b>			<b>Left Foot</b>		
	36	LY-lymph		75	SP-spleen
	62	LU-lung		87	LV-liver
	52	LI-large intestine		79	JO-joints
	64	NE-nervous system		90	ST-stomach
	40	CI-circulation		87	FI-connective tissues
	47	AL-allergies		87	SK-skin
	60	OR-organ/cellular metabolism		82	FA-fatty tissues
	66	TW-endocrine		78	GB-gallbladder
	56	HE-heart		50	KI-kidney
	62	SI-small intestine		38	UB-bladder/reproductive organs
		Stressed			Weakened
		Balanced			Untested

2/11/2004

Figure 19C

Clinic	
Physicians	
Address	
Phone	Email

Subject # 13

Confidential Client Information

- Toning 4,

Visit # 1

Date 12/18/2003

Gender F

Age 66

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	93	LV-liver (LF)	6	90	ST-stomach (LF)
2	92	FI-connective tissues (RF)	7	89	JO-joints (RF)
3	92	FA-fatty tissues (RF)	8	88	PA-pancreas (RF)
4	91	JO-joints (LF)	9	87	LV-liver (RF)
5	90	SP-spleen (LF)	10	87	FI-connective tissues (LF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>		<b>Right Foot</b>	
45	LY-lymph	88	PA-pancreas
65	LU-lung	87	LV-liver
53	LI-large intestine	89	JO-joints
58	NE-nervous system	77	ST-stomach
81	CI-circulation	92	FI-connective tissues
57	AL-allergies	70	SK-skin
58	OR-organ/cellular metabolism	92	FA-fatty tissues
53	TW-endocrine	72	GB-gallbladder
60	HE-heart	81	KI-kidney
62	SI-small intestine	40	UB-bladder/reproductive organs
<b>Left Hand</b>		<b>Left Foot</b>	
69	LY-lymph	90	SP-spleen
79	LU-lung	93	LV-liver
58	LI-large intestine	91	JO-joints
50	NE-nervous system	90	ST-stomach
70	CI-circulation	87	FI-connective tissues
56	AL-allergies	87	SK-skin
60	OR-organ/cellular metabolism	87	FA-fatty tissues
66	TW-endocrine	62	GB-gallbladder
69	HE-heart	53	KI-kidney
60	SI-small intestine	62	UB-bladder/reproductive organs

Stressed

Weakened

Balanced

Untested

2/11/2004

Figure 19D

Clinic	
Physicians	
Address	..
Phone	Email

Subject # 13

Confidential Client Information

- Bowls 3,

Visit # 1

Date 12/18/2003

Gender F

Age 66

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	92	JO-joints (LF)	6	86	LV-liver (LF)
2	89	FA-fatty tissues (LF)	7	85	FI-connective tissues (RF)
3	88	PA-pancreas (RF)	8	85	FI-connective tissues (LF)
4	88	LV-liver (RF)	9	85	SK-skin (LF)
5	88	FA-fatty tissues (RF)	10	83	JO-joints (RF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>		<b>Right Foot</b>	
56	LY-lymph	88	PA-pancreas
66	LU-lung	88	LV-liver
62	LI-large intestine	83	JO-joints
47	NE-nervous system	64	ST-stomach
76	CI-circulation	85	FI-connective tissues
47	AL-allergies	67	SK-skin
44	OR-organ/cellular metabolism	88	FA-fatty tissues
56	TW-endocrine	57	GB-gallbladder
49	HE-heart	70	KI-kidney
64	SI-small intestine	32	UB-bladder/reproductive organs
<b>Left Hand</b>		<b>Left Foot</b>	
53	LY-lymph	82	SP-spleen
52	LU-lung	86	LV-liver
45	LI-large intestine	92	JO-joints
54	NE-nervous system	68	ST-stomach
37	CI-circulation	85	FI-connective tissues
56	AL-allergies	85	SK-skin
54	OR-organ/cellular metabolism	89	FA-fatty tissues
69	TW-endocrine	83	GB-gallbladder
61	HE-heart	57	KI-kidney
55	SI-small intestine	47	UB-bladder/reproductive organs

Stressed     
  Weakened     
  Balanced     
  Untested

2/11/2004

**Table 11 – Subject # 32 Comparisons**

Subject # 32
--------------

<b>PNum</b>	<b>Meridian</b>	<b>B-1</b>	<b>B-2</b>	<b>Avg</b>	<b>Tone</b>	<b>+ / -</b>	<b>% CHG</b>	<b>Bowl</b>	<b>+ / -</b>	<b>% CHG</b>
32	RH-LY	67	60	63.5	64	0.5	1%	73	9.5	15%
32	Rh-LU	65	74	69.5	70	0.5	1%	64	-5.5	-8%
32	Rh-LI	73	76	74.5	69	-5.5	-7%	73	-1.5	-2%
32	Rh-NE	69	66	67.5	74	6.5	10%	67	-0.5	-1%
32	Rh-CI	72	66	69	60	-9	-13%	63	-6	-9%
32	Rh-AL	59	65	62	63	1	2%	58	-4	-6%
32	Rh-Or	71	72	71.5	62	-9.5	-13%	73	1.5	2%
32	Rh-TW	78	64	71	63	-8	-11%	62	-9	-13%
32	Rh-HE	76	85	80.5	82	1.5	2%	70	-10.5	-13%
32	Rh-SI	72	62	67	48	-19	-28%	50	-17	-25%
	<b>Total</b>	702	690	69.6			-6%			-6%
32	Lh-LY	59	59	59	67	8	14%	51	-8	-14%
32	Lh-LU	75	66	70.5	64	-6.5	-9%	47	-23.5	-33%
32	Lh-LI	64	54	59	84	25	42%	58	-1	-2%
32	Lh-NE	55	67	61	67	6	10%	64	3	5%
32	Lh-CI	74	62	68	66	-2	-3%	62	-6	-9%
32	Lh-AL	71	57	64	62	-2	-3%	57	-7	-11%
32	Lh-OR	74	73	73.5	57	-16.5	-22%	60	-13.5	-18%
32	Lh-TW	50	65	57.5	67	9.5	17%	61	3.5	6%
32	Lh-HE	71	67	69	64	-5	-7%	72	3	4%
32	Lh-SI	54	54	54	59	5	9%	57	3	6%
	<b>Total</b>	647	624	63.55			5%			-7%
32	Rf-PA	87	68	77.5	75	-2.5	-3%	62	-15.5	-20%
32	Rf-LV	86	59	72.5	56	-16.5	-23%	52	-20.5	-28%
32	Rf-JO	86	74	80	79	-1	-1%	61	-19	-24%
32	Rf-ST	77	80	78.5	60	-18.5	-24%	57	-21.5	-27%
32	Rf-FI	81	66	73.5	59	-14.5	-20%	62	-11.5	-16%
32	Rf-SK	62	55	58.5	51	-7.5	-13%	45	-13.5	-23%
32	Rf-FA	80	81	80.5	65	-15.5	-19%	69	-11.5	-14%
32	Rf-GB	60	50	55	53	-2	-4%	47	-8	-15%
32	Rf-KI	73	82	77.5	74	-3.5	-5%	74	-3.5	-5%
32	Rf-UB	42	64	53	54	1	2%	38	-15	-28%
	<b>Total</b>	734	679	70.65			-11%			-20%
32	Lf-SP	86	75	80.5	78	-2.5	-3%	75	-5.5	-7%
32	Lf-LV	74	58	66	75	9	14%	57	-9	-14%
32	Lf-JO	90	81	85.5	75	-10.5	-12%	69	-16.5	-19%
32	Lf-ST	87	83	85	82	-3	-4%	77	-8	-9%
32	Lf-FI	62	59	60.5	52	-8.5	-14%	57	-3.5	-6%
32	Lf-SK	79	75	77	64	-13	-17%	54	-23	-30%
32	Lf-FA	80	72	76	80	4	5%	52	-24	-32%
32	Lf-GB	65	61	63	55	-8	-13%	56	-7	-11%
32	Lf-KI	57	60	58.5	70	11.5	20%	42	-16.5	-28%
32	Lf-UB	48	62	55	42	-13	-24%	50	-5	-9%
	<b>Total</b>	728	686	70.7			-5%			-16%

## Comparisons for Subject # 32

Comparisons of readings for Subject # No. 32, a 20 year-old male, are presented in Table 11, with the actual readings from the Asyra™ presented in Figures 20A, 20B, 20C, and 20D on the following pages:

:

Figure 20A – Baseline 1	123
Figure 20B – Baseline 2	124
Figure 20C – Reading 3 (after Toning)	125
Figure 20D – Reading 4 (after Bowls)	126

### Right Hand

- There is an overall reduction of -6% in the mean energetic readings of the right hand after Toning, with the greatest variance in the meridians for the small intestine (-28%), the organ and cellular metabolism (-13%), and the circulatory system (-13%).
- There is an overall reduction of -6% in the mean energetic readings of the right hand after the Crystal Bowl, with the greatest variance in the meridians for the small intestine (-25%), the lymph system (+15%), the endocrine system (-13%) and the heart (-13%).

### Left Hand

- There is an overall increase of +5% in the mean energetic readings of the left hand after the Toning, with the greatest variance in the meridians for the large intestine (+42%), the organ and cellular metabolism (-22%), and large intestine (-22%), and the endocrine system (+ 17%).
- There is an overall reduction of -7% in the mean energetic readings of the left hand after the Crystal Bowl, with the greatest variance in the meridians of the lungs (-33%), the organ and cellular metabolism (-18%) and lymph system (-14%).

### Right Foot

- There is an overall decrease of -11% in the mean energetic readings for the right foot after Toning, with the greatest variance in the meridians of the stomach (-24%), the liver (-23%), and the connective tissue (-20%).
- There is an overall decrease of -20% in the mean energetic readings for the right foot after Crystal Bowl, with the greatest variance in the meridians of the bladder and reproductive organs (-28%), the liver (-28%), and the joints (-24%).

### Left Foot

- There is an overall decrease of -5% in the mean energetic readings for the left foot after Toning, with the greatest variance in the meridians of the bladder and reproductive organs (-24%), the kidneys (-20%), and the skin (-17%).
- There is an overall decrease of -16% in the mean energetic readings in for the left foot after the Crystal Bowl, with the greatest variance in the meridians of the fatty tissues (-32%), the skin (30%), and the kidneys (-28%).

Figure 20A

Clinic	
Physicians	
Address	..
Phone	
	Email

Subject # 32

Confidential Client Information

- Baseline 1,

Visit # 1

Date 01/12/2004

Gender M

Age 20

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	90	JO-joints (LF)	6	86	SP-spleen (LF)
2	87	PA-pancreas (RF)	7	81	FI-connective tissues (RF)
3	87	ST-stomach (LF)	8	80	FA-fatty tissues (RF)
4	86	LV-liver (RF)	9	80	FA-fatty tissues (LF)
5	86	JO-joints (RF)	10	79	SK-skin (LF)

All Points:

	Value	Acupoint		Value	Acupoint
<b>Right Hand</b>			<b>Right Foot</b>		
<input checked="" type="checkbox"/>	67	LY-lymph	<input checked="" type="checkbox"/>	87	PA-pancreas
<input checked="" type="checkbox"/>	65	LU-lung	<input checked="" type="checkbox"/>	86	LV-liver
<input checked="" type="checkbox"/>	73	LI-large intestine	<input checked="" type="checkbox"/>	86	JO-joints
<input checked="" type="checkbox"/>	69	NE-nervous system	<input checked="" type="checkbox"/>	77	ST-stomach
<input checked="" type="checkbox"/>	72	CI-circulation	<input checked="" type="checkbox"/>	81	FI-connective tissues
<input checked="" type="checkbox"/>	59	AL-allergies	<input checked="" type="checkbox"/>	62	SK-skin
<input checked="" type="checkbox"/>	71	OR-organ/cellular metabolism	<input checked="" type="checkbox"/>	80	FA-fatty tissues
<input checked="" type="checkbox"/>	78	TW-endocrine	<input checked="" type="checkbox"/>	60	GB-gallbladder
<input checked="" type="checkbox"/>	76	HE-heart	<input checked="" type="checkbox"/>	73	KI-kidney
<input checked="" type="checkbox"/>	72	SI-small intestine	<input type="checkbox"/>	42	UB-bladder/reproductive organs
<b>Left Hand</b>			<b>Left Foot</b>		
<input checked="" type="checkbox"/>	59	LY-lymph	<input checked="" type="checkbox"/>	86	SP-spleen
<input checked="" type="checkbox"/>	75	LU-lung	<input checked="" type="checkbox"/>	74	LV-liver
<input checked="" type="checkbox"/>	64	LI-large intestine	<input checked="" type="checkbox"/>	90	JO-joints
<input checked="" type="checkbox"/>	55	NE-nervous system	<input checked="" type="checkbox"/>	87	ST-stomach
<input checked="" type="checkbox"/>	74	CI-circulation	<input checked="" type="checkbox"/>	62	FI-connective tissues
<input checked="" type="checkbox"/>	71	AL-allergies	<input checked="" type="checkbox"/>	79	SK-skin
<input checked="" type="checkbox"/>	74	OR-organ/cellular metabolism	<input checked="" type="checkbox"/>	80	FA-fatty tissues
<input checked="" type="checkbox"/>	50	TW-endocrine	<input checked="" type="checkbox"/>	65	GB-gallbladder
<input checked="" type="checkbox"/>	71	HE-heart	<input checked="" type="checkbox"/>	57	KI-kidney
<input checked="" type="checkbox"/>	54	SI-small intestine	<input checked="" type="checkbox"/>	48	UB-bladder/reproductive organs
<input checked="" type="checkbox"/>	Stressed		<input type="checkbox"/>	Weakened	
<input checked="" type="checkbox"/>	Balanced		<input type="checkbox"/>	Untested	

2/11/2004

Figure 20B – Subject # 32

Clinic	
Physicians	
Address	..
Phone	Email

Confidential Client Information

- Baseline 2, Visit # 1 Date 01/12/2004  
 Gender M Age 20

Top 10 Imbalances:

Value	Acupoint	Value	Acupoint
1	85 HE-heart (RH)	6	80 ST-stomach (RF)
2	83 ST-stomach (LF)	7	76 LI-large intestine (RH)
3	82 KI-kidney (RF)	8	75 SP-spleen (LF)
4	81 FA-fatty tissues (RF)	9	75 SK-skin (LF)
5	81 JO-joints (LF)	10	74 LU-lung (RH)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>		<b>Right Foot</b>	
60	LY-lymph	68	PA-pancreas
74	LU-lung	59	LV-liver
76	LI-large intestine	74	JO-joints
66	NE-nervous system	80	ST-stomach
66	CI-circulation	66	FI-connective tissues
65	AL-allergies	55	SK-skin
72	OR-organ/cellular metabolism	81	FA-fatty tissues
64	TW-endocrine	50	GB-gallbladder
85	HE-heart	82	KI-kidney
62	SI-small intestine	64	UB-bladder/reproductive organs
<b>Left Hand</b>		<b>Left Foot</b>	
59	LY-lymph	75	SP-spleen
66	LU-lung	58	LV-liver
54	LI-large intestine	81	JO-joints
67	NE-nervous system	83	ST-stomach
62	CI-circulation	59	FI-connective tissues
57	AL-allergies	75	SK-skin
73	OR-organ/cellular metabolism	72	FA-fatty tissues
65	TW-endocrine	61	GB-gallbladder
67	HE-heart	60	KI-kidney
54	SI-small intestine	62	UB-bladder/reproductive organs

Stressed     
  Weakened     
  Balanced     
  Untested

2/11/2004

Figure 20C

Clinic	
Physicians	
Address	, ,
Phone	Email

Subject # 32

Confidential Client Information

- Toning 3,

Visit # 1  
Gender M

Date 01/12/2004  
Age 20

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	84	LI-large intestine (LH)	6	78	SP-spleen (LF)
2	82	HE-heart (RH)	7	75	PA-pancreas (RF)
3	82	ST-stomach (LF)	8	75	LV-liver (LF)
4	80	FA-fatty tissues (LF)	9	75	JO-joints (LF)
5	79	JO-joints (RF)	10	74	NE-nervous system (RH)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>			
64	LY-lymph	75	PA-pancreas
70	LU-lung	56	LV-liver
69	LI-large intestine	79	JO-joints
74	NE-nervous system	60	ST-stomach
60	CI-circulation	59	FI-connective tissues
63	AL-allergies	51	SK-skin
62	OR-organ/cellular metabolism	65	FA-fatty tissues
63	TW-endocrine	53	GB-gallbladder
82	HE-heart	74	KI-kidney
48	SI-small intestine	54	UB-bladder/reproductive organs
<b>Left Hand</b>			
67	LY-lymph	78	SP-spleen
64	LU-lung	75	LV-liver
84	LI-large intestine	75	JO-joints
67	NE-nervous system	82	ST-stomach
66	CI-circulation	52	FI-connective tissues
62	AL-allergies	64	SK-skin
57	OR-organ/cellular metabolism	80	FA-fatty tissues
67	TW-endocrine	55	GB-gallbladder
64	HE-heart	70	KI-kidney
59	SI-small intestine	42	UB-bladder/reproductive organs
64	LY-lymph		
70	LU-lung		
69	LI-large intestine		
74	NE-nervous system		
60	CI-circulation		
63	AL-allergies		
62	OR-organ/cellular metabolism		
63	TW-endocrine		
82	HE-heart		
48	SI-small intestine		
<b>Right Foot</b>			
75	PA-pancreas	56	LV-liver
56	LV-liver	79	JO-joints
79	JO-joints	60	ST-stomach
60	ST-stomach	59	FI-connective tissues
59	FI-connective tissues	51	SK-skin
51	SK-skin	65	FA-fatty tissues
65	FA-fatty tissues	53	GB-gallbladder
53	GB-gallbladder	74	KI-kidney
74	KI-kidney	54	UB-bladder/reproductive organs
54	UB-bladder/reproductive organs		
<b>Left Foot</b>			
78	SP-spleen	75	LV-liver
75	LV-liver	75	JO-joints
75	JO-joints	82	ST-stomach
82	ST-stomach	52	FI-connective tissues
52	FI-connective tissues	64	SK-skin
64	SK-skin	80	FA-fatty tissues
80	FA-fatty tissues	55	GB-gallbladder
55	GB-gallbladder	70	KI-kidney
70	KI-kidney	42	UB-bladder/reproductive organs
42	UB-bladder/reproductive organs		

Stressed     
  Weakened     
  Balanced     
  Untested

2/11/2004

Figure 20D

Clinic	
Physicians	
Address	..
Phone	Email

Subject # 32

Confidential Client Information

- Bowl 4,

Visit # 1

Date 01/12/2004

Gender M

Age 20

Top 10 Imbalances:

	Value	Acupoint		Value	Acupoint
1	77	ST-stomach (LF)	6	73	OR-organ/cellular metabolism (RH)
2	75	SP-spleen (LF)	7	72	HE-heart (LH)
3	74	KI-kidney (RF)	8	70	HE-heart (RH)
4	73	LY-lymph (RH)	9	69	FA-fatty tissues (RF)
5	73	LI-large intestine (RH)	10	69	JO-joints (LF)

All Points:

Value	Acupoint	Value	Acupoint
<b>Right Hand</b>		<b>Right Foot</b>	
73	LY-lymph	62	PA-pancreas
64	LU-lung	52	LV-liver
73	LI-large intestine	61	JO-joints
67	NE-nervous system	57	ST-stomach
63	CI-circulation	62	FI-connective tissues
58	AL-allergies	45	SK-skin
73	OR-organ/cellular metabolism	69	FA-fatty tissues
62	TW-endocrine	47	GB-gallbladder
70	HE-heart	74	KI-kidney
50	SI-small intestine	38	UB-bladder/reproductive organs
<b>Left Hand</b>		<b>Left Foot</b>	
51	LY-lymph	75	SP-spleen
47	LU-lung	57	LV-liver
58	LI-large intestine	69	JO-joints
64	NE-nervous system	77	ST-stomach
62	CI-circulation	57	FI-connective tissues
57	AL-allergies	54	SK-skin
60	OR-organ/cellular metabolism	52	FA-fatty tissues
61	TW-endocrine	56	GB-gallbladder
72	HE-heart	42	KI-kidney
57	SI-small intestine	50	UB-bladder/reproductive organs

Stressed     
  Weakened     
  Balanced     
  Untested

2/11/2004

## CHAPTER 5

### DISCUSSION

#### *Mandra-Sadhana*

*Even if the loud notes are still sounding, one should  
still concentrate on the sounds in the heart.*

*Upanishad*

The data in this study suggest that listening to the sound of crystal bowls and toning with a Marcel Vogel crystal can influence energetic patterns in the body. The increase in the mean energetic readings compared to the baseline after toning and the decrease in mean energetic readings after crystal bowl playing support the hypothesis that these therapies can change the energetic balance of the body, as measured through the acupuncture meridians by the Asyra™. These findings suggest measurable changes in vibration through resonance and entrainment. Goldman states that entrainment is another word for harmony, a synchronization with the natural body functions and processes.<sup>1</sup> McClellan states that living flesh can vibrate sympathetically to a frequency imposed from another source.<sup>2</sup> Results appear to reinforce previous research studies that support the positive effects of sound therapy in the body.

Repeated measures analysis of means for all subjects across time indicate toning by the Principal Investigator holding a Marcel Vogel crystal increased mean energetic readings to a level of statistical significance in the meridians of the left hand, with  $p < .05$  (Table 5, page 88, and Figure 10, page 91), and quartz crystal bowl sounds

decreased mean energetic readings of the meridians in the right foot to a level of statistical significance, with  $p < .01$  (Table 5, page 88, and Figure 11, page 92).

Analysis of variance comparing interaction of order effect indicates a main effect in meridians of the left hand when the toning is first and playing the crystal bowl is second (Table 6, page 89, and Figure 14, page 95). The variances are statistically significant across all repeated measures with  $p < .05$ .

Interestingly, these effects of toning (Figures 14 and 15, pages 95 and 96) were greatest in the non-dominant hand and non-dominant foot. Ninety percent of people are right hand dominant. Well-coordinated right-handed people have a dominant left foot. Significant effects correlate with the parts of the body affected by the right temporal gyrus of the brain, a major area affecting creativity. This area of the brain has been found to be larger in musicians.<sup>3</sup>

In a study conducted at Newcastle University Medical School in England, researchers found that spectrally matched sounds that produce no pitch, fixed pitch, or melody were all found to activate Heschl's gyrus (HG) and planum temporale areas of the brain.<sup>4</sup> Utilizing functional magnetic resonance imaging (fMRI) to increase the sensitivity of auditory imaging and enable them to locate the neural centers involved in pitch and melody perception, they concluded that "The results support the view that there is hierarchy of pitch processing in which the center of activity moves anterolaterally away from primary auditory cortex as the processing of melodic sounds proceeds."<sup>5</sup> The anteriormost, transverse temporal gyrus of Heschl was identified in each of their listeners, and there was good agreement between this specification of the location of HG in listeners and that obtained in other studies.

The broadband sounds in their study produced activation bilaterally in a number of centers in HG, and fixed pitch stimuli produced more activation than noise in lateral HG, bilaterally. They utilized four sound conditions and a silent baseline in the study. The sounds were sequences of 32 notes played at the rate of four notes of 8 seconds duration, with 50 ms of silence between successive notes, at a pitch range of 50 to 110 Hz.<sup>6</sup>

The HS (hemispheric specialization) hypothesis suggests that pitch is the result of fine spectral processing in auditory cortex or, to be more specific, that pitch arises from the detection of harmonically related peaks in the tonotopic representation of the Fourier magnitude spectrum of the sound as it occurs in or near auditory cortex.<sup>7</sup>

The possibility of the toning or even the crystal bowl sounds activating the HG sector of the brain was not known or considered at the beginning of this study, so this presents interesting possibilities for future studies. The observation of the researchers in the HG study that the production of a tone with strong pitch, and the increase of the pitch of the tonal component to the point where it dominates perception,<sup>8</sup> presents another interesting possibility. During the process of this study, there were subjects who commented after the toning condition that they felt as though they “were in a sound chamber” or “the sound was really strong all around me”. It would seem that they were experiencing this dominance of sound, and it would be interesting to measure the effects of toning on both the toner and the listener with more definitive instrumentation such as the fMRI or brain mapping equipment

In my own experience of toning, there were moments when I felt as though my whole body were resonating with the sound, and I could “hear” an echo as though

someone else were there with me toning. I could also detect a resonance or “absorption” of the toning sound by the subject’s body; the note or tone would become very strong, as though it were echoed from their body. During the two month period of this study my volume of toning and my lung capacity increased and I felt both energized and calm after toning.

The comparison of the effects of this study on four subjects (Table 7, page 98) can tentatively be interpreted as a rebalancing of the energetic patterns in the body as demonstrated in posttest readings after both conditions. There appears to be consistency in the patterns of energetic change in specific meridians. Readings indicate the greatest percentage of change in these meridians following the toning and bowl sounds conditions.

In Subject # 33 (pages 99 – 101) there was a reduction in the mean energetic readings for the lymph and small intestine meridians in the right hand in the posttest readings for both the toning and crystal bowl playing. This pattern was repeated in posttest readings on the left hand, with reductions in the energetic balance for the circulation meridians, and on the posttest readings in the meridians for the fatty tissues on the right foot after each intervention.

It is interesting to consider these changes in relation to this excerpt from channeled readings from Ryerson, as quoted by Richard Gerber, M.D.:

There are various quartz-like structures in the physical and subtle bodies that augment the impact of vibrational remedies. In the physical body, these areas include: cell salts, fatty tissue, lymphs, red and white cells, and the pineal gland. These crystalline structures are a complete system in the body but not yet properly isolated and understood by modern medicine.<sup>9</sup>

This pattern is repeated in readings from the other three subjects. These changes would seem to indicate a shift in the energetic balances of the acupuncture meridians toward correcting the specific meridians that theoretically were “out of tune.” This study suggests that sound can influence energetic patterns in the body in the direction needed for balance.

The principle of entrainment has important implications for the use of toning as a form of subtle energy. Subjects in this study listened to the playing of the crystal bowl and to toning by the Principal Investigator. As with brain waves, if subtle energy is vibrational in nature, it is reasonable to speculate that the sound vibrations and entrainment created in toning can influence the vibrations of the subtle energy field and the energetic rhythms of the subjects, and the effects of vibration can be amplified with crystal.

Richard Gerber, M. D., states that quartz crystal may be useful for rebalancing and cleansing abnormally functioning or “blocked” chakras. When healing energy is focused through quartz crystal into the body of the patient, it is theoretically distributed to the areas most in need of an energy balancing. “There is an almost innate intelligence to this focused energy as it is always directed to the body regions where it is needed.”<sup>10</sup> He adds that the effectiveness of the crystal can be augmented through the use of sound and chanting, and through visualization and color.<sup>11</sup>

The key concept which Dr. Vogel has presented is that the quartz crystal is capable of amplifying and directing the natural energies of the healer. The subtle energies of the healer’s field become focused and coherent in a manner similar to a laser.<sup>12</sup>

Physiological changes can be effected in the body through sound therapies in a relatively short period of time. Both James Markham<sup>13</sup> and Mark Rider<sup>14</sup> reported results from utilizing a ten-minute testing period for toning in their studies. Where repeated measures are used with the same subjects, maintaining their attention and level of interest beyond one hour may be difficult.

Vibrational medicine is based on the idea that all illness or disease is characterized by blockage in the channels on some level, either in nadis, arteries, veins, or nerves. When there is a blockage, the organ in question stops vibrating at a healthy frequency, resulting in illness. Through sound and light these blockages can be broken up and dissolved. Ultrasound has been used medically for almost two decades as a diagnostic tool by pediatricians while the fetus is in early stages of development. More recently, ultrasound has been used to cleanse clogged arteries. Ultrasound works on the same principle of light equals sound and tone equals radiance manifesting in form.<sup>15</sup>

Crystal bowl sounds emit a pure holographic template of radiant light corresponding to the octave of sound within the etheric body. Since sound can be translated into color, the body may be seen as visible frequency that produces an auric color field, which reflects emotional states and thus the physiological status. Kirilian photography has reportedly already verified this.<sup>16</sup>

The tone of crystal bowls produces a vibrational sound field that resonates the light body chakra and corresponding physical area. A series of crystal sound therapy facilitates the rebalancing of each receiver. Pure quartz contains the full spectrum of light that is related to the seven energy centers (chakras) and thus is healing to the listener by bringing pure light through sound back into the human aura. Crystal acts as an

oscillator, magnifying and transmitting pure tone. That is why pure silicon crystal is used in all our most advanced telecommunication systems. Like a powerful radio transmitter, the crystal bowls transmit vibrational energy into the atmosphere.<sup>17</sup>

In their book *Why God Won't Go Away*, researchers Andrew Newberg, Eugene D'Aquili, and Vincent Rause measured the relationship between religious experience, such as meditation, and brain function, producing observable neurological events. Their work in connecting human consciousness to biologically observed mystical experiences led them to hypothesize that biology compels a spiritual urge, and establishes links between mind and spirit that are measurable. Perhaps additional research in sound therapy can establish those same measurable links between body, mind, and spirit that confirm that we are indeed musical, and have the innate ability to harmonically tune ourselves and each other into balance and facilitate our self-healing.

Dr. Lars Farde, professor of psychiatry at Karolinska Institute in Stockholm, Sweden, and co-author of *The Serotonin System and Spiritual Experience*, published an article in the November 2003 issue of *The American Journal of Psychology* on his research on 5-HT<sub>1A</sub>, a marker for the entire serotonin system. Their past research had focused on demonstrating the correlation between higher brain function and personality, utilizing positron emission tomography, or PET, to study neurotransmitters like dopamine and serotonin. In attempting to confirm serotonin's relationship to anxiety and depression, they were surprised to discover a connection between the density of the serotonin receptors and spiritual acceptance. They correlated their findings with the use of a temperament and character inventory of 15 physically and mentally healthy men

ages 20 to 45. These men self-assessed a number of personality traits, including self-transcendence, which denotes religious behavior and attitudes, supernatural experiences, meditation, and how they viewed the spiritual realm.<sup>18</sup>

Analyzing the data from the two tests, the researchers discovered a strong linear correlation: the higher the scores for spiritual acceptance, the lower the density of serotonin receptors. “There is more to say that low serotonin is linked with people who are open to spiritual or supernatural experiences....whereas the higher levels go more with people who believe what they see with their eyes and are not so open to God or other aspects of religion,” explained Farde.

Dr. Andrew Newberg, an assistant professor in the departments of radiology and psychiatry at the University of Pennsylvania, stated that this is an integral study in understanding the biology behind spirituality and religion. This research could be useful in a number of ways, he speculated, including guiding people to practices that might better suit their disposition and understanding how people are different spiritually.

I mention these studies in this discussion because their findings, methodology, instrumentation, and measurements can be applied to future research in toning and crystal bowls. Levels of neurotransmitters and other chemicals in the brain and body present the next frontier for measurement in sound therapy. Perhaps the non-pharmacological therapy of toning and crystal bowl sound could be used to increase calmness, reduce stress, and possibly treat depression. Heightening religious or spiritual experiences from toning can be explored. One of my experiences in toning was a very deep state of meditation following a group session of toning. The increased energy, clarity, calmness and relaxation I experienced after intensive toning during the research would seem to indicate physiological changes.

Past research on the effects of music has confirmed physiological changes, but there is very little research on the effects of toning or crystal bowls. In the Conclusions section that follows I will attempt to summarize this study and propose several recommendations for future research.

## LIMITATIONS

Possible problems of this study involve the evaluation of procedures over a short span of time. Subjects were tested and evaluated one time in the span of approximately one hour. The principal investigator performed the toning in this study, with the subjects listening. A more comprehensive study of the effects of toning would involve a longer term of evaluation and the effects of self-produced sound performed by the subjects.

It is difficult to measure the exact effects of the Marcel Vogel crystal used in this study unless it is evaluated in a side-by-side comparison of toning with no crystal. Researchers have attempted for some time to measure subtle energy and to quantify the effects of music and sound therapy on the body. Anecdotal and subjective evidence exists to support the usefulness of these therapies and explore the use of various tools for measurement. Perhaps the Asyra™ can be included as one of the reliable tools for such measurement; obviously, many more observations are needed. The Asyra™ can create a low voltage electroacupuncture. The effect on subjects and the effects on results in this study are not known.

There was no effective control group in this study. Subjects acted as their own control, with readings five to ten minutes apart.

The numbers from the readings on each dependent variable were averaged, and the means used for comparison and analysis. A more comprehensive study would evaluate the energetic changes in each meridian measured, with repeated measures to ascertain trends in each subject, based on the therapy.

## Endnotes

### CHAPTER 5

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- <sup>2</sup> McClellan, Randall. *The Healing Forces of Music*. Lincoln, NE. toExcel (1991) 21
- <sup>3</sup> Mohr, C., Landis, T., Bracha, H.S., Brugger, P. Opposite turning behavior in right-handers and non-right handers suggests a link between handedness and cerebral dopamine asymmetries. *Behavioral Neuroscience*. 2003 Dec; 117(6):1488-52.
- <sup>4</sup> Patterson, R., Uppenkamp, S., Johnstrude, I., and Griffiths, T. The processing of temporal pitch and melody information in auditory cortex. *Neuron*. Vol. 36, 767-776, November 14, 2002, 767
- <sup>5</sup> Ibid. 768
- <sup>6</sup> Ibid. 774
- <sup>7</sup> Ibid. 774
- <sup>8</sup> Ibid. 768
- <sup>9</sup> Gerber, Richard. *Vibrational Medicine. The # 1 Handbook of Subtle -Energy Therapies*. Rochester, VT. Bear & Co. (2001) 344
- <sup>10</sup> Gerber, Richard. *Vibrational Medicine. The # 1 Handbook of Subtle-Energy Therapies*. Rochester, VT. Bear & Co. (2001) 339
- <sup>11</sup> Ibid. 340
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- <sup>13</sup> Markham, James. The Effects of Elongated Vowel Singing Toning on Galvanic Skin Response and Skin Temperature. Thesis presented to Naropa Institute. (1998) 42
- <sup>14</sup> Rider, Mark, et.al. The Effects of Toning, Listening, and Singing on Psychological Responses. In Maranto, C. (Ed.) *Applications of Music in Medicine*. (1991) 78
- <sup>15</sup> "Chakra Tuned Singing Quartz Crystal Bowls" brochure, The Crystal Distribution Co. Inc., 7320 Ashcroft, # 303, Houston, TX 77081 (2003)
- <sup>16</sup> Ibid.
- <sup>17</sup> Ibid.
- <sup>18</sup> Science and Theology News: Discoveries, Research and Ideas From Around the World. Vol. 4, No. 7. (March, 2004) 1, 34

## CONCLUSIONS AND RECOMMENDATIONS

*And we must learn that to know a man is not to know his name  
but to know his melody.*

*Unknown Oriental Philosopher*

It is interesting to note that at the end of his research, in giving recommendations for future research, Hans Jenny recommended that “we will look into the larynx, which potentially contains the whole range of Cymatics,”<sup>1</sup> He concluded that the phenomena of vibrational effects can be visualized and recorded in a variety of ways by the human voice, and his goal was to bring Cymatics into the field of observation.

In this dissertation I have included the theories and findings of scientists, clinicians, and others who have studied and researched the effects of self-produced sound:

- Fabian Maman, a musician and researcher in France, posited that the human voice carries something in its vibration that makes it more powerful than any musical instrument: consciousness. (page 37)
- Alfred Tomatis, M.D., considered the Einstein of sound, stated that the elongated tones of Gregorian chanting directly affect the cortex of the brain, increasing awareness and charging the brain, and that toning involves high frequency stimulation of the brain. He also found that others listening to monks engaged in Gregorian chanting experienced entrainment that altered their rate of breathing. (page 39)

- Gregg Braden, an author, lecturer, and earth scientist who lectures throughout the world witnessed the power of the voice and intention to heal a malignant bladder tumor in a woman in a medicineless hospital in China in two minutes and forty-five seconds. (page 38).
- Mitchell Gaynor, M.D., an oncologist in New York, has used sound therapy in the treatment of cancer patients. He states that “the human voice is the most powerful tool ever discovered for self-healing. Our voice is intimately linked to our breath. It is audible breath, and learning to use your voice through chanting and toning enables you to make profound leaps in your own transformation.” (page 36)
- Researchers at the Karolinska Hospital in Sweden recommend humming to increase the ventilation in the paranasal sinus cavities and promote the exchange of gases which help to dilate capillary beds and increase blood flow, thereby reducing the risk of sinus infections. (page 43)

These findings and the numerous anecdotal accounts of the beneficial effects of toning and sound therapy present compelling reasons to promote these therapies as tools for self-healing, self-awareness, and self-actualization. Margaret Deak called toning a personal psychotherapeutic tool.

The response of subjects to toning and crystal bowls became an interesting observation for me during this study. Comments following toning included “I felt tingling in the left side of my body”, or “I felt intense heat through the middle of my body”, or “it seemed like the sound around my head was so magnified”. I watched people fall asleep within a few minutes after beginning to play the crystal bowl. Some

seemed to be in an altered state when the playing ended. One lady living in a stressful home situation told me she felt very tranquil and relaxed for three days after the testing, and wanted to come for another “treatment”.

I remembered reading *Sacred Healing* by Norman Shealy, Ph.D., in which he summarized the principles of Quantum Touch, developed by Richard Gordon:<sup>2</sup>

1. Energy follows thought—practitioner uses intention and various meditations to raise and move the energy.
2. Breathing amplifies the Life-Force.
3. The practitioner raises his or her vibration to create a high-energy field and uses that field to surround the area to be healed.
4. Resonance and entrainment cause the area being healed to change vibration to match that of practitioner. The practitioner simply raises and holds the new resonance.
5. No one can really heal anyone else. The person in need of healing is the healer. The practitioner simply holds a resonance so that can happen.<sup>3</sup>

I respectfully submit that these same principles can be applied to sound therapy and its effects in the body, both for the toner and the person receiving toning. Toning with intention creates energy, resonance, and vibration.

Laurel Keyes adds, “Psychologists have agreed that most of our problems arise from the subconscious, the feeling nature. When the mind and the feelings are in conflict, the feelings usually win.”<sup>4</sup> She cites the work of Dr. William Tiller,

Department of Materials Science at Stanford University and a Guggenheim Fellowship member:

All illness has its origin in a disharmony between the mind and spirit levels of the entity and that of the universal pattern for the entity; thus, healing at the physical or even the etheric level is only temporary if the basic pattern in at the mind and spirit levels remains unchanged.<sup>5</sup>

Raising the awareness of the benefits of self-produced sound to harmonize emotions and the body is one of the goals of this study. I cited the work of Mahlberg (page 43) who theorized that humming promoted calmness and facilitated the deepening of a sense of self. These are certainly worthwhile attributes to assist anyone who has the desire for better health and the courage to make the changes in their life that support that desire.

Peter Hamel's statement that the ancients already knew that we possess all the proportions as a primal creative force may be closer to rediscovery. The theories of Jenny and Bohm that a more artistic rather than statistical or theoretical approach to research could become the new paradigm.

Perhaps, as Don Campbell advocates, the answer lies in approaching life and research with a more playful, childlike attitude.

With the rise of more cognitive, technical societies that de-emphasize mystical religious practices, the bridges between the conscious and subconscious have been slowly weakened. With the introduction of chemicals, electromagnetic fields and mechanical rhythms all around us, the sensing mechanisms that flow between one world and another have become callous. When television replaces children's imaginative play times and safe independent places for developing are invaded with high-tech sensory stimulation, children begin to lose their natural, intuitive connections.<sup>6</sup>

The wounding of our listening abilities is more than the feeling of not being heard. It is a wounding of the integrity of a deeper, more powerful self that must have a healthy life to maintain balance in the physical and emotional parts of our nature. It is easy to become tangled in an endless maze of cognitive patterns. Phrases lose their power by constant and unemotional use. It is just as easy to become caught in an emotional pattern that cannot be aptly expressed in words.<sup>7</sup>

The great fears that develop through being cut off from society and family are based on the greater terror of being separated from the powerful depths of our own intuitive, subconscious perceptions. When we refuse to listen to these deep unknown parts of the psyche, physical and emotional tensions emerge that can lead to an imbalance of perception and thought in the outer world.<sup>8</sup>

Our inhibition of personal expression, creativity, and concrete learning patterns prevents the natural, joyous, expression possible for children,<sup>9</sup> states Campbell, and “...we have developed such strong, logical, left-brained constructs to control the outer world that we may have lost our natural awareness of how to harmonize and work with the inner world.”<sup>10</sup> Nature and its landscapes, music, practices of chanting, drumming, and improvisational or free form dancing can help to restore those connections with our inner landscape and natural rhythms.

Noise pollution, including loud music, is one of the most toxic issues in our environment, and is just as toxic as waste, air and water pollution. When searching for research in the field of sound therapy I visited the library at Southwestern Medical School in Dallas. The research database included page after page of articles on the effects of noise pollution, but very few articles on the benefits of sound therapy outside of music.

Toning, chanting, and humming require focus and attention on the self, on breathing and awareness of the body, and are excellent tools for meditation. It is difficult to hear and feel the resonance in your body while worrying, multitasking, or listening to

noises in the environment or watching TV. Another requirement for sounding the body is total abandonment to any concern about how you sound, but developing listening skills “tuned” to your body and developing that inner listening to “hear” your disharmony.

Self-healing begins with self-care; with respect for body, mind, and spirit. One of my favorite sayings from Belleruth Naparstek is that your body is your oldest friend and steadiest companion. I highly recommend her guided imagery CD’s and tapes as a tool for deepening the sensitivity and respect for the Divinely built mansion in which you live. On her Health Journeys cassette tape to Relieve Stress, she guides the listener in affirmations that include:

I am no longer willing to push and pull myself around without regard for my own well-being. I will show the same love and concern for my body that I would for any dear and valued friend. More and more, I can consider the possibility that my body is teaching me something useful, that these time of stress are simply signals to slow down, focus inward, and be kinder to myself. . . . . I salute my own courage, commitment and strength in my efforts to take charge of my own health, calm, and well-being.<sup>11</sup>

## RECOMMENDATIONS

I am encouraged by recent emails from different organizations promoting brief periods of toning or sounding “Ahh” or “Om” for world peace at specific times. The vibration of large groups of people toning in unison surely registers a positive resonance on the planet, and has great potential for healing specific situations. This would be my first recommendation, to promote and participate in the power of sounding our planet into peace, and perhaps to do a study with a group of people toning for a specific healing or event.

Recommendations for future research:

- An exploration of the effects of toning on cortisol and endorphins. High levels of cortisol have been linked to stress, and the calming effects of toning are possibly due to reduced levels of cortisol. The increased energy and sense of well being that toning induces could well be due to increased levels of endorphins. This study would follow a group that toned several times a week for three months.
- Among the 42 subjects tested in this study, teenagers and college students had the highest averages on Asyra™ readings. It is not clear whether these higher levels indicate higher energy or higher stress. There is great benefit to promoting the benefits of toning and self produced sound to this age group to reduce stress and to assist them in developing positive self-care habits early in life, as well as determining if these energetic averages are influenced by 6 weeks of toning for 15 minutes a day, three times a week.
- A controlled study with brain mapping, PET scanning, or FMRI studies following toning and or crystal bowl sounds for ten minutes to evaluate the effects on the hemispheres of the brain.

*And the more souls who resonate together, the greater the intensity of their love.  
And mirror-like, each soul reflects the other.*

*Dante*

## Endnotes

### CONCLUSIONS AND RECOMMENDATIONS

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<sup>1</sup> McClellan, R. *The Healing Forces of Music*. Lincoln, NE. toExcel (1991) 52

<sup>2</sup> Shealy, Norman. *Sacred Healing*. Boston, MA. Element Books (1999) 55

<sup>3</sup> Ibid. 56

<sup>4</sup> Ibid. 12

<sup>5</sup> Keyes, Laurel. *Toning: The Creative Power of the Voice*. Marina del Rey, CA. (1973) 21

<sup>6</sup> Campbell, Don. *The Roar of Silence*. Wheaton, IL. Theosophical Publishing House (1989) 35

<sup>7</sup> Ibid. 36

<sup>8</sup> Ibid. 36

<sup>9</sup> Ibid.22

<sup>10</sup> Ibid. 70

<sup>11</sup> Naparstek, Belleruth. Health Journeys. Relieve Stress: Walking Meditation / Affirmations. Akron, OH: Image Paths, Inc. cassette tape, Side B.

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Appendix A

STUDY ID #: 421

DATE APPROVED BY THE IRB: 10-30-03

DATE STUDY TO BEGIN: December, 2003

PRINCIPAL INVESTIGATORS: C. Norman Shealy, M.D., Ph.D., and Laquita Allen

PROTOCOL FOR PILOT STUDY AND RESEARCHING THE EFFECTS OF  
TONING, CRYSTAL BOWLS, AND MUSIC LISTENING  
ON LEVELS OF FREE RADICAL ACTIVITY

Location: Pilot Study: At the home of the Principal Investigator  
Research Study: Holos Research Unit, Springfield, Missouri

1. STUDY CONDUCT

1.1. Background

Free radicals are normally present in the body in small numbers. Under normal circumstances the body can keep them in check. Free radicals produced by the immune system destroy viruses and bacteria. Other free radicals are involved in producing vital hormones and activating enzymes that are needed for life. We need free radicals to produce energy and various substances that the body requires.

The formation of a large number of free radicals stimulates the formation of more free radicals, leading to damage in the body. Many different factors can lead to an excess of free radicals. Exposure to radiation, environmental pollutants such as tobacco smoke and automobile exhausts, diet, stress, and endurance exercise that can increase oxygen utilization from 10 to 20 times over the resting rate.

Free radicals are atoms or groups with an odd (unpaired) number of electrons and can be formed when oxygen interacts with certain molecules. Normally, bonds don't split in a way that leaves a molecule with an odd, unpaired electron. But when weak bonds split, free radicals are formed. Free radicals are very unstable and react quickly with other compounds, trying to capture the needed electron to gain stability. Generally, free radicals attack the nearest stable molecule, "stealing" electrons. When the "attacked" molecule loses its electron, it becomes a free radical. Each free radical may exist for only a fraction of a second, but the damage it leaves behind can be irreversible,

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particularly damaging to heart muscle cells, nerve cells, and certain immune system sensor cells.

Fortunately, the body is naturally equipped with antioxidant defense systems to detoxify these dangerous agents. Unfortunately, the body's defense system becomes less effective as we get older, leading to the accumulation of oxidative damage and the development of chronic degenerative diseases like arthritis, hypertension, atherosclerosis, diabetes, cancer and diseases of the central nervous system such as stroke, Alzheimer's disease and Parkinson's disease. Depletion of antioxidants can thus lead to a variety of chronic diseases. The relationship between oxidative damage and aging is a double-edged sword. On one hand, oxidative damage to DNA, lipids, proteins and other macromolecules appears to be a major contributing factor to aging, while at the same time, this oxidative damage accumulates with aging despite attempts by an individual's cellular machinery to repair it.

## 1.2 Objective

To evaluate and measure the effects of toning, crystal bowl playing, and music listening on the levels of free radical activity, as determined by colorimetric testing of urine. Because it is not possible to directly measure free radicals in the body, scientists have developed methods to measure the by-products that result from free-radical reactions. If the generation of free radicals exceeds the antioxidant defenses then one would expect to see more of these by-products. One such by-product of free radical activity, MDA, or malondialdehyde, a 3 carbon dialdehyde compound rapidly cleared from the blood into the urine, can be evaluated in urine samples by a colorimetric home test kit, the OxiData™ Test. Music and sound therapy have been shown to reduce levels of stress, and the objective in the pilot study is to test the methods and the effects of these therapies in reducing stress and lowering levels of free radical activity, as measured by the OxiData™ Test Kit. Subjects in the study will be asked to complete a questionnaire to subjectively evaluate the relaxing effects of the therapy. A copy of the questionnaire is attached. Results of the pilot study will be evaluated to determine whether further study is warranted.

## 1.3 Study Design

Up to 30 individuals in the pilot study and 90 individuals in the research study will participate in a three-arm pretest and posttest control group design in which they will be randomly assigned to one of three conditions and tested individually on a one-time basis by the Principal Investigator. A baseline level of free radical activity in the pretest urine specimen will be compared to the level of free radical activity in the posttest urine specimen after a 20 minute

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therapy intervention or control condition. No additional follow up or testing would be required of the subjects.

#### 1.4 Subject Population

##### 1.4.1 Inclusion Criteria

- a. Subjects will be self-evaluated to be healthy, physically able to ambulate, unassisted, in and out of testing area, and provide their own transportation to and from testing area.
- b. Subjects will show willingness to participate by signing a voluntary consent form.
- c. Subjects will show ability to speak and understand English language, and stated willingness to follow the directions of the Principal Investigator (PI) and research staff.
- d. Subjects will show willingness to provide pre and posttest urine sample.
- e. Subjects will show willingness to be participate in the study for a period of at least one hour, in the morning, between 7 a.m. and 11 a.m., plus the drive time to and from the test location.
- f. Subjects will show willingness to discontinue vitamin therapy, or any supplements or medication that might discolor urine, for a period of 24 hours prior to testing.
- g. Subjects will show willingness to drink 8 to 10 ounces of water before arriving for testing, and again upon arrival, to ensure collection of urine specimen.
- h. Subjects will show willingness to be randomly assigned to one of three test conditions.

##### 1.4.2 Exclusion Criteria

- a. Individuals requiring daily medications, or with serious health conditions, such as cancer, heart disease, diabetes, or high blood pressure, or medications such as steroids, pain medication, blood pressure drugs, heart medication, arthritis medication, or chemotherapy.
- b. Smokers.
- c. Minors or children under the age of 20.
- d. Individuals with hearing deficits that would prevent them from effectively listening to music.

##### 1.4.3 Potential Risks

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- a. There is no anticipated risk in the use of testing materials. The OxiData™ Test kit for measuring levels of free radical activity was determined to be the most appropriate instrument for measurement due to its reliability, cost, and ease of operation. It is designed to be self-administered and does not require use in or evaluation by a laboratory. There is no risk to the subject since they are not in contact with testing materials. They will be asked to provide pre and posttest urine specimens in a paper cup. The testing is done by the Principal Investigator or a research assistant.
  - b. Subjects are not in contact with the quartz crystal bowls used in this study. Bowls will be placed a minimum on 3' from their body, and the three bowls utilized in the test will be placed a minimum of 5' apart.
  - c. The music played in the music listening condition is selected to elicit a relaxation response. Certain types of music can be used to induce spontaneous images that could be disturbing to some subjects, but that is not planned in this study.

#### 1.4.4 Discontinuation Criteria

- a. A subject may discontinue participation in the study at any time at their request, or at the request of the PI.
- b. If a subject terminates their participation in the study, the drop date and reason will be recorded in a Report Form and reported to the IRB.
- c. If adverse reactions occur during the study, or if subject feels uncomfortable, the PI can determine whether the subject should be discontinued and report same to the IRB in writing

### 1.5 Evaluations

#### 1.5.1

##### Safety

Safety will be evaluated by monitoring the occurrence of any adverse effects. Adverse effects would be monitored as follows:

- a. The subject will be instructed to notify the Principal Investigator if they are not comfortable or if any unusual symptoms occur.

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- b. In the event of discomfort or any symptoms, PI must notify the IRB chair within 24 hours and the full board within 72 hours. Any adverse reaction will be recorded in the complaint file and reported to the full IRB board. If there is a major adverse reaction (such as death or immediate threat of death), the FDA and the Chair of the IRB will be notified within 24 hours and then in writing.
  - c. In case of adverse effects, proper therapeutic measures and follow-up will be done by the PI in accordance with good clinical practice.

#### 1.5.2 Efficacy

Efficacy will be addressed by comparing the pre and posttest levels of free radical activity in the urine.

#### 1.5.3 Statistical Analyses

The data will be recorded and analyzed to compare mean differences in levels of free radical activity between baseline levels and posttest levels, as well as analysis of covariances within the three groups. For each subject, the mean difference will be calculated and considered the units of measure. SPSS software and additional statistical methods will be used as appropriate.

#### 1.6 Special Instructions

All subjects will be required to sign the Informed Consent Form. All subjects will be instructed to discontinue taking nutritional supplements 24 hours prior to the appointed testing time. Subjects will be instructed to drink 8 to 10 ounces of water prior to arriving for testing and again upon arrival. Subjects will sign a demonstration Sign-Off sheet verifying that they have been instructed in and understand the above procedures.

### 2. Management and Regulation

#### 2.1 Monitoring.

Monitoring responsibilities performed by the sponsor's monitors include but are not limited to:

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2.1.1 Screening phone call to review inclusionary and exclusionary criteria, willingness to participate in study, and set appointment time.

2.1.2 Subjects will have a baseline urine test to measure levels of free radical activity upon arrival for testing, and again at the completion of the testing.

## 2.2 Monitoring Personnel

Laquita Allen, Ph.D candidate, and C. Norman Shealy, M.D., Ph.D., or his designated appointee, M.D., or FNP.

## 2.3 Regulatory Considerations

None

### 2.3.1 Protocol Agenda

The PI shall not implement a change in or otherwise deviate from the protocol if the change may increase the risk to study subjects or adversely affect the validity of the investigation or the rights of human subjects.

Changes may be made to reduce the risk to subjects; however, the PI must notify the Chair of the IRB prior to such changes and the IRB Board will be notified by letter also.

### 2.3.2 Subject Report Form Completion and Submission

Reports of progress or lack of progress will be sent to the IRB every 3 months for one year from the start date, planned for November 2003. The Pilot Study will not last longer than one month and the Research Study longer than three months unless protocol is resubmitted to the IRB.

Subject Report Forms will be completed at the end of the each intervention. They shall be maintained by the PI with a final report to the IRB.

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STUDY NAME: PROTOCOL RESEARCHING THE EFFECTS OF TONING,  
CRYSTAL BOWLS, AND MUSIC LISTENING ON LEVELS OF FREE RADICAL  
ACTIVITY

STUDY ID #: 421

DATE APPROVED BY IRB: 10-30-03

BEGINNING OF STUDY:

LENGTH OF STUDY:

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### SUBJECT INFORMED CONSENT

DOCTOR IN CHARGE OF STUDY: C. Norman Shealy, M.D., Ph.D.

NAME OF EQUIPMENT / THERAPY

Free radicals are normally present in the body in small numbers. Under normal circumstances the body can keep them in check. Free radicals produced by the immune system destroy viruses and bacteria. Other free radicals are involved in producing vital hormones and activating enzymes that are needed for life. We need free radicals to produce energy and various substances that the body requires.

The formation of a large number of free radicals stimulates the formation of more free radicals, leading to damage in the body. Many different factors can lead to an excess of free radicals. Exposure to radiation, environmental pollutants such as tobacco smoke and automobile exhausts, diet, stress, and endurance exercise that can increase oxygen utilization from 10 to 20 times over the resting rate.

Free radicals are atoms or groups with an odd (unpaired) number of electrons and can be formed when oxygen interacts with certain molecules. Normally, bonds don't split in a way that leaves a molecule with an odd, unpaired electron. But when weak bonds split, free radicals are formed. Free radicals are very unstable and react quickly with other compounds, trying to capture the needed electron to gain stability. Generally, free radicals attack the nearest stable molecule, "stealing" electrons. When the "attacked" molecule loses its electron, it becomes a free radical. Each free radical may exist for only a fraction of a second, but the damage it leaves behind can be irreversible, particularly damaging to heart muscle cells, nerve cells, and certain immune system sensor cells.

Fortunately, the body is naturally equipped with antioxidant defense systems to detoxify these dangerous agents. Unfortunately, the body's defense system

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becomes less effective as we get older, leading to the accumulation of oxidative damage and the development of chronic degenerative diseases like arthritis, hypertension, atherosclerosis, diabetes, cancer and diseases of the central nervous system such as stroke, Alzheimer's disease and Parkinson's disease. Depletion of antioxidants can thus lead to a variety of chronic diseases. The relationship between oxidative damage and aging is a double-edged sword. On one hand, oxidative damage to DNA, lipids, proteins and other macromolecules appears to be a major contributing factor to aging, while at the same time this oxidative damage accumulates with aging despite attempts by an individual's cellular machinery to repair it.

Stress is considered by researchers to be one of the contributing factors to high levels of free radicals. Music listening and sound therapy has been demonstrated to be effective in reducing stress. This study seeks to measure the effects of sound and music therapy on levels of free radical activity in the body, as measured by a test on urine samples.

This research project will consist of an experimental study in which subjects will be randomly assigned to one of three treatment conditions. Each treatment condition will require one appointment of one hour, with 20-minutes of therapy or intervention in one of the three following conditions:

1. Toning, or sounding of vowels with the voice for 10 minutes, and then listening to the playing of quartz crystal bowls for 10 minutes.
2. Sitting in silence with no intervention for 20 minutes.
3. Listening to music for 20 minutes.

#### PURPOSE:

This is a clinical investigational study, requiring subjects to provide a urine sample before and after intervention. The purpose is to measure levels of free radical byproducts in the urine before and after the treatment condition.

#### INCLUSION CRITERIA:

1. Subjects must be self-evaluated to be healthy, physically able to ambulate, unassisted, in and out of testing area, and provide their own transportation to and from research location.
2. Subjects must show willingness to participate by signing a voluntary consent form.
3. Subjects must speak and understand English language, and be willing to follow the directions of the Principal Investigator (PI) and research staff.

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4. Subjects must be willing to provide pre and posttest urine sample.
  5. Subjects must be willing to participate in the study for a period of at least one hour, in the morning, between 7 a.m. and 11 a.m., plus the drive time to and from the research location.
  6. Subjects must be willing to discontinue vitamin therapy, or any supplements or medication that might discolor urine, for a period of 24 hours prior to testing.
  7. Subjects must be willing to drink 8 to 10 ounces of water before arriving for testing, and again upon arrival, to ensure collection of urine specimen.
  8. Subjects will be randomly assigned to one of three test conditions.

#### EXCLUSION CRITERIA:

1. Individuals requiring daily medications, or with serious health conditions, such as cancer, heart disease, diabetes, or high blood pressure, or taking medications such as steroids, pain medication, blood pressure drugs, heart medication, arthritis medication, or chemotherapy.
2. Smokers.
3. Minors or children under the age of 20.
4. Individuals with hearing deficits that would prevent them from listening to music.

#### PROCEDURES:

1. The length of the study is one hour for each subject.
2. You will be asked to discontinue supplements and/or vitamin therapy for approximately 24 hours prior to testing. You will be asked to drink 8 to 10 ounces of water prior to arriving for the study, and 8 to 10 ounces of water after arriving at the research location. You will be asked to provide a urine specimen upon arriving, and another specimen after participating in one of three treatment conditions. You will be randomly assigned to one of three groups upon arrival, and asked to complete a short questionnaire upon completing the treatment condition. You must provide your own transportation to and from the research location.
3. Participation in the study will require your availability between the hours of 7 and 11 a.m., the most effective hours for measurement of free radical activity.

#### POTENTIAL BENEFITS

Music and sound therapy have been demonstrated to produce relaxing effects. You may find that the exercises reduce levels of stress. You may also learn of potential high levels of free radical activity within your body, which could potentially require a follow up visit to your physician.

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## POTENTIAL RISKS

There are no known risks to any of the three treatment conditions. You may not enjoy the therapy or find it relaxing.

## ALTERNATIVE TREATMENTS:

You do not have to participate in this Research Study.

## RIGHT TO LEAVE STUDY

1. As a volunteer, you will participate in the study of your own free will, without pressure, and you may quit the study at any time you wish. You will not be penalized.
2. Any new information developed during the course of the Study will be made available to you. Every effort will be made to inform you of any future information developed from this project.
3. Your participation in this Study may also be stopped by the physician for failure to follow instructions, or if your doctor or health care practitioner determines that you are not able to participate, or your safety or well being are in question.

## CONFIDENTIALITY OF RECORDS

Your identity as a part of this Study will remain confidential. Employees of the Food and Drug Administration, the sponsoring institution and members of the Institutional Review Board may look at and copy your results and any information collected during this Study.

For your safety, your name, address, and social security number will be filed at the Sponsor's office. Results of the Study may be reported in scientific presentations or publications, but you will not be identified.

Your identity will not be disclosed to anyone else, unless required by law.

There will be no charge for these treatments and no compensation to you.

## QUESTIONS

This form informs you regarding the nature of this Study.

1. If you have questions about the Study, or injuries as a result of the Study, Laquita Allen, Ph.D. candidate, the Principal Investigator, 903-894-8110, or C. Norman Sealy, M. D., Ph.D., will assist you. The 24-hour number to call is 417-267-4678.

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SUBJECT STATEMENT

I am signing this consent freely and am not being forced. I understand that, by signing this form, I do not lose any rights to which I am entitled.

I hereby state that I have the legal capacity to enter into contract and that no guardian has been appointed for me.

The consent form has been read by (to) me and Study information has been fully explained to me. Any questions that have occurred to me have been fully answered by the Study coordinator or doctor in charge of the Study. I may request a signed copy of this form.

I agree to cooperate with all research personnel and to follow the procedures as outlined to me.

By signing this Consent Form, I am authorizing release of Study results and records to the Food and Drug Administration, the Institutional Review Board and any third party required by law.

\_\_\_\_\_  
Subject's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Subject's Name (Printed)

\_\_\_\_\_  
or (if required)

\_\_\_\_\_  
Signature of Legal Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Legal Representative Name (Printed)

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Relationship

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Witness' Signature

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Date

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Witness' Name (Printed)

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AMENDMENT TO STUDY ID # 421

DATE APPROVED BY THE IRB: October 30, 2003

DATE STUDY TO BEGIN: December, 2003

PRINCIPAL INVESTIGATORS: C. Norman Shealy, M.D., Ph.D., and Laquita Allen

This amendment reflects the following changes to Study ID # 421, approved by the IRB on October 30, 2003.

AN EXPLORATION OF THE EFFECTS OF MUSICAL TONING AND  
QUARTZ CRYSTAL BOWLS ON THE ENERGETIC BALANCE IN THE BODY  
AS MEASURED ELECTRICALLY THROUGH THE ACUPUNCTURE MERIDIANS

1.2 Objective

To evaluate and measure the effects of toning and crystal bowl playing on the energetic balance in the body, as measured electrically through the acupuncture meridians, using the Asyra™, a computerized EDS device. Energetic readings taken from access points located on the fingers and toes provide data for resonance analysis to explore the effects of toning and crystal bowl playing on the body. Testing on the Asyra™ device replaces testing for measurement of free radicals in the body.

1.4.1 Inclusion Criteria

Amended to reflect no requirement to discontinue any medication or supplements and no need to collect urine samples or to drink water. Testing in the morning hours is not a requirement, and testing period remains approximately one hour.

1.4.2 Exclusion Criteria

- a. Individuals with pacemakers or defibrillators.
- b. Women who are pregnant or think they might be pregnant.

1.4.3 Potential Risks

- a. There is no anticipated risk in the use of the Asyra™. The above exclusions are noted to rule out the possibility of affecting the operation of electrical devices in or on the body. The risks to pregnant women have not been determined; exclusion is made as a precautionary measure.

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STUDY NAME: AN EXPLORATION OF THE EFFECTS OF MUSICAL TONING AND QUARTZ CRYSTAL BOWLS ON THE ENERGETIC BALANCE IN THE BODY AS MEASURED ELECTRICALLY THROUGH THE ACUPUNCTURE MERIDIANS

STUDY ID #: 421

DATE APPROVED BY IRB: 10-30-03

BEGINNING OF STUDY: 12-6-03

LENGTH OF STUDY: 2 MONTHS

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### SUBJECT INFORMED CONSENT

DOCTOR IN CHARGE OF STUDY: C. Norman Shealy, M.D., Ph.D.

#### NAME OF EQUIPMENT / THERAPY

The equipment utilized in this study is the Asyra™, a computerized device that measures the energetic balance in the body electrically through the access points for the acupuncture meridians.

#### PURPOSE:

This is an experimental study, exploring the effects of sound resonance on the body, as measured by energetic data readings on Asyra™ at the access points (acupuncture meridians) located on the hands and feet. The purpose of the study is to determine if sound therapy produces changes in the energetic patterns in the body.

#### INCLUSION CRITERIA:

1. Subjects must be self-evaluated to be healthy, physically able to ambulate, unassisted, in and out of testing area, and provide their own transportation to and from research location.
2. Subjects must show willingness to participate by signing a voluntary consent form.
3. Subjects must speak and understand English language, and be willing to follow the directions of the Principal Investigator (PI) and research staff.
4. Subjects must be willing to participate in the study for a period of at least one hour, plus the drive time to and from the research location.

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#### EXCLUSION CRITERIA:

5. Individuals with a pacemaker or defibrillator.
6. Women who are pregnant or think they might be pregnant.

#### PROCEDURES:

1. The length of the study is approximately one hour for each subject.
2. Two baseline readings on access points for acupuncture meridians on the fingers and toes, at five-minute intervals, will be taken on the Asyra™.
3. Subjects will sit silently for 10 minutes of Toning, or elongated sounding of vowels, done by the Principal Investigator holding a Marcel Vogel crystal.
4. A third energetic reading on the access points for acupuncture meridians of the subject's fingers and toes will be taken on Asyra™ after listening to Toning.
5. The subject will then listen to the playing of a quartz crystal bowl tuned to the musical note "F" (the heart chakra) for 10 minutes.
6. A fourth energetic reading on the access points for acupuncture meridians on the fingers and toes will be taken on Asyra after listening to crystal bowls.

#### POTENTIAL BENEFITS

Sound therapy has been demonstrated to produce relaxing effects. You may find that these exercises reduce levels of stress.

#### POTENTIAL RISKS

There are no known risks to any of the treatment conditions. You may not enjoy the therapy or find it relaxing. Persons wearing a pacemaker or defibrillator and pregnant women are excluded from this study as a precautionary measure.

#### ALTERNATIVE TREATMENTS:

You do not have to participate in this Research Study.

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## RIGHT TO LEAVE STUDY

1. As a volunteer, you will participate in the study of your own free will, without pressure, and you may quit the study at any time you wish. You will not be penalized.
2. Any new information developed during the course of the Study will be made available to you. Every effort will be made to inform you of any future information developed from this project.
3. Your participation in this study may also be stopped by the physician for failure to follow instructions, or if your doctor or health care practitioner determines that you are not able to participate, or your safety or well being are in question.

## CONFIDENTIALITY OF RECORDS

Your identity as a part of this Study will remain confidential. Employees of the Food and Drug Administration, the sponsoring institution and members of the Institutional Review Board may look at and copy your results and any information collected during this Study. For your safety, your name, address, and social security number will be filed at the Sponsor's office. Results of the Study may be reported in scientific presentations or publications, but you will not be identified. Your identity will not be disclosed to anyone else, unless required by law. There will be no charge for these treatments and no compensation to you.

## QUESTIONS

This form informs you regarding the nature of this Study.

1. If you have questions about the Study, or injuries as a result of the Study, Laquita Allen, Ph.D. candidate, the Principal Investigator, 903-245-1486 or 903-894-8110 or C. Norman Sealy, M. D., Ph.D., will assist you. The 24-hour number to call is 417-267-4678.

## SUBJECT STATEMENT

I am signing this consent freely and am not being forced. I understand that, by signing this form, I do not lose any rights to which I am entitled.

I hereby state that I have the legal capacity to enter into contract and that no guardian has been appointed for me.

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The consent form has been read by (to) me and Study information has been fully explained to me. Any questions that have occurred to me have been fully answered by the Study coordinator or doctor in charge of the Study. I may request a signed copy of this form.

I agree to cooperate with all research personnel and to follow the procedures as outlined to me.

By signing this Consent Form, I am authorizing release of Study results and records to the Food and Drug Administration, the Institutional Review Board and any third party required by law.

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Subject's Signature

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Date

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Subject's Name (Printed)

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or (if required)

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Signature of Legal Representative

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Date

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Legal Representative Name (Printed)

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Relationship

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Witness' Signature

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Date

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Witness' Name (Printed)

12/06 /03 la

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AMENDMENT TO STUDY ID # 421

DATE APPROVED BY THE IRB: October 30, 2003

DATE STUDY TO BEGIN: December 2003

PRINCIPAL INVESTIGATORS: C. Norman Shealy, M.D., Ph.D., and Laquita Allen

AN EXPLORATION OF THE EFFECTS OF MUSICAL TONING AND  
QUARTZ CRYSTAL BOWLS ON THE ENERGETIC BALANCE IN THE BODY  
AS MEASURED ELECTRICALLY THROUGH THE ACUPUNCTURE MERIDIANS

This amendment reflects the completion of Study # 421, approved by the IRB on October 30, 2003.

2.3 Regulatory Considerations

Protocol Agenda

2.3.1 The Principal Investigator implemented no changes in the protocol as outlined in the Amendment in December, 2003. There were no risks to subjects, and the exclusionary and inclusionary criteria were observed as outlined.

2.3.2 Subject Report Form and Completion Submission

This exploratory study was completed in January, 2004. This study was conducted in the research laboratory at Holos University and at the home of the Principal Investigator, Laquita Allen. Forty-two subjects successfully completed testing on listening to toning with a crystal and the playing of a quartz crystal bowl by the Principal Investigator. There were no adverse effects, and all subjects signed and were given a copy of the Consent Form. The effects of the therapies were measured on each subject through four energetic readings on the Asyra™, a computerized electronic electrodermal instrument measuring energy in the acupuncture meridians at access points on the fingers and toes. All records and the test results remain confidential, and are maintained by the Principal Investigators. The purpose of this study was accomplished with statistically significant results and without difficulties or harm to subjects.

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