The Sound Effects of Singing Bowls in the Meridians of Vital Body

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Abstract

This dissertation will examine the sound effects of singing bowls in the energy channels or meridians of the vital body. Ryodoraku device will analyze if the sound frequency fields generated around the patient by the geometric arrangement at twelve singing bowls has a positive therapeutic impact on the meridians of the vital body.

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Abstract

The vital body is formed by a network of meridians or channels of optical quantum nature, through which flows the Chi or vital energy. Any imbalance in the flow of this energy can contribute to the onset of various diseases and symptoms in the physical body. Acupuncture has been handled to the imbalances of the vital body and its system of meridians with local needle applications, often causing discomfort in patients undergoing treatment. The use of the sounds produced by singing bowls can be a pleasant and comforting alternative within the Acupuncture practice because the meridians are sensitive to frequencies and sound vibrations. This research evaluated the energy effects produced by a sound field generated by twelve singing bowls, with different frequencies and positioned around the patient. Patients were divided into two groups: control and experimental. Seven control patients received instructions for an initial relaxation of five minutes in order to decrease the heart rate and physical relaxation. This process continued after initial orientation for another fifteen minutes. Seven patients in the experimental group received the same initial instructions followed by a sound bath multifrequency lasting fifteen minutes. The patients underwent a sound bath and were evaluated before and after application. The measurements of the sound effects produced by the twelve bowls distributed around the patient, each one associated with a note of the chromatic musical scale, were made by a CCT Meridian Analysis System device, a bioelectric meter. After that, a comparative analysis of the graphs obtained from each patient was done to check the changes in the overall energy state of meridians. A comparative analysis of the graphs obtained from each patient was done to check the changes in the overall energy state of meridians. The results revealed that

the singing bowls had a positive impact on the energy balance of the meridians of the vital body, as well as the improvement of four syndromes.

Dedication

I dedicate this thesis to my wife Ana Paula Machado Nahas, whose love and kindness make me more human every day.

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Acknowledgements

I thank the Great White Brotherhood for the support, guidance and protection ever received in my inner and existential journey. I also thank my wife Ana Paula Machado Nahas, my parents and my family for the care and love, my sister Dr. Renata Nahas, my little friend Thor, my English teacher Antonio Coelho, my first mentor Keri Davis, my thesis mentor Dr. Christiane Seguin and Dr. Pat Knox for invaluable support. I am grateful to life for being generous to me and great opportunities I it gave me from which I always has tried to take advantage.

Chapter 1: Introduction

1.1 Why Did I Choose this Subject?

Twenty years ago I realized a wonderful trip to Dharamsala, northern India, to study Transpersonal Psychology. On that occasion, I had the opportunity to try several consciousness expansion techniques such as meditation, creative visualization, mantras and also a bit of Tibetan Medicine. On that beautiful place I was able to visit several temples and participate in various initiations as well as Buddhist meditative practices, all fed by mantras and a lot of sounds.

During meditation practices, I was nourished by a sublime and profound energy that through the mantras and sacred chants, penetrated in the depths of my being, opening channels that I understand today they had have led me to a very close place that Dr. Paul Drouin and Dr. Amit Goswami called Bliss Body.

It was in that unforgettable trip I met the Tibetan singing bowls, used both in spiritual practices and Tibetan medical practice. The vibrations of the Tibetan bowls can have incredible effects and I believe they are of great therapeutic value because their effects can be felt in all informative layers or bodies (physical, vital, mental, supramental and spiritual).

The therapeutic use of the sounds produced by singing bowls can be a feature of Quantum Medicine and Integrative Medicine and so a topic that needs further study and research. It is no coincidence that these bowls are considerate ancient healing instruments within the perspective of Tibetan Medicine.

The impact that these bowls had in my personal, professional and spiritual life led me to the preparation of this thesis.

1.2 The Problem and the Purpose of the Study

The recognition of Acupuncture as a complementary medical and effective therapeutic approach in the treatment of various physical, emotional, energetic and psychosomatic symptoms, is turning it a more known and popular practice. This is due to several factors, among them: a natural, holistic and highly effective therapy in most clinical cases as a complementary therapy. When well-practiced does not produce negative side effects; recognizes the importance of balancing the emotions, feelings and thoughts as part of patient´s energetic care and; it can promote reduction in the use of allopathic and ultimately, does not require a large financial investment.

The only point that seems unfavorable to further advance in this therapeutic approach is that it uses the applications of needles of various sizes over the energetic points located on the surface of the body, which for many patients is the reason of discomfort and malaise. In addition, many patients with signs of intense anxiety and deep state of grief are unable to relax or remain motionless during the work.

The experiences in my clinic brought me several questions: would there be a less invasive and more pleasant way to restore energy and harmonize the vital body of the patient? Would the therapeutic use be possible with the Tibetan bowls in the practice of Acupuncture as an alternative to the cases mentioned above? Do the sound vibrations of the singing bowls have any positive effect on the energetic channels or meridians of the vital body? Would there be a more enjoyable way to practice Acupuncture? Could the vibrations

and frequencies bring larger gains to rebalance the vital body? If the meridians and Chi have a nonlocal nature, how would a nonlocal approach be done in Acupuncture? I think that these important issues can be investigated seriously and objectively within the Integrative Medicine and Quantum Medicine.

This thesis mainly investigates if the energy status of the meridians can be changed in a positive way with the use of vibrations and sound frequencies generated by the singing bowls.

Chapter 2: Acupuncture and Vital Body

2.1 Acupuncture

Acupuncture is an ancient therapeutic practice that is based on the principles and concepts of Taoist philosophy. Its theoretical and empirical knowledge are part of a broad medicine using various therapeutic and curative resources aimed not only treating the symptoms, but also fully rebalancing the patient.

The application of needles on previously selected energetic points, after a detailed assessment, enables the improvement of the energy status of the vital body by balancing the polarities Yin and Yang, harmonizing the five elements and balancing the flow of Chi or vital energy in different meridians that nourish the organs (Zang) and the viscus (Fu) of the physical body.

The health of the patient therefore depends on the creative balance between Yin polarity (associated with organ) and Yang polarity (associated with the viscus) and also the free flow of vital energy through the meridians, where the Chi is able to circulate nourishing the body.

The organs (liver, heart, spleen, pancreas, lungs and kidneys) and the viscus (gallbladder, small intestine, stomach, large intestine and bladder) form different pairs each of them associated with a nature element. The pair liver-gallbladder is associated with the wood element; the pair heart-small intestine is associated with the fire element; the pair spleen-pancreas - stomach is associated with the earth element; the pair lung-large intestine

is associated with the metal element, and finally, the pair kidney-bladder is associated with the water element.

Each organ and each viscus receive energy nutrition (Chi) through its respective meridian and beyond the ten meridians associated with organs and viscus (liver, gall bladder, heart, small intestine, spleen, pancreas, stomach, lungs, intestine, kidneys, and bladder), there are also two other meridians: triple warmer and sex-circulation.

Therefore, Acupuncture meridians are recognized as channels that connect the body surface to the internal organs, having the function of transporting the energy and information through the whole body.

2.2 The Vital Body

2.2.1 What is the Vital Body?

Within the framework of Quantum Medicine, meridians are channels through which flow the Chi or vital energy and they are located in the vital body. The Chi and the meridians are part of the vital body.

According to Amit Goswami (2004), the vital body is the reservoir of morphogenetic fields or matrix structure that provides the headquarters for the formation of physical body. In this point of view, the physical body is the representation of vital field.[1] In the book *Creative Integrative Medicine*, Dr. Paul Drouin states that there is a vital force that can maintain the balance and health of the body. The vital body is a layer of information where

[1] (Amit Goswami)

the movements of this force is associated with thoughts and feelings that create various energetic signatures. The erroneous movement of the life force can cause disease in the physical body.[2]

The morphogenetic fields are classified into five categories according to the five elements: earth, water, fire, metal and wood. In the Chinese view these fields are called "Shen" and they are associated with a thought, feeling or emotion. Dr. Paul Drouin reinforces the view that the vital body provides blueprint-morphogenetic field to organs and *"Meridians, connecting to the vital blueprints of organs, sing and express themselves according to the individual mind reaction to the personal and social events of life…"*[3]

The understanding of how psychological and emotional processes can manifest diseases and symptoms in the physical body, allows the practice of a true Quantum Medicine. Dr. Amit Goswami acknowledges that Chinese Medicine has focused on the vital body rebalancing. The disease, especially chronic, is due to imbalances of movements of Chi. The Chinese Medicine is Quantum Medicine since adopts the quantum aspects of wave (yang) and particle (yin) of Chi to classify the imbalances of the vital organ.[4]

Therefore, Taoist Quantum Medicine recognizes the existence of a close empirical relationship between organ, morphogenetic fields and the five elements. Each organ is a physical representation of a morphogenetic field related to one of the five elements. The task of these representations is to perform supportive functions, maintenance and reproduction, while the vital body task is to provide matrices for the formation of representations.[5] The Chi

[2] (Paul Drouin)
[3] (Paul Drouin) p. 53
[4, 5] (Amit Goswami)

is the quantum mode of movement of the vital body matrix. This movement of Chi within the energy channels connects the organs to their morphogenetic fields. According to Dr. Paul Drouin, the wonderful vessels are meridians that access the deeper layers of morphogenetic fields, as well as the roots of the meridians.[6] These accesses allow the restoration and the rebalancing of the twelve meridians.

2.2.2 Meridians and Morphogenetic Fields

The meridians are channels through which flows the Chi between the arrays of the organs. The excesses and deficiencies of Chi in the meridians can produce many symptoms and diseases in the physical body. The understanding of the relationship between emotions, feelings, thoughts, movements of morphogenetic fields and nature of meridians is the major challenge in Quantum Medicine.

1. Liver (LV)

Liver is an organ of power, stability, persistence and initiative. Morphogenetic matrices associated with the wood element in the yin polarity are: impulsivity, aggression, control, patience, command, leadership, fighting spirit, ambition, clarity, strong opinion and visionary quality. Energy excess in this meridian can cause symptoms such as stubbornness, willfulness, impulsivity, emotional outbursts, voracious appetite, jealousy, anger and bitterness. Energy deficiency is related to the fear of death, apathy and impotence.

[6] (Paul Drouin)

2. Gallbladder (GB)

Gallbladder controls judgment, courage and decision making. Morphogenetic matrices associated with the wood element in the yang polarity are: ability to make good decisions, patience, planning execution, deliberations with freedom, righteousness and courage. Energy excess is associated with stubbornness, apprehension, discontent and envy. Energy deficiency symptoms are: insomnia, low self-esteem, vacillating attitude, fear of failure, low blood pressure and chills.

3. Heart (HT)

Heart is the relationship of body, integration, loveliness and compassion. Works out a synthesis of the five "Shen" and consciousness. Morphogenetic matrices associated with the fire element in the yin polarity are: psychic nutrition and integration, body language, emotional stability, optimism and joie de vivre. Energy excess creates anxiety and restlessness, excessive laughter, euphoria (fire in the heart), hysteria and dissociative disorders, fixed ideas, hallucinations and emotional sensitivity. Energy deficiency may cause sadness, apathy, neuroses, memory loss (lack of blood in the heart), shyness, anxiety and apathy.

4. Small Intestine (SI)

Small intestine is related to the analysis, dynamism, assimilation and creative ability, mental clarity and insight. Morphogenetic matrices associated with the fire element (in the yang polarity) are: discrimination and analysis. Excess Chi can generate: compulsion to

work, nervousness and extravagance and energy deficiency can produce: mental agitation, remorse, guilt, regret and hypersensitivity.

5. Pericardium (PC)

Pericardium meridian coordinates romantic relationships and emotional intimacy and is the ambassador of happiness. Morphogenetic matrices associated with the fire element in the yin polarity are: vitality, audacity, fertility and productivity. In the state of excess energy, it can cause: light sleep, dreams, euphoria, excessive emotions and impiety. Energy deficiency can cause: inability to love or keep a long and deep relationship, lack of sleep, fear of high places, depression, weakness and lack of productivity.

6. Triple Warmer (TW)

This meridian governs social and group interactions and also provides the emotional heat. Morphogenetic matrices associated with the fire element in the yang polarity are: vivacity, energy production and enthusiasm. In the state of excess energy, it can cause: sadness, anger, seeking social approval and caution in social relations. Energy deficiency can cause: isolation, lack of sociability, social phobia, stress and maladjustment.

7. Spleen-Pancreas (SP)

Spleen-pancreas is the organ of the defense identity. It is also linked to addictions and dependencies, development of concepts and structure of the ego. Morphogenetic matrices associated with the earth element in the yin polarity are: moral strength, capacity for synthesis, loyalty, individuality and behavioral structure. In excess state, it can cause: seclusion and silence, excess reflection, craving for sweets, exaggerated worry and

depression. In the state of energy shortage, it can cause: constant dissatisfaction, mental emptiness, self-pity, lack of concentration, depression and restlessness.

8. Stomach (ST)

Stomach is related to the need and desire. Morphogenetic matrices associated with the earth element in the yang polarity are: information processing, emotional stability, self-dynamism, activity and creation. In excess state, it can cause: neuroses, compulsions, excessive thinking, frequent frustration, nervousness, insomnia and extravagance (fire in the stomach). In the energy state of deficiency, it can cause: too much reflection, remorse and regret.

9. Lungs (LU)

Lungs are related to energy exchange between the organism and the environment. Also govern the states of consciousness and their changes and maintaining interpersonal relationships. Morphogenetic matrices associated with the metal element in the yin polarity are: vitality, sort of emotions, ethics, artistic sensibility. In excess state of Chi, it can cause: jealousy, sighs, depression, exaggerated worry and concern. In energy deficiency state it can cause: lack of motivation, melancholy, sadness, chest tightness, self-pity and anxiety.

10. Large Intestine (LI)

Large intestine is related to resilience, self-renewal and detachment. Morphogenetic matrices associated with the metal element in the yang polarity are: generosity, forgiveness and intuition. In the state of excess energy, it can cause: resentment, remorse and anxiety.

Lack of energy is related to dependence, lack of initiative, sadness, lack of enthusiasm, pessimism and melancholy.

11. Kidneys (KI)

Kidneys are connected to the maintenance of life by the will and courage, alert instinct and willpower. Morphogenetic matrices associated with the water element in the yin polarity are: strong sexuality and reproductive capacity, determination, strength of character, strong vitality and resilience. In excess state of Chi, it can cause: impatience, sexual compulsion, authoritarianism, cunning and lack of prudence. In the state of disability, it can cause: fear, apprehension, pessimism, emotional fatigue, impotence, premature ejaculation (yang deficiency), weak voice, inferiority complex and nervousness.

12. Bladder (BL)

Bladder is related to the profound changes in the psyche. Morphogenetic matrices associated with the water element in the yang polarity are: determination, sacrifices and adapted decisions, and ability to adapt to new situations. In the excess state, it can cause: restlessness, jealousy, distrust and mental agitation. In the state of power failure, it can cause: mental instability, cold sweat, fear, jealousy (moisture and heat in the bladder), muscle weakness and bitterness.

2.2.3 The Uncertainty Principle and Meridians

From the perspective of the meridians, the flow of Chi seems to have local behavior, classical and deterministic, but according to Dr. Amit Goswami (2004) the energetic

phenomena of vital body are subject to the Heisenberg Uncertainty Principle. This means that Chi and meridians have both corpuscular and wave nature.[7]

Actually, the channels run close paths due to the quantum nature of the vital body. According to Amit Goswami (2004), "*it is impossible to describe their movements through exact trajectories.*"[8] The Uncertainty Principle applied to acupoints of Taoist Medicine brings the possibility of meridians being areas or fields and not points.

The wavelike and corpuscular complementary aspects can be seen in the Chinese medical view and Quantum Physics approach. The wave fields that are presented in the vital body have a corpuscular counterpart. The vital body is the place where are the morphogenetic fields, neither physical and nor local, residing outside of space-time and it provides the plans of the physical organs that perform vital functions in space-time. But is there any physical counter part of meridians from the vital body?

2.2.4 The Bonghan Circulatory as an Extension of Meridians

The elucidation of the mechanisms involved in the therapeutic effects of Acupuncture within the concepts and terminology of modern science has been the focus of some studies and contemporary research.

Recent research shows that a new type of circulatory system known as Bonghan system may have some correspondence with the meridians of classics Acupuncture.

[7] (The Quantum Doctor)
[8] (Amit Goswami) p. 145

> *"In the early 1960s the North Korean Bonghan Kim discovered a new system of anatomy and histology, a network different from the nervous system, vascular vessel and lymphatic channel, which is regarded as the physical form of the Meridians. He studied the system in great detail to find the Bonghan corpuscle, the structure of acupoints, and a Bonghan duct, a tubular structure that connects the Bonghan corpuscles. Kim used a staining technique to trace the Bonghan networks and found that they indeed include the whole meridian systems. Furthermore, the network is distributed deeply inside the body all over the surface of major organs."*[9]

The intravascular Bonghan duct, due to their transparency and small size, cannot be observed by a magnifying lens or light microscope. This is possible through a fluorescence microscope where the sample is stained with acridin-orange using a specific method. The researchers found that the meridians are not stuck to the skin, but they are a system of conductors, where the liquid flows, and this liquid is used to form the stem cells.[10]

These tubular meridian systems appear to be divided into a surface and another deeper system, which is divided into several subsystems. The first of these systems is called internal duct system and it is able to float within the vascular and lymphatic vessels. Kim has also found ducts along the surface of the internal organs which appear to form an independent network and another network which extends along the outer surface of the walls of blood vessels and lymphatics. The duct terminals can reach the cell nucleus.

[9] (Kwang Sup Soh) p. 1197
[10] (Kwang Sup Soh)

These surveys reveal that these ducts may correspond, histologically and anatomically, to the meridians of the vital body. These ducts have quantum features that are being investigated by contemporary science, revealing a complex organic network involving matter, energy and information.

2.2.5 Meridians: Locality or Nonlocality

There are two different ways of movement in vital body: the classic mode or corpuscular, and quantum or wave mode[11]. The Bonghan ducts can be considered expressions of corpuscular way or classical meridian, local events. But what does the science have to say about the quantum or wave mode?

The studies done by Kwang Sup Soh points out that there is a communication system that sends messages through photonic signals, revealing the nonlocal quantum expression mode of meridians. The conduits of Bonghan are related to energy activities involving emission of light particles called bio-photons. According to him,

> *"… there may be a system of communication that sends messages to all organs, including those perhaps not directly connected with the nerve network. Presman proposed that electromagnetic signals are involved, and Popp suggested that a biophoton field is the desired answer, and DNA conformation is the source of the biophoton. With DNA and biophotons we still need a network or channel to biologically realize the Presman-Popp postulation. Bonghan theory is just the answer."*[12]

[11] (Amit Goswami)
[12] (Kwang-Sup Soh) p.1198

These studies confirm that the vital body is formed by an information network of morphogenetic fields. The Bonghan ducts can be local physical representations of these nonlocal subtler channels located in the vital body.

2.3 Wu Li and the Organic Energy Models

In Chinese the word "Wu" can mean both “matter” and “energy” and "Li" can mean “universal order”, “universal law” or “organic models”. The word "Wu Li" therefore means models of organic energy. This view is consistent with the recent discoveries of Quantum Physics, which show a non-mechanical universe with a tangled hierarchy, discontinuously and nonlocal nature.[13]

The word "Wu Li" can also be translated into Quantum Physics as wave-particle duality. This duality was enunciated for the first time in 1924 by the French physicist Louis de Broglie. According to Gary Zukav, *“Subsequent experiments were to reveal that not only subatomic particles, but atoms and molecules as well have associated matter waves.”*[14]

These findings point to the fact that all matter has a wave and frequency associated, in other words, a subtler dimension that transcends the limits of mechanistic classical view. This wave field has an informative nature which is able to guide and organize everything that happens on the physical level. Therefore, "Wu Li" is a complex network involving matter, frequencies and morphogenetic fields.

[13] (Amit Goswami)
[14] (Gary Zukav) p.98

Chapter 3: Quantum Physics and Traditional Chinese Medicine

The recent discoveries of Quantum Physics are increasingly validating the ancient knowledge of Traditional Chinese Medicine. Its foundations are grounded in an organic and holistic model of the universe, which regards energy and consciousness as the basis of matter.

The New Physics states that the matter is not only made of matter, but also a crystallized form of energy and information. According to the physicist Claus C. Schnorrenberger (2014),

> *"Quantum Physics declare that matter is not built up by matter. The primary phenomenon is RELATION; matter is only a secondary result. Matter is crystallized form. At the end of dividing matter into smaller and smaller particles something remaining stays which is similar to the SPIRITUAL. It is holistic, open and living; it is POTENTIALITY (a possibility, an eventuality). Accordingly, matter is just the ashes or the dregs of such potentiality. Basically, there is only SPIRIT. But this spirit is petrified, solidified, and the result of this process of petrification or hardening is MATTER. In the quantum world there is no such thing as matter, at all. Accordingly, there is no matter."*[15]

Dr. Amit Goswami (2004) also states that in Quantum Physics there is no material objects without observation of a subject. Quantum physics says that the smallest subatomic particles are not material but information fields. In traditional Chinese Medicine these fields

[15] (Claus C. Schnorrenberger)

are known as "Shen" and in both views, they are movement, connection and information. In the view of Claus E. Schnorrenberger (2014),

> *"These smallest particles can be described as `happenings` or `wirks` (from the German Wirklichkeit) according to Professor Dr. Hans Peter Dürr; they are tiny articulations of reality. They are a field of information, which is not split up into matter and energy. This field of information exists not only within each living person; it extends as far as the entire cosmos reaches, and the cosmos is ONE WHOLE."*[16]

3.1 Biophotons and Meridians

Recent studies point to the fact that matter is made up of highly complex energy fields. According to Richard Gerber, *"... the matrix of the physical body can be seen as a complex pattern of energy interference, pervaded by biological organizers of the etheric body." This etheric or vital body contains the structural data on the morphology and function body, that is, a type of energy template that directs cellular processes from a higher energy level."*[17]

The chemical nature of biological signals in cellular communication has been studied, but recently, the Quantum Biology found that the electromagnetic field is also involved in this process. This radiation can contribute to different activities such as cell division, oxidative metabolism, photosynthesis and carcinogenesis.

[16] (Claus C. Schnorrenberger)
[17] (Richard Gerber) p.50

The first study about cell radiation was made by Gurwitsch in 1920. He called this phenomenon of "mitogenetic radiation" and this study was the first to suggest that light emanation can play an important role in cell communication.

In a class about *Quantum Biology* (IM-704) Dr. Gaetan Chevalier[18] states that the frequency of a mitogenetic radiation can range from 10^{12} Hz to 10^{15} Hz, covering from the infrared spectrum to ultraviolet radiation. The waves emitted by human electromagnetic fields can be divided into different spectral ranges. The ultraweak emissions of biophotons are common in biological systems and occur when molecules move from a state of high energy to a low power state. When the body is ill or any function is changed, the blood flow and the affected part of metabolism also change, and the result is a shift in local temperature and infrared radiation. Changes in energy states of the protein molecules can also generate infrared radiation.[19]

The human body seems to emit a type of electromagnetic radiation that may be associated with the Chi. In the view of Traditional Chinese Medicine Chi is the basic substance that constitutes the human body maintaining its activities. The quantum state of the electromagnetic radiation field may reflect the body's health and all these waves can be considered states or information about Chi.

According to Roeland Wijk and Eduard Wijk (2005), emissions of these particles are reflections of human physiological activities and take place within the 400-720 nm range.[20]

[18] (Gaetan Chevalier)
[19] (Xiaolei Zhao, Jinxiang Han)
[20] (Roeland Wijk, Eduard Wijk)

The quantum state of the electromagnetic radiation field may reflect the body's health and Chi state. According to Zhao and Han (2013),

> *"The electromagnetic radiation from the electromagnetic field within the human body is characterized by interference, and the quanta in them have a function of information transference, operating as non-molecular messengers of information communication in tissues, organs, cells, and biological macromolecules, etc. in the body, and play a key role in transferring information for life movements. Hence, the quanta in the human body are the "Qi" information for the regulation and adjustment of the viscera network in TCM."*[21]

3.2 The Meridians: Are They Optical Channels?

The idea that the acupuncture meridians are channels or optical fiber is being increasingly accepted by researches due to the support of Quantum Physics. The optical fiber is an extremely thin and flexible filament made of ultrapure glass, plastic or other electrical insulator that can transport light. The light traveling through these subtle optical channels or meridians is known as biophotons.

According to Jiri Pokorny, Tomas Martan and Alberto Foletti (2012), the high organization of structural and dynamic processes of the mammalian body requires a wide bioinformation transfer capacity between the brain and the organs[22]. This communication system appears to be based on the transmission of electromagnetic signals and it may be

[21](Xiaolei Zhao, Jinxiang Han)
[22] (Pokorny J, Martan T, Foletti, A)

related to the network of meridians of Chinese Medicine. These effects are very similar to optical fibers running between the infrared bands and the visible light spectrum.

The vital body may be formed by a network of quantum nature optical fibers, in which circulates at bioinformatics radiation[23]. In Chinese Medicine, the vital energy has an energetic and informative nature at the same time. This ancient knowledge now gained scientific validity.

3.3 Quantum Coherence

Currently, there are two interpretations for the emission of biophotons:

1. The biochemical theory explains that biophotons are energetic waste from metabolic and oxidative processes. According to Avijgan and Avijgan (2013), the oxidative metabolic processes of cells generate reactive oxygen species (ROS) such as H2O2. These products lead to the excitation of constituents of the cells producing ultraweak light.[24]
2. The coherence theory emphasizes that the emission of biophotons originates from nonlinear coherent interactions between weak radiation and collective biomolecules providing an optical channel information. These interactions can be described by the following theories: quantum, thermodynamics, chaos theory, statistical physics of non-equilibrium, electrodynamic quantum cavity theory of cooperative radiation.[25]

[23] (R. Vanwijk)
[24] (Majid Avijgan, Mahtab Avijgan)
[25] (Xiuxiu Wang, Jinzhao Huang, Jinxiang Han, Meina Yang, Jingxiang Pang, Xiaolei Zhao)

The living systems are essentially open system, which maintain continuous exchange of energy and matter with the environment. Surviving life is based as a process known as negative entropy. When a system has enough negative entropy, it can maintain an ordered and organized state. This state of planning and negative entropy is related to the quantum coherence phenomenon. The concept of coherence is linked to the extreme sensitivity of a living system to an external input, amplification of incoming signals, fast and efficient transformation and transfer of energy.[26]

The energy flowing in the meridians has negative entropy and its physical side effects can be measured by apparatus such as AMI of Motoyama and electrograph holding of Dumitrescu.

According Qiao Gu (1999), *"The coherence theory of biophoton emission is based on an essential understanding of biological systems as follows:*

1. Openness

Biological systems are essentially open systems, which are "pumped" by external energy sources and retain considerably large deviations from thermal equilibrium. Such a non-equilibrium state of biological systems leads probably to a long-range coherence in them. The biophotons may be thus traced back to the coherence, carrying information within and between cellular systems.

2. Nonlinearity

[26] (Qiao Gu)

Vital phenomena are highly nonlinear. The macroscopic properties of a biological system cannot be represented by a simple summation of the microscopic properties of its respective subsystems. In fact, all the subsystems are integrated through a correlation that results in a complex system with a certain macroscopic order. The order parameter of the complex system displays a nonlinear dynamic as well as nonlinear depends on the physiological parameters.

3. Cooperativity

Life actions are collective effects of many biological subjects, and there is a cooperation between the individual subjects..."[27]

In short, the quantum coherence is related to the ability that photons have to work synergistically and collaboratively, organizing biological processes. When, for any reason, this state of coherence is lost, the biological system can enter into a positive entropy state, losing its organization and balance, enabling the appearance of diseases and symptoms in physical body. Therefore, the quantum coherence can be used to explain the Chi organization capacity. According to Brizhik (2008),

"*the meridians and acupuncture points postulated in the Eastern medicine, could be just hierarchical levels of the endogenous electromagnetic structure of the living organism, and, therefore, they reflect energetic organization of the system. Such network can be excited from outside at particular nodes (acupuncture points) by external stimuli. The energy absorbed at the node, triggers energy propagation along the corresponding waveguide in the form of solitons. Energy absorbed or leaking out the pathway(s), excites the coherence domains*

[27] (Qiao Gu)

increasing their energy. Thus, coherence domains can collect low-grade (high entropy) energy from the environment in whatever form and transform it into high-grade (low entropy) energy which can reach the frequency of the light interval. The source of the externally supplied energy could be whatsoever (ultraweak millimeter wavelength radiation, acupuncture needles, moxibustion, etc) yet the stored energy assumes the form of internal light able to govern the self-organization of the organism."[28]

In Quantum Biology recognized that there is some kind of informative field capable to maintaining order in more complex biological systems. According to Dr. Paul Drouin, in a class about *Quantum Healing and Consciousness*, syntropy is the tendency of all living things to reach higher levels of energetic output and consequent transformation.[29] This is possible because the blueprints of vital body can give form and organization to the biological functions. Dr. Paul also states that our thoughts and feelings can affect the meridians, the morphogenetic fields and correspondent organs. Negative mental states, for example, can generate a decoherence quantum state creating imbalances in the vital and physical bodies.

According to Bonilla (2008), *"intention manifests itself as an electric and magnetic energy producing an ordered flux of photons. Our intentions seem to operate as highly coherent frequencies capable of changing the molecular structure of matter. For the intention to be effective it is necessary to choose the appropriate time."*[30]

[28] (The term soliton is used to refer to any optical field that does not change during propagation because of a delicate balance between nonlinear and linear effects in the medium)
[29] (Paul Drouin)
[30] (Bonilla) p. 595

3.4 Quantum State and Chinese Medicine

The researchers Zhao and Han (2013) wrote an important article[31] about the use of quantum theory to explain the Traditional Chinese Medicine concepts. In this article, they used that the photons coherente theory in biological systems, proposed by Popp in 2008, as key to the understanding of Traditional Chinese Medicine. According to researches,

> *"Marked by quantum theory, the modern discipline whose philosophy is organic and holism coincides with the philosophy of TCM, so quantum theory may be used to explain the theory of TCM. Fortunately, the biophoton coherent theory in biological systems put forward by Popp makes it possible to translate the theory of TCM using quantum theory. Based on this theory and combined with the common features of "Qi" and electromagnetic radiation, we propose a view that the electromagnetic radiation from the body can characterize the human "Qi" in TCM, and give the theory of TCM a new image - the Quantum TCM theory."*[32]

Many studies suggest that the intensity and amount of the biophoton can be changed when the body suffers from any illness. For example, the photon emission is lower in patients with hyperthyroidism.[33] This is because the metabolic activity of these patients is reduced. Lower emission was also found in patients whose thyroid glands had been removed. The breaking of the symmetry of the biophotons emission from the right-left hands can happen in some diseases. Cohen and Popp (1988) found that the percentage of the difference in the emission of photons between the right and left hands can be a parameter of

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[31, 32] (The connotation of the Quantum Traditional Chinese Medicine and the exploration of its experimental technology system for diagnosis)

[33] (Cohen, Popp)

analysis of health status. This finding may serve as a basis for a better understanding of what is the yin-yang imbalance in the vital body. Many studies have shown that after Acupuncture treatment, the difference between biophotons emission by right and left hands can drop dramatically.[34]

All information shows that biophotons are the providers of the main signs and physical bases for intracellular and extracellular biological regulation. According to Popp (2008), in the article *Principles of Complementary Medicine in Terms of the Suggested Scientific Basis*, not only the electromagnetic fields but also sound fields are able to determine biological events.[35]

3.5 Rainbow Body and Coherent Biophotons Body

According to recent research in Quantum Biology, the body has a bio-information network of optical channels or meridians through which light particles of various frequencies are circulating and they are able to generate syntropy in complex biological processes. These light particles are known as biophotons and they can present different frequencies and colors. Is this photonic body of Quantum Biology what the Buddhists call the Rainbow Body?

The Rainbow Body of "Dzoghen" Tradition (Great Perfection of Tibetan Buddhism) seems to have some similarities to the quantum body formed by biophotons of Quantum Biology.

[34] (Choi C., Woo W.M., Lee M.B., Yang J.S., Soh K.S., Yoon G., Kim M. and Chang J.J.)
[35] (Popp)

In class on *Quantum Medicine and Acupuncture Taoist,* Dr. Paul Drouin states that the quantum vital body is a Rainbow Body. According to him, this subtle body is formed by the meridians of Acupuncture and colorful waves with different vibration densities. This shimmering body changes its colors and its singing according to the mental and emotional changes. Dr. Paul points that the sound is associated with the yin polarity of vital body while the yang polarity is associated with the light. The vital body, therefore, has a dual nature: sound and light. This statement points to the possibility of also be an acoustic version of the vital body or may be the existence of a sound body formed by phonons or sound particles. This possibility raises another question: is there any direct relationship between light and sound?

Chapter 4: Sound, Light and Chi

4.1 Sound and Light: Are They Interconnected?

Many studies point out that the vital body is formed by bio-informative fiber optics network that carry information and light, but other studies have also shown that this network can also have a sound and acoustic nature. This is because there is a direct relationship between light and sound.

Dr. John Stuart Reid conducted many studies on possible links between sound and electromagnetic waves. In *The special relationship between sound and light with implications for sound and light therapy,* Dr. Reid puts that each sounds has an electromagnetic component and that every electromagnetism field can create a sound propagation.[36]

To understand this relationship is important to remember that sound travels through the air. This means that it transfers periodic vibrations occurring when atoms and molecules collide. The expansion of sound from an epicenter phenomenon generates energy in the form of a bubble. According to Dr. Reid, *"Sound is an expanding bubble containing radial oscillations of molecules."*[37]

The researchers Kraus and Fleisch (1999) accepted that the spherical spreading concept can also be extended to electromagnetic phenomena.[38] According to Dr. Reid, two things can happen when the magnetic shields of two atoms or molecules collide:

[36] (John Stuart Reid)
[37] (John Stuart Reid) p. 216
[38] (John Daniel Klauss, Daniel Fleish)

1. Periodicities transfers between the two atoms or molecules;

2. Creation of electromagnetism.

The second effect is important to the thesis that the sounds may have some effect on the network of meridians that is formed by optical channels and photons or electromagnetic particles. Dr. Reid´s studies have shown that electromagnetic fields can be the effects of collisions between the magnetic layers of atoms or molecules and the result of this collision is sound. Electromagnetism is the effect of sound and could not exist without it. The orthogonal phase related to electric and magnetic components of electromagnetism is determined at the time of the collision of particles that generate sound. Thus, the amplitude of the electromagnetic field is determined by the number of collisions and also the sound pressure level. According to ancient spiritual knowledge about creation at first sound came then light did. The biblical phrase "…*the Word became flesh*"[39], contained in Genesis, can confirm this information.

4.2 The Sonoluminescence

Another physical phenomenon that reveals a direct relationship between sound and light is the sonoluminescence. According to Michael Brenner, Sascha Hilgenfeldt and Detlef Lohse (2002), "*Single-bubble sonoluminescence occurs when an acoustically trapped and periodically driven gas bubble collapses so strongly that the energy focusing at collapse leads to light emission. Detailed experiments have demonstrated the unique properties of this system: the spectrum of the emitted light tends to peak in the ultraviolet and depends strongly on the type of gas dissolved in the liquid; small amounts of trace noble gases or other impurities can dramatically change the amount of*

[39] (Bible)

light emission, which is also affected by small changes in other operating parameters (mainly forcing pressure, dissolved gas concentration, and liquid temperature)."[40]

In order to produce consistent sonoluminescence, a single air bubble must be suspended in the water and be bombarded by acoustic waves. A device used to check the sonoluminescence phenomenon basically consists of a glass container (cylindrical or spherical) and a power circuit. The bubble formed within the container receive mechanical vibrations generated by ultrasound.

4.3 Acousto-optics

A new branch of physics that studies the interactions between sound and light waves is the Acousto-optics. Brooke Borel (2009) in his article *Sound Becomes Light* reveals several experiments that show how sound waves can be converted into light radiation. In mobile phones, the opposite happens: the electromagnetic waves are converted into sound.[41]

The research of Uchida and Saitoh[42] shows how acoustic injections between layers of metals and magnetic materials can produce chains of spins and electromagnetic energy. On the other hand, researchers have developed a new fiber-optic based chemical sensing method that uses light inside a fiber to induce sound waves outside it. The intimate relationship between sound and light brings a new perspective to the vital body. Are there sound and acoustic expressions of meridians and biophotons? Is there a sound version of Chi?

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[40] (Michael Brenner, Sascha Hilgenfeldt, Detlef Lohse) p.425
[41] (Brooke Borel)
[42] (Softpedia)

4.4 The Light and Sound Nature of Chi

The physicist William Tiller places that light is a bridge to a higher dimensional space[43]. It is made up of electromagnetic radiation (in physical space), magnetoelectric radiation (in the ethereal space) and deltronic radiation (in the headspace) having features that go far beyond the conventional space-time. Amit Goswami states that these nonlocal characteristics cannot be measured by any standard physical instrumentation, only their indirect effects.[44] The meridians of the vital body, in the etheric space, work with magnetoelectric radiation but the densest effects of them can be physically detected in the forms of electromagnetic and sound waves. The photonic optical channels can be local and nonlocal electromagnetic expressions of magnetoelectric and deltronic fields. According to Dr. Paul Drouin and Dr. Amit Goswami, the higher vibratory frequencies permeate the lower.[45]

Some studies about Chi emissions (Qi-Gong) from hands show that they can manifest themselves in many ways: magnetic fields, electrostatic fields, microwave, infrasound and ultraviolet spectrum. Other observations reveal pulsating magnetic energy and infrared emission leaving the ends of the fingers.

Guo-long discovered that sound waves of low frequency, between 8 Hz and 12 Hz, are prevalent in the hand emissions. This frequency is associated with alpha brain state and it has correspondence with the Schumann frequency. In the course "Creative Integrative

[43] (William Tiller)
[44] (Amit Goswami)
[45] (Paul Drouin, Amit Goswami)

Healthcare Training", Dr. Paul Drouin talks about various scientific studies that demonstrate the effects of frequencies between 0 and 30 Hz on human cells.

According to Yin Lo (2004), *"Meridians act like the cable in a cable television system. Different frequencies in the transmission line will give different programs in the receiving television set, as different frequencies in meridians will have different effects on the related organs or physical systems."*[46]

A study done by Jacques Benveniste (1998) revealed that any molecular signal can be represented by a spectrum of frequencies between 20 Hz and 20,000 Hz.

> *"Which means that a molecular signal can be efficiently represented by a spectrum of frequencies between 20 Hz and 20,000 Hz, the same range as the human hearing or music. For several hundred thousand years, human beings have been relating sound frequencies to a biological mechanism: the emotions. Composers of background music for supermarkets or elevators are practicing neuropsychology without knowing it. High-pitched rapid sounds engender lightness of spirit, high-pitched slow sounds, sweetness, sounds both deep and rapid awaken the fighting spirit, while deep, slow sounds invoke serious emotions, sadness and mourning. These are fundamentally cerebral physicochemical phenomena, triggered by defined frequencies. We do nothing more than this when we transmit pre-recorded molecular activities to biological systems."*[47]

The researcher Yin Lo (2004), says that Chi is vibration, a type of quantum meridians oscillation. His vision is very similar to the cosmological perception of Superstring Theory

[46] (Yin Lo)
[47] (Jacques Benveniste)

that proposes a vibrant and musical universe, an effect of energy vibration from fine filaments located in extra dimensions of space-time. For him, the meridians are quantum filaments that vibrate like the strings of a piano.

Recent studies and researches about acoustic and electromagnetic aspects of Chi (and meridians) are opening paths to a better understanding of how different frequencies interact with the vital body. These frequencies can be hertzian or non hertzian, local or nonlocal. Sound and light may have hertzian and non hertzian, local and nonlocal expressions.

According to Dr. Amit Goswami, nonlocal connections are instantaneous, without signs and place outside the conventional space-time.[48] Deltronic and magnetoelectric levels have nonlocal and holograph expressions.

In article *Evidence of Light Piping (Meridian-Like Channels) in the human Body and Nonlocal EMF Effects,* Popp (2005) and colleagues discuss the evidence of light channels in the body and their extraordinary high optical coherence and nonlocal properties.[49] Han also proposes that, "*An electromagnetic radiation field within a biological organism is characterized by nonlocal interference. The interfering beams form a unitary tridimensional network with beams of varying intensity, also called striae, which are distributed on the organism surface. These striae are equivalent to semi-reflectors. The striae carry bio-information of corresponding organs and, thus, integrate all tissues, and organs and organism."*[50]

Dr. Amit Goswami (2004) states that the different layers related to the five bodies (physical, vital, mental, supramental and Bliss) have different energy natures, but they are

[48] (Amit Goswami)
[49] (Fritz Albert Popp)
[50] (Han)

interrelated in holograph form, nonlocal and within a tangled hierarchy that is based on the unified field of Consciousness. Dr. Paul Drouin puts, "There is a subspace of consciousness imposing a structure onto the basic elements to our physical universe."[51]

All these studies show that Chi and the vital body meridians have an energetic (hertzian) and scalar/informative (non hertzian) natures. The vital body can interact with the different frequencies (light and sounds) and energies from various layers related to the Five Bodies (Physical, Vital, Mental, Supramental and Bliss).

Dr. Yan Xin[52], after conducting various studies and researches has come to the conclusions about the nature of Chi or vital energy:

1. It can be observed and measured in their electromagnetic aspects;
2. It demonstrates properties of both matter and energy;
3. It transmits information that has scalar and informative nature;
4. It can be influenced by thought and intention.

Considering the fact that the life energy (Chi) and meridians of the vital body also have a sound and acoustic nature, would it be possible to use sounds in the care of the vital body?

Some studies already indicate that infrasound can have profound therapeutic effects in physical organs and meridians of the vital body. The scientist Wang Xi-ming (2009) states that, *"Since the inherent frequencies of the human body and the organs are within infrasound*

[51] (Paul Drouin)
[52] (Yan Xin)

vibration range, so infrasound has a stronger effect on the human body. The study found that the process of Acupuncture at acupoints could be regarded the one containing the forced vibration with damping, and in the Acupuncture, the infrasound of 2-15 Hz could be produced, which can easily has a resonance with the human body and the organs."[53] He discovered that the meridians are good conductors of low-frequency sounds and, therefore, they can penetrate more easily in morbid tissues and organs improving their functions. In Japan, Senseki Takano (1992) demonstrated that high sound transference of the activated meridian seemed to opened a new way for the elucidation of viscoelastic behavior of the activated meridian.[54]

In other research, Dr. Joie P. Jones of Department of Radiological Sciences, University of California, found that classic acupuncture points correspond to the regions with the highest degree of elasticity of the tissues and specific acoustic properties.[55] He found that ultrasonic pulses of high energy can stimulate acupoints. The great advantage of this technique, he said, is the absence of pain or any discomfort, happening only a temperature increase at the application local.

Not only the infrasound and ultrasound have therapeutic effects on the meridians of the vital body, but also audible sound frequencies have great therapeutic effects. According to Bratila and Maldovan (2007), the restoration of the energy balance of acupuncture channels and organs is possible when biological rhythms are synchronized with external rhythms applied therapeutically.

[53] (Xang Xi-ming) p.293
[54] (Senseki Takano)
[55] (Joie P. Jones)

> *"After data processing, it was found that the sound stimulation of the Lung Meridian Frequency is optimal between 122 Hz and 128 Hz, with on average of 124 Hz (87% of the subjects) and for Kidney Meridian from 118 Hz to 121 Hz, with on average of 120 Hz (67% of the subjects). The acupuncture stimulation was more intense for female subjects (> 7%) than for the male ones. We preliminarily consider that an informational resonance phenomenon can be developed between the acupuncture music stimulation frequency and the cellular dipole frequency, being a really "resonant frequency signature" of an acupoint. The harmonic generation and the electronic excitation or low-excitation status of an acupuncture point may be considered as a resonance mechanism. By this kind of acupunctural stimulation, a symphony may act and play a healer role."*[56]

The use of sound as a treatment procedure, according to Wigram, is not a new concept and the history has shown evidence in both past civilizations and in present day cultures of the use of sound to treat physical disabilities and pain.[57] The Egyptians, Hindus, Tibetans, Chinese, Aborigines and many other indigenous cultures used the sounds and music as medicine. They knew that the vibration of sound waves can excite photons within cells and meridians. Recent research shows that each organ, gland, meridian and chakra has its own specific frequency. The therapeutic potential of sound is a fascinating subject and many studies have demonstrated the therapeutic power of sound vibrations.

[56] (Bratila and Maldovan)
[57] (Anthony Lewis Wigram)

Chapter 5: The Sound Power

5.1 Nada Brahma and Vedic Vision

According to ancient spiritual traditions the universe is not a machine but an organic and synergistic process, full of life, consciousness and vibration. In the book *Kybalion* four of the seven cosmic principles are directly related to the vibrational and conscious nature of the universe. They are vibration, polarity, rhythm and mentalism. Everything vibrates synergistically and consciously through the rhythmic dance of polarities. And the latest discoveries done by Cosmology, supported by Quantum Physics, reveal a musical and vibrational universe.

The Hindu view known as "Nada Brahma" has recognized the musical and vibrational nature of the universe, accepting the world as sound. In this view, subatomic and atomic particles, atoms, molecules, cells and organs are vibrational manifestations of a great musical symphony. In Sanskrit the words "Nada" and "Nadi" mean respectively "sound" and "stream of consciousness" revealing the intimate connection between sound and consciousness.

The "Nadis" are subtle channels of energy nature, very similar to the meridians of Acupuncture, through which flows the "Prana", Chi or life energy. In the scientific field, Quantum Physics suggests a close connection among matter, energy, vibration and life. The findings of Quantum Physics also reveal that the whole energetic rhythmic dance takes place within a Consciousness Field. The Sanskrit word "Brahma" can be translated as creative field

Consciousness and it is responsible for the manifestation of all cosmic processes in micro and macrocosmic scales.

According to Dr. Amit Goswami, Consciousness is the basis of all creation and the source of all the subtle energies and morphogenetic or informational fields. In Modern Quantum Physics, "Brahma" is the Consciousness that manifests itself through the quantum collapse.

The connection between the words "Nada" and "Nadi" reveals that the movement of consciousness is able to produce sound. In ancient mythologies, gain in form of a cosmic manifestation process is called sound. Therefore, the sound is a flow of awareness or consciousness in motion. The ability of the sound to give shape to the matter is the study of a new science: Cymatics.

5.2 Cymatics and Psychoneuroimmunology

Cymatics is the study of visual forms and effects produced by sound vibrations in certain ways. It also explains the periodic effects of sounds on the matter. Using a device known as tonoscope, Dr. Hans Jenny could view the geometry of the sound produced on certain materials. For example, he found that a pure tone of 22.2 Hz in water can produce a pentagonal shape. The musical note associated with this frequency is a F sharper (F#).

Dr. Jenny performed many of his experiments putting substances such as sand, fluids and powder on a metal plate attached to an oscillator that was controlled by a frequency generator capable to produce a wide range of vibrations. Turning a dial on the frequency generator, he would cause the plate to vibrate at different frequencies. Liquids, pastes and

other materials, when submitted to sound wave ripples, started generating specific forms according to the selected frequency. Harmonic frequencies in intervals of fifths and octaves generate harmonic and symmetrical shapes.

Research on Cymatics field provides elements to understanding how the vibrations and frequencies of the vital body can influence the physical body. For example, recent findings in the field of Psychoneuroimmunology reveal the existence of a chemical communication system or network of peptides and the emotions and feelings generating patterns of frequencies that affect the whole molecular network. These molecules have a wave-like aspect that reacts to the vibrational stimulations of the vital body. Dr. Candace Pert (1997) found that these molecules are not static structures but dynamic vibrant molecules that change their shape every millisecond.[58] The cause of geometric change of the shape of molecules may be related to morphogenetic fields of the vital body. Dr. Drouin put that the feelings caused by the movements of morphogenetic fields can lead to physical and somatic effects.[59]

Acknowledgment that sound vibrations can modify the geometries and forms of matter and that neuropeptides can also change shape according to certain frequency patterns confirm that the possibility that the sounds and music may have direct effects on the physical body. Music and sound are vibrations of different frequencies which the body is able to perceive. The sense of hearing is not limited to the ears and each cell has ion channels and

[58] (Candace Pert)
[59] (Paul Drouin)

receptors that are subject to change in response to vibration. Depending on these changes, the cells and the whole body can change their functions.

5.3 Vibroacoustics and Cymatherapy

In Loma Linda Veterans Administration Medical Center, biophysicist Jan Walleczek (1991) proven that electromagnetic fields of extremely low frequencies can produce changes at the cellular level, particularly in the lymphocytes T.[60] He found that these fields influence the release of calcium and DNA synthesis. But could sound fields have some influence on the cells?

From the second half of the nineteenth century many scientific and experimental studies on the physiological effects of the sounds were made. Many analyzes of the effects of sounds on digestion, circulation, respiration, muscle strength, skin secretions, brain waves and emotions were performed.

The physicist Helmholtz, in 1857 found that the sound is decomposed in the cochlea in 5,000 different frequencies and each of them is transmitted to the brain through a specific nerve fiber. According to him, the cochlea is able to decompose sounds of simple sinusoidal components.

The auditory pathway has connections throughout the brain and each sound pattern, with its frequency and specific waveform, promote a particular effect on the brain, such as cortical hemispheric synchronization, recharge, and secretions of different neurochemicals. Also it is known that changes in the skin secretions are produced by electrical currents after

[60] (Jan Walleczek)

sound stimulation. Human skin has receptors for temperature and vibration which are able to perceive light and sound. These pieces of information are the preliminary stages leading to the birth of a new science called Vibroacoustic. It is related to the use of sound frequencies as a type of therapeutic intervention.

In the book *Power of Sounds*, Joshua Leeds[61] recognizes that the science of Vibroacoustic is an extension of Cymatics studies and the application of certain frequencies in the body as medical and therapeutic resource is also an extension of the discoveries that were initiated by Hans Jenny. According to Peter Guy Manners *"Now the general statement can be made, that as well as human beings, all objects are radiating sound waves."*[62]

Dr. Wigram puts in his doctorate thesis that, "*Vibroacoustic (VA) therapy is used in clinical treatment and involves a stimulus that is a combination of sedative music and pulsed, sinusoidal low frequency tones between 20 Hz and 70 Hz…*"[63]

The meeting of Cymatics with Vibroacoustic led to a therapeutic approach based on the study of the structure and dynamics of waves and vibrations. The main key to this new science known as Cymatherapy, is the concept of bio-resonance. When frequencies are applied to the human body, they can create harmony within the body-mind system. Dr. Manners puts that Cymatherapy uses sound waves within the audible range to stimulate regulatory and immunological natural systems, and to produce near-optimum metabolic state for a particular cell or organ.[64] In his work, he uses a set of harmonic frequencies that correspond to the natural harmonics of the area of the body which needs to be treated. These

[61] (Joshua Leeds)
[62] (Peter Guy Manners)
[63] (Anthony Lewis Wigram)
[64] (Peter Guy Manners)

frequencies can be transmitted using an applicator placed on both the acupressure point and the affected areas.

The human body has acoustic bio-signatures that have been mapped by Dr. Manners. Combinations of sound frequencies can be applied to the body seeking healing and rebalancing. Resonant frequencies of sound can be transmitted directly to the body through the skin. Laser light of low intensity is also used by Cymatherapy.[65] This therapeutic approach uses fairly consistent features with recent discoveries that reveal the sound and light nature of bioenergy and its optical channels.

Research show that sound can influence the human body through the auditory and tactile systems producing different therapeutic effects. According to Augusto Weber (2004), sound waves appear to have better effects than electromagnetic waves in biological systems. This is because they have a mechanical nature, requiring a physical structure to propagate, in this case, the body.[66]

Gaynor Mitchell (1999) states that sounds have a high curative potential and are capable of physiological effects such as:

- Reducing anxiety and heart and respiratory rates;
- Reducing of cardiac complications;
- Reducing blood pressure and heart rate;
- Increasing the messengers of the immune system;
- Falling of the stress hormone levels;

[65] (Peter Guy Manners)
[66] (Augusto Weber)

- Increasing production of endogenous opioids.[67]

Research using sounds in cancer cells reveal that when they receive certain sound frequencies, they may show a kind of implosion. The researcher Fabien Maman[68] performed many studies on the effects of sounds in the cells and found that sound can change their functions producing different energetic effects. These findings are part of another important field of Quantum Medicine called Sonocytology.

5.4 Sonocytology

In 2002, studies in the nano-biotechnology area revealed that it is possible to hear the sound of cells using an atomic force microscope. James Gimzewski and Andrew Pelling, from Department of Chemistry (UCLA) found that yeast cells oscillate at the nanoscale. The expansion of this oscillation produces an audible sound. The suggested name for this new field is "Sonocytology." The atomic force microscope is able to feel the oscillations that occur on the cell membrane and, once the electrical signals are amplified, they can be heard. Using a specific computer program, he converted the recorded vibrations in the AFM into an electronic sound file.

A scanning microscope probe can record the vibrations of cell walls and, after amplification, it is possible to hear them. Yeast cells, for example, vibrate in the range of 1,000 Hz. According Sophia Roosth (2009),

[67] (Mitchell Gaynor) p. 73
[68] (Fabien Maman)

"Humans can hear as sound any vibration that has a periodicity in the range of twenty to twenty thousand vibrations per second (Hertz). The vibrations of cells are well within the frequency range of human hearing—in musical terms, from the C-sharp just above middle C to the following D, a half-step up—but the amplitudes of their vibrations are too low to be within normal hearing range (the cell wall is displaced only three nanometers each time it vibrates) (Wheeler 2004). By amplifying the vibrations of cells, researchers essentially 'turn up the volume' on cellular vibrations."

"… cellular vibrations are converted into cellular sounds that scientists can interpret as conveying meaningful information regarding the dynamism of cellular interiors. Further, I will examine the conditions that enable scientists to describe cells as actors capable of 'speaking' or 'screaming,' and how listening to cellular sounds may eventually change how scientists think about cells—as subjects that are dynamic, environmentally situated, and experiential."[69]

These researchers found that manipulation of the cells with chemicals, such as isopropanol, can change its oscillation. Cells were "singing" before exposure to alcohol and they start "screaming" after its use. Under the action of a lethal product such as sodium azide, a chemical that shuts down cellular metabolism, the cell makes a noise like radio static when it is dying. Gimzewski believes this sound is an indexical representation of the Brownian motion of molecules, since sodium azide stops all ATP-driven nanomechanical activity.

The scope of this research are unimaginable. Many diagnoses can be made by Sonocytology due to the fact that the healthy and unhealthy cells emit different sounds.

[69] (Sophia Roosth)

Cancer cells metabolize ATP more quickly, and therefore vibrate at a higher frequency than non-cancerous cells. The early detection of a cancer may be performed over the cellular hearing. Will the disease be a musical problem?

5.5 The Principle of Resonance

According to John Stuart Reid and Annaliese Kohinoor, resonance is the fundamental principle of sound healing. And it can be described as the frequency of vibration that is the most natural to a specific organ or system, such as the heart, liver or lungs. This innate frequency is known as the prime resonance.[70] They put that,

> *"Another aspect of resonance refers to cells that are emitting a range of sounds. Here, the resonance principle relates to the cellular absorption of those same sounds and/or their harmonics. In this situation resonance principles are applied to re-harmonize cells that have been imprinted with disruptive frequencies. Such troublesome imprints may have been a result of toxic substances, emotional traumas, pathogens, or long-term exposure to noise pollution."*[71]

Therefore, research in the field of Sonocytology recognize that each cell has its own frequency and a unique signature sound. The cells are able to "sing" to neighboring cells and these vibrations are able to open ion channels located in their membranes facilitating the absorption of nutrients and better communication between them.

Dr. Reid states that each component of the body has a natural frequency or PRF (Prime Resonance Frequency). A typical cell, he said, has 1,000 Hz while the heart, for

[70] (John Stuart Reid, Annaliese Kohinoor)
[71] (Caduceu)

example, has 100 Hz. Any change to its original frequency can generate a disease and once returning to its PRF, and so it is possible to stablish cure. Audible sound therapy may offer the greatest potential in non-invasive healing.

According to Wieder (2006), *"resonance is an amazing phenomenon that occurs throughout all of nature from the smallest subatomic particles to huge galaxies at the edge of the observable universe. Anything that vibrates has a natural resonant frequency and will spontaneously begin to vibrate in response to external vibrations that share the same or a similar resonant frequency."*[72]

5.6 Impacts of Sounds on Human Cells

The researcher Dr. Fabian Maman made interesting studies on the effects of sound on human cells. In 1981, with the collaboration of Dr. Helene Grimal, Dr. Fabian analyzed micrographs of low frequency sound effect (30-40 dB) on human cells and found that sung musical scales were able to destroy cancer cells in the uterus. He also used the gong with a wide range of harmonics getting the same result. In another study, breast cancer patients participated in experiments three and a half hours daily for a month and, in one case, the tumor completely disappeared. Another woman had her tumor reduced and it was fully dry.

In his book *The Role of Music in the Twenty-first Century*, Maman puts that sound vibrations transform the cellular structure, acting in a more subtle level of the body. When played the chromatic musical scale, Maman realized that different energy levels were stimulated simultaneously affecting positively the diseased cells.[73] The results showed that the sum of the vibrational frequencies has a high therapeutic power for diseased cells and

[72] (Resonant frequencies of the spine)
[73] (The Role of Music in the Twenty-first Century)

their nuclei could not maintain their structure when sound waves attacked the plasmatic and nuclear membranes.

In the other research, Dr. Maman took Kirlian pictures of human cells after they responded to the effect of specific frequencies played in different instruments. In these pictures each sound produced a different color and shape in the electromagnetic fields around the cell. The color, shape and the subtle energy field of each cell changed according to the tone and timbre of each musical note. Moreover, when the cell senses a vibratory affinity with a certain note, a mandala with vibrant colors is formed.

These studies confirm that audible sounds can affect directly the vital body of the cells and their chromatic expressions. According to Dr. Paul Drouin, this multicolored spectrum, also known as Rainbow Body, is related to the energetic activities of the meridians of the vital body, in especial the Marvelous Vessels.[74]

Other studies confirm that the use of sound vibrations can promote balance in many biological systems, including in cell cure. Dr. Jeffrey Thompson, from "Center for Research Neuro-acoustics of California Institute" uses the primordial sound, a blend of nature sounds electronically modified. The sounds of birds, dolphins, human voices, waves, wind and organic tones can resonate with the brain waves and various physiological functions.[75]

The human body is made up of 70% water and the sound waves moved five times faster in the water than in the air. This explains why direct sound stimulation of the body can be of high therapeutic value. Sonic Induction Therapy was created by Dr. Thompson and the

[74] (Paul Drouin)
[75] (Sons que Curam) p.118

techniques of "Bio-tuning", using the sounds of nature, can cause brain changes with the appearance of waves "alpha" and "theta" representing mental states of relaxation and healing.

5.7 The Music of Elementary Particles and Molecules

According to Dr. Paul Drouin (2014), the vital body is the universe itself of subatomic particles.[76] Thus, is it possibility that sounds influence the subatomic world having an impact on vital body? Is it possible to influence the particles and molecules by means of sounds?

Recent research has shown that the range of sound effects also since to come into the world of subatomic particles and molecules. The musicologist Wilfried Kruger and the physicist Jean Charon found that the eight protons of oxygen form a larger full scale where the spins mark the tones and semitones. The spin -1/2 is related to semitone while the spin +1/2 is related to the tone. Another finding is that the layer of the electrons of a carbon atom produces a scale with tones C, D, E, F, G and A, the hexachord chant. It is also known that DNA strands are structured exactly according to the "Tetraktys" of Pythagoras, the fourfold division of the octave. The four oxygen atoms surrounding the phosphorus atom vibrate in "Tetraktys". According to Joachim Berendt[77], the whole structure of the microcosm is full of harmonic concordance.

So, is it possible that sounds and musical scales influence the atoms, cells, molecules and organs?

[76] (Paul Drouin)
[77] (Nada Brahma)

The research conducted by the physicist Joel Sternheimer [78] show that the elementary particles and molecules also react to the vibratory frequencies. He found that if there was a problem in an organic structure, the molecules of that structure would not vibrate, but if they heard the string of notes they recognized as their tune, they wound begin to vibrate again. In his researches with plants, he discovered the mechanism for how they respond to the stimulation of sound waves and he realized that the composed musical note sequences can help in their grow. Each selected note to correspond to an amino acid in a protein with the full tune corresponding to the entire protein. The sequenced sounds just in the right order result in a tune which is unique and harmonize the internal structure of a specific plant type. Each plant type has a different sequence of notes to stimulate its growth. Sternheimer claims that when plants "hear" the appropriate tune, they produce excess of protein. The reverse may can happen, which tunes that inhibit the synthesis of proteins.

According to Joel Sternheimer[79], at the moment the amino-acid is brought by its t-RNA, it is hooked onto the ribosome and it emits a wave of quantum nature which is precisely called a scaling wave. This signal has a certain frequency and a certain wavelength. When the frequencies are transposed onto 76 octaves, it is possible to obtain audible musical frequencies. The melody obtained is able to stimulate the corresponding protein biosynthesis and, when in opposite phase, it will inhibit the protein biosynthesis.

When the sound waves pulse in the right set of frequencies, the plant can be affected at an energetic and sub molecular level. The resonance scale and the scale of waves can affect certain specific protein syntheses. This technique was patented internationally as "Method

[78] (Joel Sternheimer)
[79] (Epigenetic regulation of protein biosynthesis by scale resonance)

for Epigenetic Regulation of Protein Biosynthesis by Scale Resonance" and its applications in agriculture have shown its great accuracy.

Another intriguing discovery made by Sternheimer (1993) is that the frequency A (438.1 Hz), widely used in India and ancient Egypt, is related to electron vibration. Recent studies show the Pyramid of Giza in Egypt, resonates at this frequency. Jerry E. Bayles states that,

> *"… the acoustic frequencies associated with the Grand Gallery in the Great Pyramid will be developed for analysis purposes. Then I will develop a formula that relates sound frequencies to quantum energy equation ELM = h*fLM where fLM is the quantum constant entropic energy loss frequency …"*[80]
>
> *"…From the equation that ties the macroscopic to the quantum energies, I develop distances related to the Great Pyramid that relate to each acoustic frequency in the Grand Gallery. These vertically related energy steps could be used by a craft that matched the frequencies of each step in ascending order to launch the craft into space. First, we determine the velocity of sound in the air of the Grand Gallery that will yield 1/2 the Kings Chamber resonant frequency of 438 Hz when the Earth's Schumann frequency of 7.83 Hz is multiplied by 28 equal distance intervals up the gallery length. The gallery length is 153 feet. Multiplying this by the Schumann frequency of 7.83 Hz yields the required velocity of sound that will yield one wavelength of the 7.83 Hz Schumann frequency."*[81]

All these frequency keys have quantum, atomic, molecular, cellular and physiological effects and they can be used within the sound therapy approach. The physicist Nassim

[80, 81] (Jerry Bayles)

Haramein[82] puts that knowledge of the space-time geometry, together with the use of vibrational resonant keys with the fundamental frequencies of the universe, will bring new healing horizons. Dr. Paul Drouin, in the seminar *Creative Integrative Healthcare Training,* states that the Earth's magnetic field and its geomagnetic frequencies are essential elements for health. It seems that the ancient Egyptians knew the existence of a network of integrative and connective frequencies within a planetary energy field.

Today it is known that the frequency of the Earth and brainwave work between 0 and 30 Hz, the so called life spectrum. In 1995, Siskin and Walker noted that an ELF of 2 Hz stimulated nerve regeneration and a frequency of 7 Hz can be used to stimulate bone growth. Frequencies of 10 Hz promotes ligament healing and 15 Hz, 20 Hz and 72 Hz may be used to decrease skin necrosis and stimulate capillary formation. As tissues and organs are made of cells, this research further confirms the hypothesis that the human body needs resonate and respond to the frequency range of 0-30 Hz.[83]

All of these studies reveal that biological systems have an informative bio-quantum network that requires a new approach to quantum biological understanding of how to place the energy conversions in biophotons (light particles) and biophonons (particle sounds). There is a radiation with a bio-informative nature as also a long-range electromagnetic waves and sound fields that they can produce biological organization. According to Peter Gariaev, from "Institute of Quantum Genetics", the sound can transfer bioactive information [84] and Dr. Goswami associate quantum information network to the vital body, made up of

[82] (Creative Integrative Healthcare Training)
[83] (Siskind and Walker)
[84] (Transfer Bioactive Information by Sound)

meridians and morphogenetic fields.[85] The quantum effects of this network can be measured indirectly through the electromagnetic and acoustic interactions.

[85] (Amit Goswami)

Chapter 6: Sound and Vital Body

6.1 The Chinese Sound Medicine

The Ancient Chinese Philosophy believed that Wu Chi was a primordial vibration sound nature (cosmic sound) that produced the Tai Chi and so the twelve tones or Lu. Many other ancient traditions also recognized the creative sound power, origin of all cosmic manifestation.

According to Traditional Taoist Medicine, the spirit of the five elements is manifested in musical notes and becomes in tune with the rhythm of the organs and viscera. Within this framework, each note of the pentatonic scale[86] is able to influence the emotions and feelings of the vital body, as well as the organs of the physical body, because each of these notes is related to an organ, emotion, meridian and specific energy points.

Resonant frequencies of certain modes and the five musical notes (Wu Yin) stimulate the flow of Chi. The five Chinese musical modes (Gong, Shang, Jiao, Zhi and Yu) are related to the five elements, meridians and acupuncture points. Each scale evokes different emotional states and it is possible to obtain 60 different scales.

There is a relationship among instruments, sounds and elements. The Traditional Chinese Medicine recognizes that the sounds of the drums are related to the water element; the sounds of bamboo flutes are related to the wood element; the sounds of zithers are related to the fire element; the sounds of brass gongs are related to the metal element and the sounds of pots, ceramic and ocarinas, are related to the earth element. In the treatment of

[86] (Pythagorean scale)

kidney, for example, sound vibrations of the drums can be used. In the case of liver dysfunction, the sounds of flutes can help in the restoration of Chi or vital energy of the liver.

In Traditional Chinese Medicine some associations can be done among notes, elements, organs and viscera. For example, the note "C" is associated with the wood element (liver and gallbladder); the note "E", which resonates in the spleen and pancreas, is associated with the earth element; the note "G" (heart and small intestine) is associated with the fire element; the note "D", which represents lungs and large intestine, is associated with the metal element; and the note "A", which resonates in the kidneys and bladder, is associated with the water element.

Dr. Fabien Maman[87] proposes a different relationship between the musical notes and the five elements of Acupuncture. According to his studies, the wood element is associated with the note A; the fire element is associated with the note C; the earth element is associated with the note F; the metal element is associated with the note G; and the water element is associated with the note D. Dr. Dean Lloyd states other suggestion on these relations: F# with Earth; G# with Metal; A# with Wood; C# with Fire and D# with Water.[88]

Currently there are many divergent readings on these relationships. Future studies will reveal which relations will be more appropriate to rebalance the meridians by means of sound therapy.

[87] (Fabien Maman)
[88] (Dean Lloyd)

6.2 Sonopuncture and Meridians

Sonopuncture is the use of sound vibrations on acupuncture points instead of needles. This therapy is considered subtler than that using needles. It is pleasant and the vibrations can be: ultrasound, infrasound and audible sounds. The research of Joie Jones (2006) revealed that the ultrasound effects are similar to using needles.[89] The ultrasound waves are generated using the piezo-electric effect. This phenomenon happens when an alternating electric current is applied over the sides of a quartz crystal and this high frequency produces the ultrasound beam.

In Sonopuncture, the high quality sound heads are used to generate a narrow cylindrical beam of ultra-sound. It emits intense vertical beams varying from two to five millimeters in width. The application of ultrasound requires fifteen to forty-five seconds of stimulation at each acupuncture point and it has an effective depth of penetration of six to eight centimeters. This application produces a great time saving over the use of needles that requires at least twenty minutes of application at acupoints.

Zang et all research (2003) show that the amplitude of sound wave in acupoints was significantly higher than in non-acupuncture points.[90] Measures of the intensity of sound wave have confirmed that the sound wave can be transmitted by the meridians and acupoints. According to Fan et all (1989), the property of transmitting sound in meridians is

[89] (Joie Jones)
[90] (K. X. Zhang, X. Wang, R. Cao)

better than that on the surrounding areas due to the enrichment of isotropic ions along meridians under the action of bioelectric field.[91]

Other research revealed that the acupoints have more specifics features. Wang (2006) discovered that:

1. Frequency varies from 2 to 15 Hz;
2. Amplitude varies from 0.5 to 10mV;
3. Waveform is similar to sharp wave or sine wave;
4. Bidirectional conduction velocity varies from 6.2 to 10 cm/s;
5. It could be blocked.[92]

Dr. Martin Rossman (1974), in the article *The Use of Sonopuncture in Some Common Clinical Syndromes,* points out some of the benefits of this approach: a greater responsiveness of patients; a greater depth in effect; and familiarity of patient with the equipment used.[93]

Some research is revealing that Sonopuncture can be integrated with Electroacupuncture. Nakatani and Yamashita (1974) suggested that sound waves of music converted into electric current may be used to stimulate acupuncture needles to get better results.[94]

In the article *Introduction of a New Therapy Method: Music Sound Eletroacupuncture Stimulation*, Ibrahim Tekeoglu discusses the benefits of this integration showing the analgesic, anxiolytic effect, and relief of pain in the neck and headaches. He describes the

[91] (J. Y. Fan, S. Y. Xi, Z. Liu)
[92] (H. M. Wang)
[93] (Martin Rossman)
[94] (Nakatani and Yamashita)

device that transforms sound waves into electrical current as, *"An apparatus has been devised (patent pending) to convert music into electric waves suitable for use electroacupuncture, by which the frequency is changed in accordance with the music. This music electroacupuncture (MEA) device produces middle frequency, biphasic, sinusoidal or alternating current and a 1mA, 5-10V output."*[95]

The use of sound vibrations as therapy and medicine was already recognized in ancient China. The book of the Yellow Emperor, *Nei-Jing*, has already quoted relationship among meridians, musical modes and notes. Today this knowledge is being rescued and amplified through technological and scientific advances.

6.3 Tuning Forks and Acutone

Contemporary research confirms that the vital body meridians also have a sound nature and can be influenced by ultrasound, infrasound and intrasound or audible vibrations. The most suitable sound for Acupuncture is intrasound waves (audible) because they are biologically better adapted and resonate naturally. The sound can nourish yin (the essence) calming the "Shen" and the mind. It also promotes regenerative effects, body vitalization, dispersion of excessive heat, sedation and promoting smoother Chi liver flow. It is the sound that the body finds its rhythm and harmony, based on the organic homeostasis.

According to Dr. Weber, therapies using waves of audible sounds with frequencies between 60 Hz and 100 Hz have great efficiency because they not only resonate with the organs and internal structures but also exert mechanical activity on the bones, tissues, cells and blood circulation.

[95] (Ibrahim Tekeodu)

There are also studies linking the energy channels to certain sound frequencies or musical notes. Dr. Maman, for example, created a therapeutic system that relates each of the twelve meridians to each of the twelve notes and, today, he works with the meridians using sound tuning forks with the frequencies of the tempered scale.

According Wikipedia, *"A tuning fork is an acoustic resonator in the form of a two-pronged fork with the prongs (tines) formed from a U-shaped bar of elastic metal (usually steel). It resonates at a specific constant pitch when set vibrating by striking it against a surface or with an object, and emits a pure musical tone after waiting a moment to allow some high overtones to die out. The pitch that a particular tuning fork generates depends on the length and mass of the two prongs. It is frequently used as a standard of pitch to tune musical instruments."*[96]

The tuning fork is a vibrating instrument that generate specific sound frequencies (intra-sonic sine waves) when mechanically driven. It can be used in several ways:

a) A tuning fork triggered at a specific energy point;

b) Two tuning forks used simultaneously in two different acupoints within specific ranges.

In Acupuncture, when toning is required the fifth interval is the most appropriate (for example, C-G) because it has yang nature. In the case of sedation, the most appropriate interval is the third (for example, C-E). The implementation can be performed using the fundamental note in the meridian control point. To move energy along the meridian it is necessary to create a gap between two points, observing the direction of energy that flow in the meridian.

[96] (Wikipedia)

The advantage of using tuning forks, according to Maman, is due to the fact the sound spread with greater speed than with traditional needles. The sound vibration of the tuning fork performs a massage able to achieve the energy points, meridians and organs. The sounds excite the sweat secretions causing electrical modifications in the skin and is a powerful sensory organ. When an organ is reaching a healthy state, it generates a natural frequency known as energetic signature. When sick, this signature is changed. The application of an appropriate external frequency can correct the distortion promoting health and rebalancing.

The appropriate sound waves can harmonize biological functions because they are able to regulate the biological rhythm. Many symptoms are being successfully treated using tuning forks and the main indications are: pain in general; migraine; low back pain; herniated disc; osteoporosis; arthrosis and arthritis, rheumatism; tendinitis and bursitis; rhinitis, sinusitis, asthma and bronchitis; sleeplessness, anxiety, stress, hyperactivity, depression and panic disorder.

The tuning fork transmits a pure tone that travels deeper through the body's tissues and much faster than the vibration of an acupuncture needle. The Acutone system is founded on the ancient principle that there are definite frequencies that affect each of the five phases as well as the twelve meridians.

According to Dean Lloyd (2003), in the past something similar was done by chinese. He states that, "the tuning forks are very similar to the two-tone Zeng bells of the Zhou Dynasty, the unique instrument that was used for communal healing purposes".[97]

In 1978, in Hubei Province (China), sixty-five bells were digged from the tomb of the Marquis Yi of Zeng (433 B.C.). The two-tone bells were common in China between 1200 and 200 B.C. The bells found in this province have an eye-shaped cross-section and vibrate in one of two modes, depending on where they are struck. According to Martin Braun, the acoustic analysis revealed: a norm tone of F4 ~ 345 Hz; a six-tone standard scale of D-E-F-G-A-C with F#, G#, A#, B, C#, and D# as accidentals; a third-oriented tuning with equally tempered fifths in the series C-G-D-A-E.

The ability of these bells to produce two tones is something that intrigues researchers. Dr. DeWoskin states that, *"The musicological problems focus on the tunings and are related to the special capacity of the bells to sound two musical tones. The Chinese called these parallel tones or dual tones. Because each bell sounds two notes, in performance their pitches are interleaved."*[98] The conclusion about these bells is that probably they had therapeutic purposes.

Currently, studies of Fabien Maman bring new perspectives in the field of Sonopuncture because its main focus is on the effect of sounds and musical notes. His work provides a direct dialogue between music and medicine before recognized only to Taoist masters. It is now possible to establish a direct relationship between the musical notes of the chromatic scale and the acupuncture meridians, allowing a therapeutic approach non-

[97] (Dean lloyd)
[98] (Dr. DeWoskin)

invasive, that is relaxing, deeply and extremely effective. He has found, in their studies, the exact frequency of each Acupuncture Shu Point, Mu Point, Eight Extraordinary Meridians and Foot Reflexology Points. His findings reveal that different tones can impact the different layers of subtle bodies.

In the book *Le Tao du Son*, Dr. Maman states that the frequencies of the tuning forks used are: C (130.81 Hz); C# (138.59 Hz); D (146.83 Hz); D # (155.56 Hz); E (164.81 Hz); F (174.61 Hz); F# (185.00 Hz); G (196.00 Hz); G# (207.65 Hz); A (220.00 Hz); A# (233.08 Hz) and B (246.94 Hz). Each musical note of the chromatic scale is associated with a meridian of Acupuncture: C is associated with the small intestine meridian; C# is associated with the bladder meridian; D is associated with the kidney meridian; D# is associated with the pericardium meridian; E is associated with the triple warmer; F is associated with the gallbladder meridian; F# is associated with the liver meridian; G is associated with the lungs meridian; G# is associated with the large intestine; A is associated with the stomach meridian; A# is associated with the spleen meridian, and B is associated with the heart meridian.[99] Maman also studied the vibrations of the chakras and the associated musical notes of the chromatic scale. As the energy is spiraling, the Pythagorean fifth scale is the most suited to understand how the flow of Chi happens through the vital body. In his mind, he associated the first chakra with the F note; the second one with the C; the third one with the G note; the fourth one with the D note; the fifth one with the A note; the sixty-one with the E note, and the last chakra with the note B.

[99] (Fabien Maman)

The researcher Juan Li et al. (2012), in the article *Biophysical Characteristics of Meridians and Acupoints: A Systematic Review*, combine five meridians to five specific frequencies. The spleen meridian (Gung) frequency (261Hz) is related to C note; the lung meridian (Sang) frequency (293.7Hz) is related to D note; the liver meridian (Gak) frequency (329.6Hz) is related to E note; the heart meridian (Chi) frequency (392Hz) is related to G note; and the kidney meridian (Wu) frequency (440Hz) is related to A note.[100]

6.4 Shu Points and Music

In the book *Le Chant Sacre Des Énergies*, Maela and Patrick Paul explore the relations between “Shu” points and sounds. The “Shu” points are transport points which are located between the hands and elbows and between the foot and knees. The flow of its energy is similar to the flow of a river: in points "springs", Chi flows; in points "fountains", Chi slips and slides; in points "streams", Chi circulates; in points "rivers", Chi moves; and in points "sea", Chi penetrates.

From one point to another point within the meridian line, the energy flows according to Pythagorean scale (fifty interval). This means that the note that corresponds to the next point will always be the "fifth" of the note associated with previous energy point, in the direction the energy flow. For example, the note associated with the Triple Warmer (TW1) is F# and the note associated with the next point (TW2) will be C#.

[100] (Biophysical Characteristics of Meridians and Acupoints: A Systematic Review) p.3

Table 1: Shu points and musical notes

Points of Kidney	1	2	3	7	10
Notes Related	A	E	B	F#	D
Points of Bladder	67	66	65	60	54
Notes Related	G#	C#	F	A#	D#
Points of Heart	9	8	7	4	3
Notes related	F#	B	D#	G#	C#
Points of Small Intestine	1	2	3	5	8
Notes Related	D	A	E	C	G
Points of Lung	11	10	9	8	5
Notes related	E	A	D	G	B
Points of Large Intestine	1	2	3	5	11
Notes related	G#	D#	A#	F	C
Points of Spleen-Pancreas	1	2	3	5	9
Notes Related	G	D	A#	F	C
Points of Stomach	45	44	43	41	36
Notes Related	C#	F#	B	E	A
Points of Liver	1	2	3	4	8
Notes Related	F#	C#	G#	D#	A#
Points of Gall Bladder	44	43	41	38	34
Notes Related	G	C	F	A	D
Points of Pericardium	9	8	7	5	3
Notes Related	A#	D#	G	C	F
Points of Triple Warmer	1	2	3	6	10
Notes Related	F#	C#	G#	E	B

The different musical intervals can also present energetic and physiological distinct effects. An interval is a distance between two musical notes and each one can generate different vibrational and therapeutic effects. According to Weber (2004), they are forms of energy that stimulate and boost the inert forces of the body. Many therapists who work with tuning forks, a particular form of Sonopuncture, use sound scales for specific therapeutic interventions. Each scale has a specific effect that can produce sedation, toning or rebalancing of Chi.

The scales and therapeutic effects:

• Fundamental: the interval whose numerical ratio is 1/1 and it can be found in the mantras. It is able to generate calm and inner peace.

• Eighth: the eighth is ½ ratio and it can be found in the mantras, Gregorian chants, sacred Tibetans and Indians chants. This range creates stability, synthesis, ancestral healing and harmonization.

• Fifth: found in classical music, blues and MPB. The fifth interval (for example, C - G), whose ratio is 2/3, is stimulating, yang and it can be used for toning, activating the strength and inner courage. According to Dr. Jill Mattson (2008),

> *"The Pythagorean interval of 3 to 2 is balancing and healing. The interval of a fifth has a ratio of 3 to 2.64. When we hear this interval, our nervous and neuromuscular systems entrain to it. The same tuning forks balance the right and the left halves of our brains. People have listened to this ratio and it has cured headaches and popped vertebrae back into place. It's astounding. It's a wonderful tool for creating balance and enhancing relaxation. The 3 to 2 ratio is displayed in the proportions of the human body and natural forms, including leaf arrangements on stems, the spirals of the nautilus shell and the arrangements of billions of stars in galaxies. This ratio, the phi ratio, is found in the two adjacent numbers in the Fibonacci series."*[101]

• Fourth: the fourth interval (for example, C - F) is widely used in Gregorian chants, singing of Bulgarian women, marches and hymns. The ratio is ¾ and it is able to reveal emotions, and breaking mental patterns. This range can be indicated in the work of cognitive reprogramming and hypnosis.

[101] (Jill Mattson) p. 107

• Third: fashionable violates, blues and popular music in general use the third interval (for example, C - E) in the proportions 4/5 and 5/6. It is related to the mental and emotional life. Minor thirds chords are linked to loss, depression, sadness, uncertainty, indecision and loving frustration, while major thirds chords bring strength and joy.

• Second: the range of second (for example, C - D) is found in classical music and jazz. It brings movement and tension. Minor second is able to evoke trauma and emotional horror experiences due to the dissonance process.

• Sixth: the lullabies use the sixth interval (for example, C - A) which is light and smooth. Able to smooth heavy emotional processes, may also be suitable for children. It is considered more etheric and it can be used in the harmonization of the vital body.

• Seventh: this interval encourages conflict resolution and emotional processes. Found in Beethoven and "soul music", it carries strong tension and movement, calling for a resolution in the eighth. It is chocking and also able to destabilize psychic and mental structure ranges. Not suitable for people with psychotic or dissociative traits.

• Augmented Fourth: in the Middle Ages, it was known as the devil's interval and it is found in Tibetan bell and music of northeastern Brazil (for example, C-F#). In the interval the two cerebral hemispheres are stimulated and their use can also be destabilizing.

For each clinical condition, within the sound therapy, a specific range may be indicated. In depressive cases, yang intervals are more suitable as they present more expansive, exciting and invigorating nature. For example, the perfect fifth, the fourth and the sixth largest. In cases of anxiety and stress, yin intervals are shown as they have a more

intimate and sedative nature. For example, the minor third, minor sixth and minor seventh. The octave range generates balance and harmonization.

6.5 Sound, DNA and Space-Time

The sound is the subjective perception of a vibratory phenomenon that is able to stimulate the sensory organ of hearing. The way that the vibrations do it begins in the outer ear, after passing through the middle ear (eardrum, hammer, anvil, stirrup oval window) and reaching the inner ear (cochlea). In the hair cells, the boost received is transformed into electrical impulses, for transmission, to the brain via the auditory nerve. Being all this mechanical process, how could the sounds influence subtler channels of the vital body?

The sounds are vibrations that can act not only on the physical, physiological and brain processes in this continuous space - time, but also in subtler levels. According to the researcher Sol Luckman, space-time has two modes of expression: positive (or space-time) and the negative (time-space). The first is the field of light and electromagnetic holograms (holograph matrix) and the second is the sound field of information and word.[102]

The physicist William Tiller (1977) has also created a mathematical model that recognizes the existence of a positive space-time, related to the phenomena whose speed is lower than that of light, and a negative space-time, related to the phenomena whose speed exceeds the speed of light.[103] The negative space-time domain is related to the energy

[102] (Sol Luckman)
[103] (William Tiller)

dynamics of the vital body. The biofield related to the vital body appears to be sound in nature. According to Luckman,

> *"… that we are discussing hyper-dimensional torsion sound waves, which means you cannot simply press a button and record the aura! Since our consciousness blueprint in time-space is made of sound, and sound is the principal torsion energy for creating, supporting and evolving life, using only light for healing, as the vast majority of energetic modalities do, often proves ineffectual. Hyper-dimensional light is the form of torsion energy normally employed in energy medicine—whether we look at allergy elimination technique, acupuncture, reiki, radionics, meditation, or machines. But remember that sound precedes and creates light. Compared to sound, light is superficial. Light is thought, form; sound is being, essence. Light diagnoses; sound restores. Light treats; sound heals. Light is concerned with information, whereas sound is about transformation."*[104]

The great Consciousness Field *"employs linguistically generated blueprints of torsion energy in time-space in the form of hyper-dimensional sound, which then transform into reality constructs in space-time that are light-generated, or holograph."*[105] This information brings to light an important question: is there any point connected or encountered between the space-time (positive) and the time-space (negative)? Where it would be? The answer is positive. According to Luckman, DNA is the meeting point,

[104] (Sol Luckman) p.80
[105] (Sol Luckman)

"Recall that in biological organisms, potential DNA serves as the principal connection point between time-space and space-time. In other words, potential DNA, far from being inactive, constitutes the hyper-dimensional interface between the sound and light domains."[106]

This can be validated by Popp and Nagl´s research (1983) who found that DNA is a store and also a great source of biophotons.[107] Another researcher, Dr. Peter Gariaev (1994), found that the DNA is a Wave Bio-computer and *"the chromosome continuum acts like a dynamic holograph grating, which displays or transduces weak laser light and a solitonic electro-acoustic field."*[108] In other words, the code is transformed into physical matter, and it is guided by light and sound signals.

Dr. Gariaev states that the DNA acts as a holograph projector of acoustic and electromagnetic information and contains the informational quintessence of the bio-hologram that creates movements of electromagnetic wave patterns in different frequencies making different biochemical transformations. Sol Luckman also puts that the existence of the genetic sound-light translation mechanism indicates that the flow of information, or conscious bioenergy, through DNA is a two-way street.[109]

Currently there are many scientific evidence to show that the meridians of the vital body are sound, acoustic and electromagnetic expressions plus even more subtle expressions of scalar and not hertzian nature, related to torsion fields. This field, also called axion field,

[106] (Sol Luckman) p.110
[107] (Popp and Nagl)
[108] (Peter Gariaev)
[109] (Sol Luckman)

spin field, spinor field and microlepton field is a feature of a theory of energy in which the quantum spin of particles can be used to carry information faster than the speed of light.

In the Eastern view, "Sabda" is the scalar expression of sound or what Luckman called hyper-dimensional sound, that is able to create and transform the material world. Future studies will reveal if the scalar or informative nature of the sound has some connection between the morphogenetic fields of the vital body and the five elements of traditional Chinese Medicine.

Dr. Yury Kronn[110] states that the energy flowing through the twelve meridians of the vital body has different elemental qualities. Experiments revealed that each particular meridian is influenced by an energy pattern that has the same feature of one of the five elements. These studies show that different frequency patterns can influence energy and informative aspects of meridians.

6.6 Consciousness Acupuncture

According to Dr. Amit Goswami[111], the Acupuncture gives results not only because the introduction of needles into the skin affects nerve signals, but also because it is able to influence the movement of vital energy.

[110] (Yury Kronn)
[111] (The Quantum Doctor)

> "Acup*uncture affects first the flow of vital energy in the meridians related to the physical body in the skin, and second, through internal connections, the flow of vital energy in the meridians inside the body that interconnect the headquarters of vital organs."*[112]

The Dr. Paul Drouin[113] states that the Acupuncture is much more than a number of protocols involving the use of needles in different acupoints in the treatment of different pathologies. He proposes an Acupuncture able to access a more efficient level of information, which is aimed for restoration and harmonization of morphogenetic fields. The meridians involved in this process, he said, are the "Wonderful Vessels", true optical fibers through which the lasers of the meridians run.

These vessels are related to the physiological level, the central channel, cerebral gray matter and fluid, and their energy is able to move up and down in spiral manner.[114] The four "Wonderful Vessels" carry eight condense emanations into eight "Kouas" (real subtle energy reservoirs) that recharge the meridians at certain times or energy tides. According to Dr. Paul Drouin, these vessels or smart paths have a nonlocal nature.

Considering the Heisenberg Uncertainty Principle applied to quantum dynamics of the vital body, the nonlinear dynamics of energy involved, and the nonlocal nature of biophotons[115] and meridians, would it be possible to think about Acupuncture practice without needles and not focused on local acupoints? Is it possible a nonlocal Acupuncture? According to all the new challenges of the Vital Body Medicine, could the sounds be used within this new proposal in Acupuncture? Could it be a new therapeutic agent within what

[112] (The Quantum Doctor)
[113] (Creative Integrative Medicine)
[114] (Dr. Paul Drouin)
[115] (Fritz Popp)

Dr. Paul Drouin calls Consciousness Acupuncture? Could the Tibetan singing bowls bring some contribution in this process?

Chapter 7: Sound Healing

According to Boyce-Tillman (2000), sound healing is a term applied to a wide and diverse range of approaches, utilizing a diverse range of sound sources, with the intention of healing some aspects of human beings.[116] Sound healing can be defined as the application of sound vibrations directly into the body to bring health and balance.

7.1 Receptive Music Therapy

Vibroacoustic is one of the modalities of Receptive Music Therapy, in which the patient is a recipient of sounds, vibrations and music. Therapy with the singing bowls is a form of Vibroacoustic Therapy within the Receptive Music Therapy field. Its beginning took place in the 80´s. Bruscia (1998) argues,

> *"… that the main therapeutic objectives of the receptive experiences are: promoting openness; evoke specific bodily responses; stimulate or relax; evoke emotional states and experiences; explore ideas and thoughts; facilitate memory, reminiscences and regressions; evoke fantasies and imagination and stimulate spiritual experiences, among others."*[117]

The promotion of psychological insight, change of mood, reduction of cardiac pulse and blood pressure can also be targets of receptive experiences.

"Somatic listening", according to Bruscia, is the use of vibrations, sounds and music in elementary or combined forms for a direct influence on the mind-body system. The Vibroacoustic Therapy is a form of "somatic hearing" and the therapeutic use of Tibetan

[116] (Constructing Musical Healing) p.199
[117] (Bruscia)

bowls is one of the forms of Vibroacoustic Therapy. This approach has three important principles:

1. High frequency usually induces voltage and low responses of relaxation;

2. Strongly marked musical rhythms induce energy and vitality while rhythms with slow times can induce calm;

3. High intensity can generate excitement and alertness while low intensities can generate calm.

7.2 The Singing Bowls

Jansen (1992) puts that the use of sounding instruments, in China, stems to be back in 2000 BC. Chinese Emperors would use "ringing stones", formed from jade. Archaeological finds in Northeast Thailand suggest that bronze had been used there about two-thousand years earlier than what was known as the Bronze Age in China. By the sixth century BC, China was well advanced working with metal alloys and metals, creating perfectly tuned bells.[118]

According to Stefania Serafin (2004),

> *"… these bowls dating from 560-180 BC. They have been found in temples, monasteries and meditation rooms worldwide. (...) They are made of an alloy of five to seven metals such as gold, silver, mercury, copper, iron, tin and lead, and it is believed that each of these metals produces an individual sound, including partial, and these sounds together they produce*

[118] (Singing Bowls: A Practical Handbook of Instruction and Use)

exceptional "singer" sound of the bowls. In manufacturing, each bowl is hand hammered in circular shape, to produce its harmonic tones and vibrations. Today they are used in music, relaxation, meditation and healing ...."[119]

Tibetan bowl is a musical instrument that has a resonant spherical three-dimensional structure and sound long term. It can be triggered by a wooden or leather stick and its stimulation, according to various vibrations, may be produced. Serafin et al. (2002) state that the vibrational modes of Tibetan bowls resemble church bells. By striking the instrument, a certain amount of "modes of excited bell" is produced while being rubbed it is mainly produce the most serious and harmonic mode.[120] According Serafin (2004),

"... from a perceptual point of view, the sound of Tibetan bowl has two main characteristics: partial holding in the time and strong pulse. The latter occurs due to slight asymmetries in the shape of bowl. Each bowl has, according to its size, thickness and weight, a certain height. Timbre and loudness can be controlled by three main factors: the force of the blow, the hardness of the object with which it hits the point and percussion."[121]

The bowls are poly harmonic instruments and when activated, they can produce multiple harmonic series superposed to each other. The poly harmonic structures can vary with the size of the bowls and modes of action.

The bowls are made of seven metals, each one associated with a planet in the solar system: gold (the Sun), silver (the Moon), mercury (Mercury), copper (Venus), iron (Mars),

[119] (The sound of friction: real-time models, playability and musical applications)
[120] (Serafin et al.)
[121] (Serafin, S.; "The sound of friction: real-time models, playability and musical applications". PhD thesis. Stanford University, Stanford, CA, 2004. p. 113)

tin (Jupiter) and lead (Saturn). According to Shrestha (2009), the fusion of all the seven metals together created the wondrous sound for the singing bowl, including an individual sound for each bowl and harmonics.[122]

In traditional Chinese medicine, each of the five elements is connected to a planetary force. According to Dr. Paul Drouin, Mars is connected to the fire element (heart and small intestine); Jupiter is connect to wood element (liver and gallbladder); Mercury is connected to the water element (bladder and kidneys); Venus is connected to the metal element (large intestine and lungs); Saturn is connected to the earth element (spleen, pancreas and stomach); Sun is connected to the triple warmer meridian, and Moon is connected to the pericardium meridian.[123] These planetary energies are related to morphogenetic fields associated with the elements and meridians.

Each vital body meridian is connected to a planetary morphogenetic field and an elemental force. For example, fire meridians (heart and small intestine) are associated with Sun and the gold element; earth meridians (spleen-pancreas and stomach) are associated with Saturn and the lead element; metal meridians (lungs and large intestine) are associated with Venus and the copper element; the wood meridians (liver and gallbladder) are associated with Jupiter and tin element; and the water meridians (kidney and bladder) are associated with Mercury and mercury element.

[122] (How to Heal with Singing Bowls: Traditional Tibetan Healing Methods)
[123] (Taoist Medicine and Acupuncture)

Dr. Jeffrey Thompson, quoted by Gaynor [124], found that the sounds that are produced by the rings of the planet Uranus emit very similar sounds to the ones of Tibetan bowls.

> *"In 1989, NASA and Jet Propulsion Laboratory asked Dr. Thompson to explore a series of powerful recordings that the Voyager I & II Spacecraft had sent back from Jupiter, Saturn, Uranus, and Neptune. Dr. Thompson was invited to research the possible meaning and applications of these NASA Space Sound Recordings."*[125]

Dr. Thompson says the reverberations of bowls and Tibetan crystals have healing power because of its resemblance to the primordial sounds from outer space or sound of our cosmic essence.[126]

7.3 Therapeutic Use of Singing Bowls

The therapeutic effects of Tibetan bowls can be understood considering two main reasons: its harmonic and natural overtones acoustic expressions (not artificial and not electronic) and the highly therapeutic brain responses produced by them.

According to Jansen (1992), some studies revealed that the bells, gongs, cymbals and singing bowls produce harmonics far beyond the number of the ones produced by Western instruments. Currently, Sound Therapy accepts that different harmonics and sub harmonics produce high therapeutic power. The multiple simultaneous vibrations of Tibetan bowls are related to different metals that make up its chemical structure. This may explain why a single

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[124, 125, 126] (Healing Sounds)

bowl can issue multiple harmonics and sub harmonics at the same time. Jansen also states that singing bowls, bells and cymbals do not produce shortened intervals and vibrations in the tempered and well-tempered octave (artificial scale). That, he said, can make a big difference in therapeutic results.

Other important point, according to Maman,[127] is to separate natural/acoustic sounds and artificial/synthetic sounds. He made experiments with cells under the influence of sound and he studied the importance of the quality of the harmonics. He discovered how different these two sources of sound (acoustic versus synthetic) are when it comes to measure the impact of resonance into human cells. He puts,

> *"I discovered that the real power of using sound for healing resides only in the harmonics, not in the sound itself. So only acoustic instruments (not electric or electronic) can be used for Sound healing"*[128]
>
> *"What is an electric guitar? A plastic frame with an electric chord. Such an object doesn't have any intrinsic life… The amplification creates "pseudo harmonics", through the electric circuit they pass to become audible: these harmonics are not natural, they are not what we call "acoustic". So there is no healing substance."*[129]
>
> *"When I sound a metal tube with a wood-velvet hammer, I get practically the full range of overtones depending on the strike. On the other hand, a tuning fork emits overtones which penetrate the energy field and then the organ of the physical body. We can check the sound*

[127, 128, 129] (Fabien Maman Speaks: Acoustic vs Synthetic Sounds in Healing)

impact in the organic structure by taking the Chinese pulses in Traditional Chinese Medicine."[130]

In sound therapy, the quality of the resonance of natural overtones full range is the main warranty of the state of relaxation state and stress release. According to Jansen (1992), the different harmonics and sub harmonics that are generated by singing bowls perform massages in all cells. He states that,

"Synchronization comes into play when the vibrations of the singing bowls transform the normal vibrations and wavelengths of the human body to match their own. Meaning, a healthy organ vibrates at his own rhythms and frequency, while an unhealthy organ's natural rhythm is disturbed. Singing bowls "recreate the original harmonic frequency and stimulate the body to rediscover its own harmonic frequency, by making it vibrate to the frequency of the bowl so that when it is synchronized, it can vibrate independently."[131]

The therapeutic effects of singing bowls are very varied. For example, the sound vibrations transmitted as ordering impulses to the body can cause a relaxation of tissue tension. It may contribute to the reduction of physical tension and neuromuscular blockades. The physiotherapist Alexander Beutel (2007), studied the similarities between sound massage and classic massage[132]. He discovered that sound massage causes a tone regulation of striated muscle, promoting slight blood circulation and enhancing the metabolism.

Many studies also have been done about the similarities between the manual lymphatic drainage massage and the sound massage (Nandi Hardt, 2009). Dr. Maria Anna

[130] (Fabien Maman Speaks: Acoustic vs Synthetic Sounds in Healing)
[131] (Erik Jansen) p. 39
[132] (Alexander Bautel)

Pabst states that is possible that the rhythmic uniform structure of the singing bowl sounds also stimulates the regeneration and reorganization processes.

It is important to consider that the singing bowls are able to create brain patterns. Waves produced during a meditative state created for singing bowls are found to be exactly like alpha waves. According to Neher (1961), *"The vibrating resonance of Tibetan bowls has been correlated with the generation of an alpha brain-wave state, while ting-shang, small cymbal-like bells used by Tibetan meditators, have been described as producing the consciousness-altering theta state".*[133] In alpha state, it can occur the hemispheric neurological coherence, which is the balance of activity in the right and left brain hemispheres.

Jayan Landry (2012) studied the effects of meditation with singing bowls in patients with stress. In his research,

> *"Fifty of 51 participants reported feeling more relaxed at the end of both sessions and indicated positive associations with HSB exposure (deeper meditative state, enhanced spiritual experience, ocean imagery). Building upon prior research in relaxation and sound in Eastern and Western practices, this study offers innovative approaches to stress management evidenced by decreases in systolic and diastolic BP, HR, and negative affect states when incorporating HSB into a meditation session."*[134]

Although there still are a few studies, research and theories about the therapeutic effects of singing bowls, the information available affirms their therapeutic and healing

[133] (Neher)
[134] (Measuring the effects of a Himalayan singing bowl on a meditation practice: A quantitative approach)

potential. This research aims to contribute to the understanding of their therapeutic frequency ranges as another Medicine resource for the vital body.

7.4 Nonlocality and Singing Bowls

Quantum Medicine recognizes that the vital body is formed by energy channels and chakras. According to Dr. Amit Goswami (2004), *"the main aspect of Acupuncture theory is that there are channels for the flow of vital energy between the vital blueprints that are reservoirs of programs that execute the biological functions of the organs."*[135]

According to Traditional Chinese Medicine there are twelve main meridians related to the viscera and organs of the physical body. As noted previously in this thesis, those meridians have a quantum nature and, so they are subject to quantum nonlocality.

Nonlocality quantum recognizes the existence of connections outside the conventional space-time which are instantaneous and without the transmission of conventional electromagnetic signals. Thus, the paths of the meridians may be approximated expressions of the field. According to Dr. Goswami, *"While traditionalists insist on saying that the channels are fixed, as the points of acupuncture, they accept that more than points, meridians denote areas."*[136]

According to Carl Dubitsky (1997), the acupoints can change its size and location, depending on the intensity of the vital body imbalance. It is possible that the meridians are dynamic and change channels or quantum collapses produced by the thoughts, feelings and associated morphogenetic fields. Considering the possible dynamic and nonlocal nature of

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[135,] (O Médico Quântico) p. 143
[136] (O Médico Quântico) p. 145

the meridians due to its quantum nature, and subject to Heisenberg Principle of Uncertainty, could singing bowls be an alternative to the use of located needles?

Whereas the sounds are energy fields that propagate in all directions simultaneously and in a wavelike way, could they be used as a non-located form of intervention and an alternative to classic and local action?

Recognizing the acoustic and sound nature of the meridians, could the Tibetan singing bowls have positive impact on acupoints of the vital body? How would the sound therapy be used in the vital body with singing bowls?

The main objective of this thesis is to investigate if it is possible to positively affect the twelve meridians of the vital body, generating multi-frequency and simultaneous sound fields.

Fabien Maman, as seen previously, found that each of the twelve meridians is associated with the frequency of the chromatic musical scale. Their research has proven the positive effects of the sounds in the physical body and energy field in general. But what would the effects of the sound field generated by twelve singing bowls around the patient be?

7.5 Multi-Frequency Field and Singing Bowls

George Lakhovsky, in 1923, held something similar to using different electromagnetic frequencies simultaneously. He knew that to produce artificially oscillatory shock in diseased cells, it would be necessary many different wavelengths due to the variability of cellular frequencies. For this reason, he developed a radio-electric device known as "Multiple

Waves Oscillator" (MWO). This device was able to generate a field in which every cell, every tissue and every organ could find their own frequency, vibrating in resonance.

This apparatus consisted of a copper transmitting antenna and copper receiving antenna, formed by a series of twelve concentric oscillating circuits and interconnected by insulated wires. This device was an oscillator able to generate fundamental wavelengths of 400 meters to 10 cm, corresponding to frequencies of 750 KHz to 3 MHz. The patient was placed between the two oscillators, 160 cm apart from each other.

The diameters of the copper rings were varied, allowing irradiation of different wavelengths and different frequencies. Thus, interference patterns were produced around the patient. The logic of Lakhovsky work involved the simultaneous use of harmonics and sub-harmonics of various electromagnetic frequencies, aimed for rebalancing the cells and organs[137].

Would it be possible to create a multi-frequency sound field with twelve singing bowls around the patient? What energy effects could this work present? This thesis aims to investigate the effects of a multi-frequency sound field, created with simultaneous sound vibrations of the singing bowls on the meridians of the vital body. These bowls have varied sizes, heights and widths, and are made of various metals, mainly copper.

In an interview given to Hessel Hoornveld, Serge Lakhovsky, George Lakhovsky´s son, states,

> *"this MWO works with hollow antenna rings, which are tuned. I confirmed that they were really tuned when I checked them using my electronic tuning device. When I tapped the*

[137] (George Lakhovsky)

second ring, my tuning device clearly indicated a C Sharp. The outermost ring is a fixed ring directly attached to the coil and is a C. The next ring is a C Sharp, the next a D and so on until the innermost ring, which is a C. In other words, a full octave complete with semitones. If we examine the tuned rings (sound therapy), they also correspond to the chakras (energy points on the body). C is the base chakra, D the sex chakra, E the solar plexus chakra and so on."[138]

"Each antenna ring is made from a different metal. What the metals are was not revealed to me. When I asked why different metals were used, I was told by Serge that they were chosen in connection with the different planetary positions. Although I would not guarantee that I am right, I have taken a studied guess. The outermost ring, the C, is made of brass, the second ring, a C Sharp, of a light rustproof metal, the third of copper, the fourth of brass, the fifth of a light rustproof metal, the sixth of copper, the seventh of brass, the eighth of a light rustproof metal, the ninth of copper, …"[139]

The researcher Jacotte Chollet conducted a work using "Holophonic Sonorous Structures". Using various musical frequencies, composed of multiple harmonics, he generated a complex vibratory motion with deep therapeutic effects. These frequencies, linked with their resonance in the form of coherent waves (holo-phonons), have the effect of literally nourishing cells with functional information. The sound, infrasound and ultrasound work together to send vibratory messages to living cells.

[138,139] (http://terrapapers.com/?p=29530)

This multidimensional stimulation can produce altered states of consciousness that are highly curative. The multidimensional music is "the sound image of coherent quantum field". Einstein states that the acoustic wave exhibits a quantum nature. This means that the harmonics and sub-harmonics can generate resonant quantum effects with the superluminal quantum field. According to Dr. Amit Goswami (2004), this field is the Consciousness, or the fundamental Reality.

The quantum physicist Régis Dutheil (2006) puts that, *"the only method that approximates the XXI century medicine is the multidimensional music, playing both the electromagnetic body and consciousness. The multidimensional music restore the neguentropy, an information force that organized structures and functions of living systems, participating in bio-intercellular communication."*[140]

All these studies and research show that different frequencies, harmonics and sub-harmonics associated in a simultaneous sound field can produce highly therapeutic effects in various dimensional levels. The singing bowls are made of various metals and simultaneously emit various harmonics, sub-harmonics and musical notes. Therefore, the combination of several bowls of various sizes, thicknesses, diameters and tunings can generate a multi-frequency field of energy.

The frequencies generated for the Lakhovsky device, as well as Multi-Frequency Music of Jacotte Chollet, have something in common. They are electronic and synthesized (not natural). As already Maman[141] placed, acoustic and natural sounds (non-electronic) may

[140] (La Médecine Superlumineuse)
[141] (Fabien Maman Speaks- Acoustic versus Synthetic Sounds in Healing)

have more profound therapeutic effects. Could the singing bowls be a natural alternative for the generation of multi-frequency sound fields?

Chapter 8: Methodology

8.1 Place of Application

This research was carried out in a private practice, the "Nahash Institute of Integrated Therapies", where there are professional practices in Psychotherapy, Acupuncture, Bio-magnetism, Naturopathy and Sound Therapy, within an integrative and holistic approach. The environment where the sound application has been made is calm, quiet, within a warm and welcoming atmosphere.

8.2 Participants

For this study fourteen participants of both sexes in psychotherapeutic treatment as well as Acupuncture were observed. All aged between 16 and 80 years old and with varied clinical symptoms. All of them are supporters of complementary therapies and Quantum Medicine. The patients were asked to voluntarily participate in this research in an extra hour after the session time. Participants were divided into two groups: control and experimental. The definition of the participants in the groups was made by a raffle.

8.3 Materials

In order to investigate the energetic effects of a sound multi-frequency field on the meridians of the vital body, this study used twelve singing bowls of various sizes, thicknesses and diameters, all of them came from India and Tibet and were manufactured by specialized and experienced producers. These bowls are made of a combination of 77-80% of copper, 20-23% of tin and 1% of iron. But some of them may have 77.2% of copper; 22% of

can; 0.04% of lead; 0.01% of zinc; 0.14% of iron; 0.01% of gold; 0.03% of silver and 0.02% of mercury, according to analysis by the Chemistry Department of Concordia University.

In this research bowls were used different diameters and weights: 12.5 cm and 300g; 17 cm and 700g; 19 cm and 900g; 23 cm and 1350g; 26 cm and 1750g; 29 cm and 2400g. The frequency (Hz), notes, weight (gr), height (cm) and diameter (cm) of each bowl are shown in the table below. Note: in Table 2, the notes and frequencies in bold are predominant.

Table 2: Frequencies, notes, weight, height and diameters of bowls

Bowls	Frequencies (Hz)	Musical notes	Weight (gr)	Height (cm)	Diameter (cm)
1	87,3	F	2400	12	29
	92,5	**F#**			
	277,2	C#			
2	**103,8**	**G#**	2400	12	29
	293,7	D			
	311,1	D#			
3	110	A	1750	10	26
	329,6	**E**			
4	110	A	1750	10	26
	116,5	**A#**			
	329,6	E			
	349,2	F			
5	130,8	C	1750	10	26
	138,6	**C#**			

	392	G			
6	**155,6**	**D♯/E♭**	1350	9	23
	466,2	A#			
7	**174,6**	**F**	900	7	19
	987,8	B			
8	98	G	2400	12	29
	293,7	**D**			
9	**196**	**G**	900	7	19
	207,7	G#			
10	92,5	F#	2400	12	29
	87,3	F			
	261,6	**C**			
11	**220**	**A**	700	7	17
	659,3	E			
12	**493,9**	**B**	300	4	12,5
	523,3	C			

8.4 Procedures

Twelve bowls were selected, each one representing a note of the chromatic scale (C, C#, D, D#, E, F, G, G#, A, A#, B and C) and distributed around the patient. Once lying in a stretcher with twelve supports for the bowls, the patient received, in a single session, a sound bath based on the 5th (F, C, G, D, A, E, B, F#, C#, G#, D#, A#) and 4th intervals (A#, D#, G#, C#, F#, B, E, A, D, G, C and F). As we have seen, the circle of fifths is nothing more than a

sequence of spaced notes per fifth intervals. It can also be seen as a circular geometric space that describes the relationships between the twelve notes of the chromatic scale of equal temperament.

Participants in both control and experimental groups were submitted, for five minutes, to an initial relaxation process involving the decrease in respiratory rate and muscle relaxation, but only the experimental group received a sound bath after this process.

The sound action happened in the following sequence: F, C, G, D, A, E, B, F#, C#, G#, D# and A#[142], from feet to head. After that, the sound action came back from head to feet (A#, D#, G#, C#, F#, B, E, A, D, G, C and F) with subsequent break until the complete disappearance of all vibrations. Then the cycle was restarted several times during the fifteen minutes of sound application. The flow of activations occurred diagonally, both in upward and downward movement.[143]

The notes were distributed as follows: at the top of the head, the note A# (116,5Hz); at the right side of the head, the note G#(103,8 Hz); near the right shoulder, the note F# (92,5Hz); near the right kidney, the note E (329,6 Hz); at the side of the right knee, the note D (293,7 Hz); at the side of the right feet, the note C (261,6 Hz); below the two foot, the note F (174,6 Hz); at the side of the left feet, the note G (196 Hz); at the side of the left knee, the note A (220 Hz); near the left kidney, the note B (493,9 Hz); near the left shoulder, the note C# (138,6 Hz) and at the left side of the head, the note D# (155,6 Hz).

[142] (The note F was chosen as a starting point because it is associated with the earth element)
[143] (This movement is in line with the "Path of the Serpent and Lightning" of the Kabbalistic tradition)

The duration and the beginning of sound stimulation in all applications have been standardized, starting with the note F (in front of feet). To stimulate the bowls were given three seconds of interval between one stimulation and the next one. The application time was fifth minutes and the sounds were generated by two types of sticks: a small timber (19 cm) used in bowls with diameters smaller than 23 cm and a soft gray felt sticks (30 cm) to bowls bigger than 23 cm.

8.5 Energy Assessment

Two evaluations were performed. One before and another after application of the sound field, with a subsequent comparative analysis of the energy states of the meridians. The instrument for energy assessment of the twelve meridians was the CCT - Ryodoraku.

8.5.1 CCT Meridian Analysis System

The "CCT Human Body Meridian Analysis System" is a diagnostic device to detect energy of meridians. This device is based on Traditional Chinese Medicine Meridian Theory. In an interval of 3 to 5 minutes, this device (a new version of Ryodoraku device) can detect client´s wellness status and provide good therapeutic suggestions. With "CCT Meridian Analysis System", it is possible to detect deficiencies and excessive syndrome of the twelve meridians due to the changes on the bioelectricity body. The database analysis reaches an accuracy of approximately 90%.

This device (model CCT-LRG05-Z) works with a USB cable connected to a laptop with a test probe. The data obtained after analysis are recorded in the computer and are

evaluated by a software, that is approved by National Wellness Technology Committee and Traditional Chinese Medicine Wellness Professional Committee.

8.5.2. Measuring Points

The measurements were taken bilaterally, with the patient sitting in a chair, with his feet propped up on a small bench. Using a bioelectric sensor, several acupoints were measured in this sequence: Lung (LU9); Pericardium (PC7); Heart (HT7); Small Intestine (SI5); Triple Warmer (TW4); Large Intestine (LI5); Spleen (SP3); Liver (LV3); Kidney (KI4); Bladder (BL65); Gallbladder (GB40); Stomach (ST42). Each measure had an average duration of five minutes. First of all, it was first measured the right side of the body, starting with the points of hands: Lung (LU9); Pericardium (PC7); Heart (HT7); Small Intestine (SI5); Triple Warmer (TW4); Large Intestine (LI5) and then the points of the feet: Spleen (SP3); Liver (LV3); Kidney (KI4); Bladder (BL65); Gallbladder (GB40); Stomach (ST42). After that, the points of the hands and feet of the left side of the body were measured in the same sequence.

8.6 Data Analysis Procedure

The analysis of the graphs from the data obtained using the "CCT Meridian Analysis System" use was performed considering five criteria:

1. Deficiency Syndrome (state) or severe lack of energy (Chi) in a meridian or organ;

2. Hypo-activity syndrome (state) or low energy (Chi) level in the meridian or organ;

3. Balance or Chi healthy;

4. Hyperactivity Syndrome (state) or slight excess of Chi in the body or associated meridian;

5. Excessive Syndrome (state), when the amount of Chi is too high.

The energetic state of each meridian was associated with one of five criteria mentioned previously. Many meridians had any energetic alterations after application of the sound of singing bowls. These changes were evaluated by a comparative analysis using the graphs and tables obtained before and after the sound intervention. The evaluation of the amount of the meridians in each category, before and after sonic bath, made possible to analyze the percentage of these changes.

Chapter 9: Results

9.1 Experimental Group

9.1.1 Evaluation (Patient 1)

A male patient, 22 years old, athlete with well-balanced health. Its first graph before application of the sonic bath, reveals the following energy state of the meridians: LI (left side), SI (left side), TW (left side), LI (right side) and TW (right side) were in a deficiency state; PC (left side), LU (right side) and SI (right side) were in a hypo-activity state; LU (left side), ST (left side), HT (left side), BL (left), KI (left side), GB (left side) and PC (right side) were in balance; SP (left side) and ST (right side) were in a hyperactivity state; and LV (left side), SP (right side), HT (right side), BL (right side), KI (right side), GB (right side) and LV (right side) were in an excessive state.

Graph 1: Energy state of meridians before the sound application

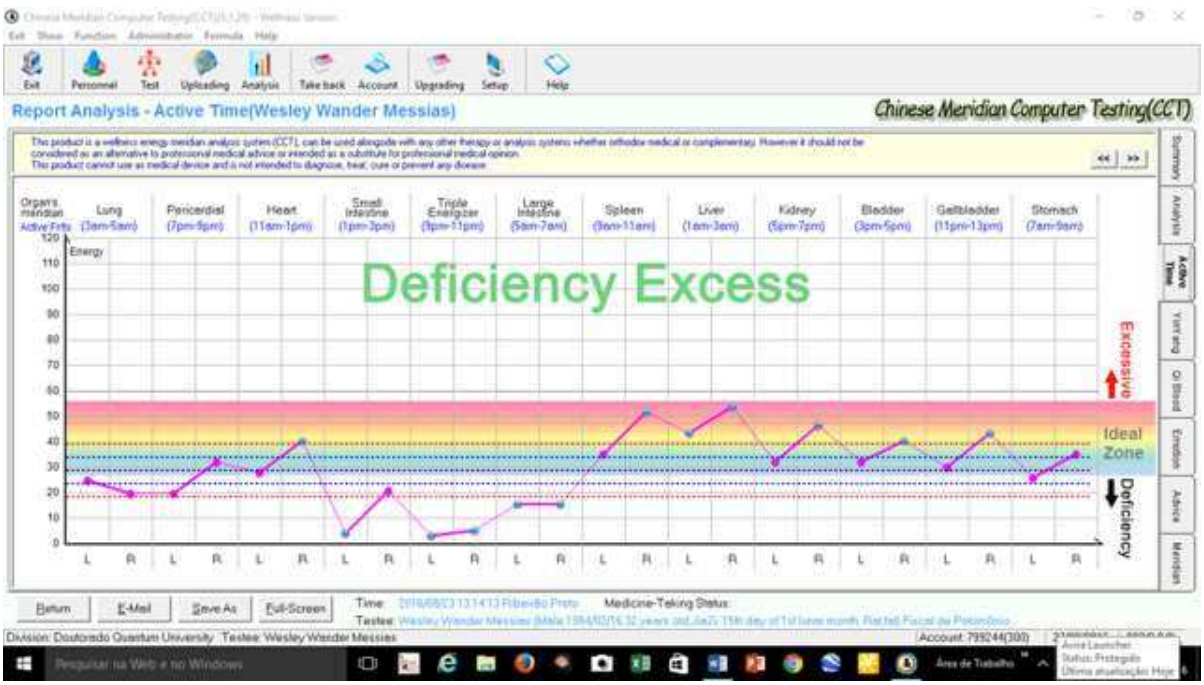


Table 3: Syndromes and energy status of the meridians before the sound application

After application of sound bath, it was possible to see a change in the energy states of the meridians.

Graph 2: Energy state of meridians after the sound application

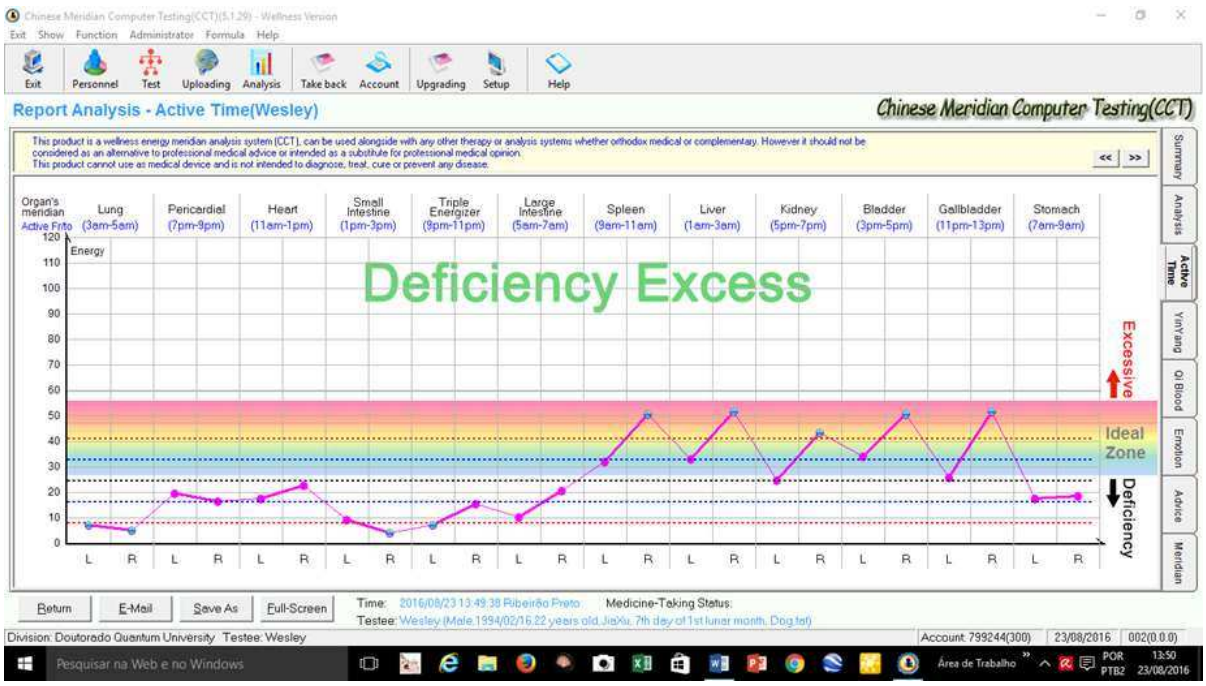
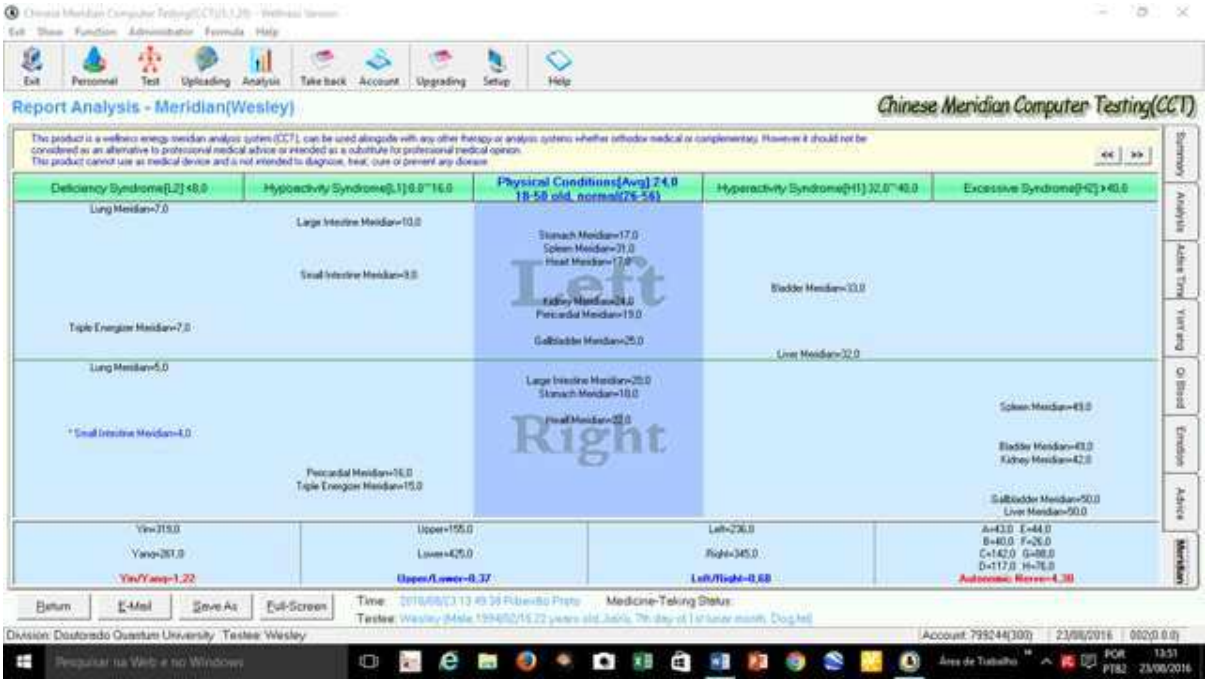


Table 4: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 21% in deficiency; 13% in hypo-activity; 29% in balance; 8% in hyperactivity and 29% in excess. After application of the sonic bath, the second test revealed 17% in deficiency; 17% in hypo-activity; 38% in balance; 8% in hyperactivity and 20% in excess. The results showed a decline in deficiency (4%); an increase in hypo-activity (4%); an increase (9%) in balance state; no change in hyperactivity state and a decrease (9%) in excessive syndrome.

Table 5: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	21%	17%
Hypo-activity	13%	17%
Balance	29%	38%
Hyperactivity	8%	8%
Excessive	29%	20%

9.1.2 Evaluation (Patient 2)

The second evaluation was a male patient, 26 years old, with a diabetic frame. The first graph, before application of the sonic bath, revealed the following energy state at the meridians: LI (left side), TW (left side), LI (right side), ST (right side), SI (right side) and TW (right side) were in a deficiency state; LU (left side), ST (left side) and BL (right side) were in a hypo-activity state; SI (left side), KI (left side), PC (left) and GB (right side) were in balance; SP (left side), HT (left side), BL (left), GB (left side), LV (left side), LU (right side) and KI (right side) were in a hyperactivity state; SP (right side), HT (right side), PC (right side) and LV (right side) were in an excessive state.

Graph 3: Energy state of meridians before the sound application

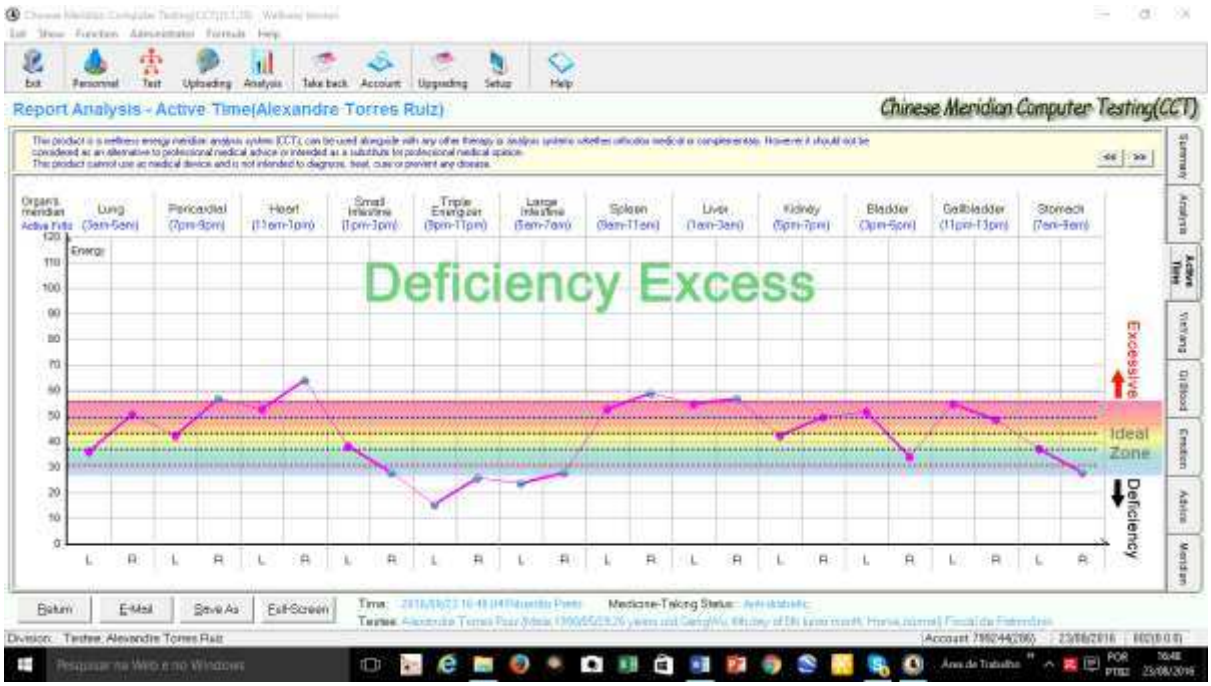
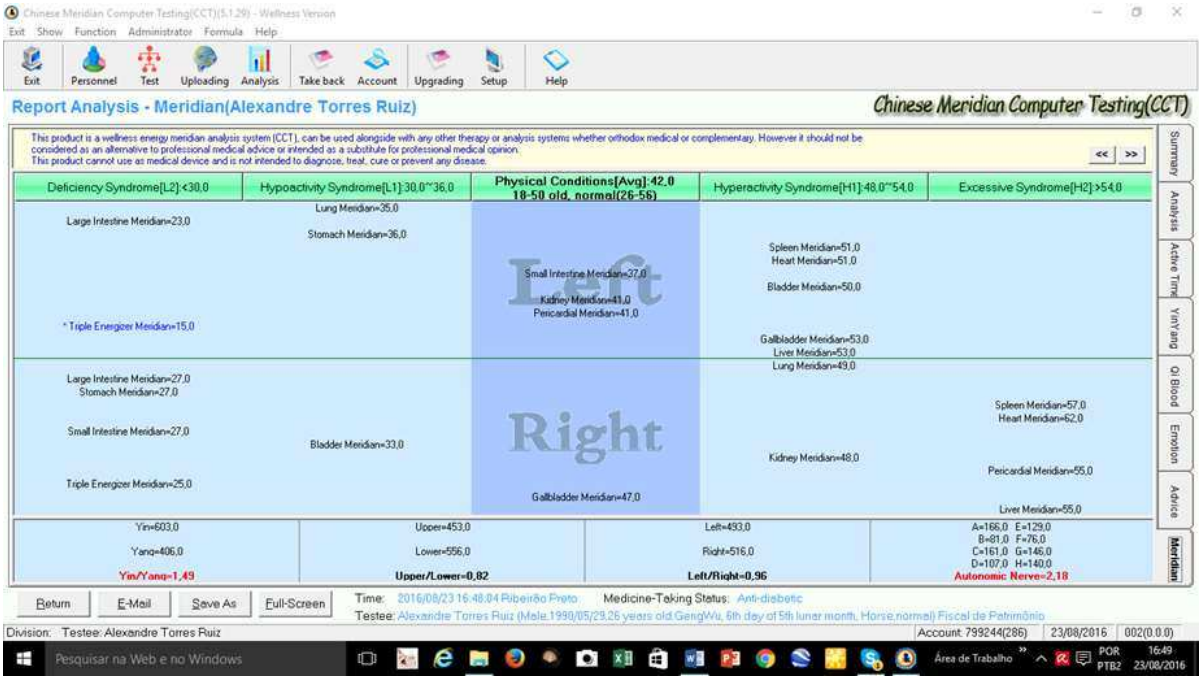


Table 6: Syndromes and energy status of the meridians before the sound application



After application of sound bath, it was possible to see a change in the energy states of the meridians.

Graph 4: Energy state of meridians after the sound application

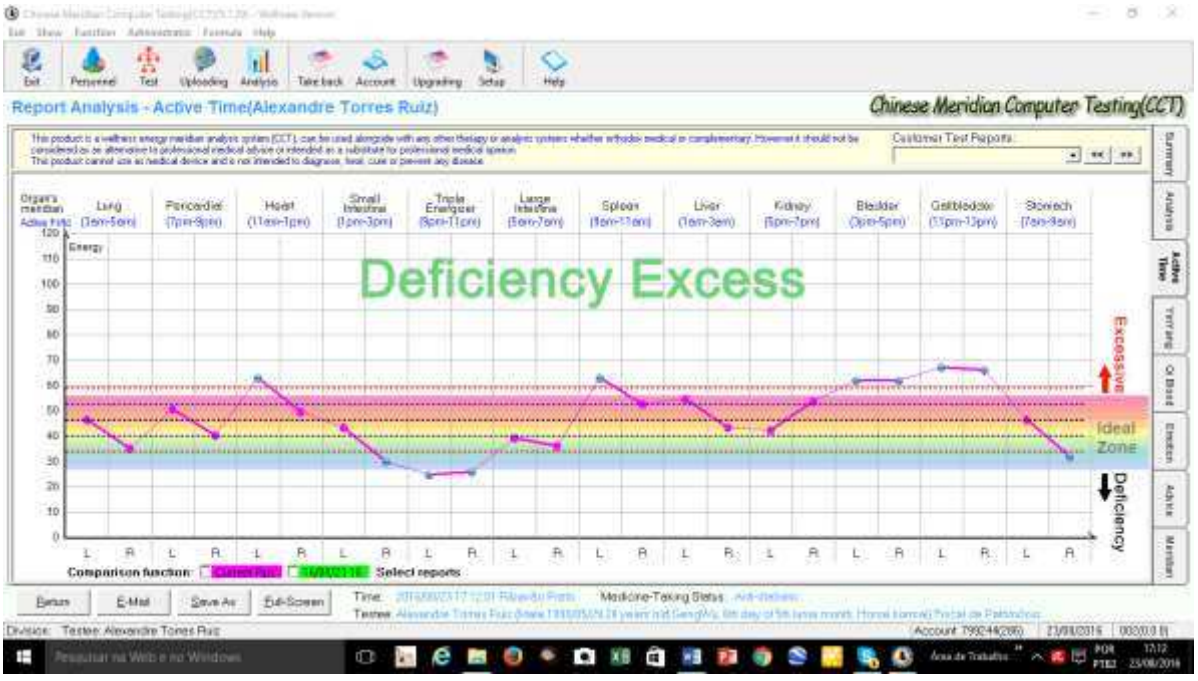
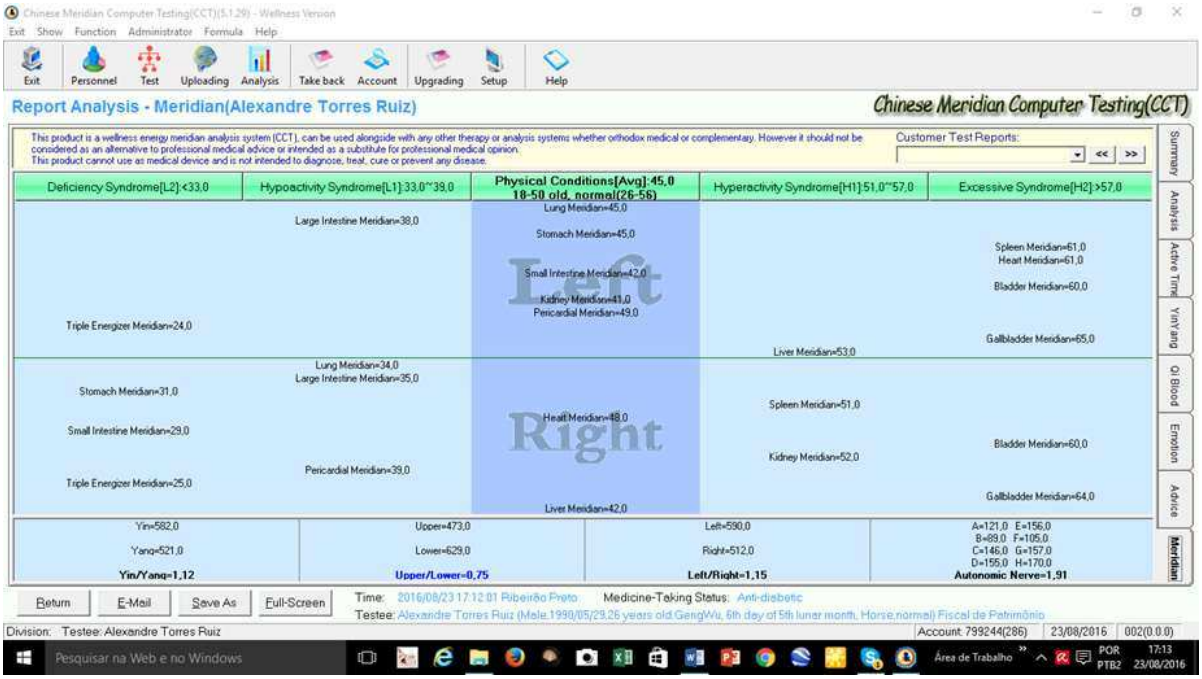


Table 7: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 25% in deficiency; 12% in hypo-activity; 17% in balance; 29% in hyperactivity and 17% in excess. After application of the sonic bath, the second test revealed 17% in deficiency; 17% in hypo-activity; 29% in balance; 12% in hyperactivity and 25% in excess. The results showed a decline in deficiency state (8%); an increase in hypo-activity (5%); an increase (12%) in balance state; decrease (17%) in hyperactivity state and increase (8%) in excessive state.

Table 8: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	25%	17%
Hypo-activity	12%	17%
Balance	17%	29%
Hyperactivity	29%	12%
Excessive	17%	25%

9.1.3 Evaluation (Patient 3)

The third assessment was a female patient, 30 years old, with stress symptom. The first graph, before application of the sonic bath, revealed the following energy state of meridians: KI (left side), TW (left side), GB (left side), LV (left side), KI (right side) and TW (right side) were in a deficiency state; LI (left side), ST (left side), LI (right side), ST (right side) and LV (right side) were in a hypo-activity state; LU (left side), BL (left side), SI (right side) and GB (right side) were in balance; SP (left side), HT (left side), SI (left side), PC (left side), LU (right side) and HT (right side) were in a hyperactivity state; and the SP (right side), BL (right side) and PC (right side) were in an excessive state.

Graph 5: Energy state of meridians before the sound application

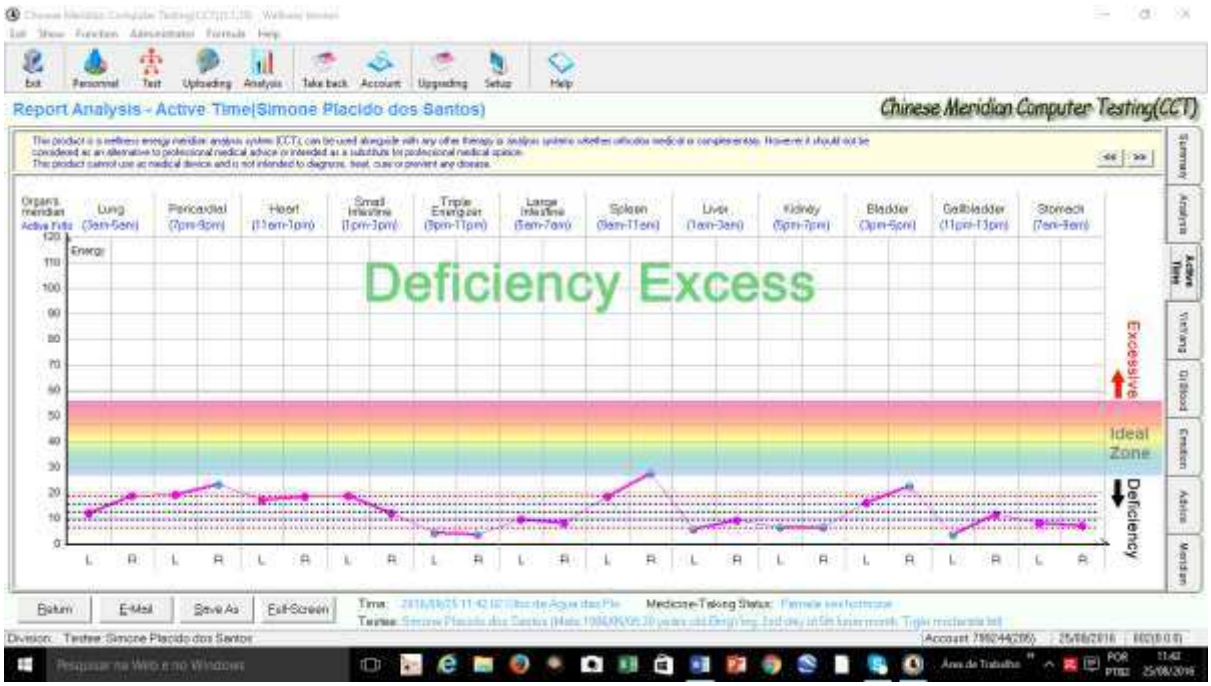
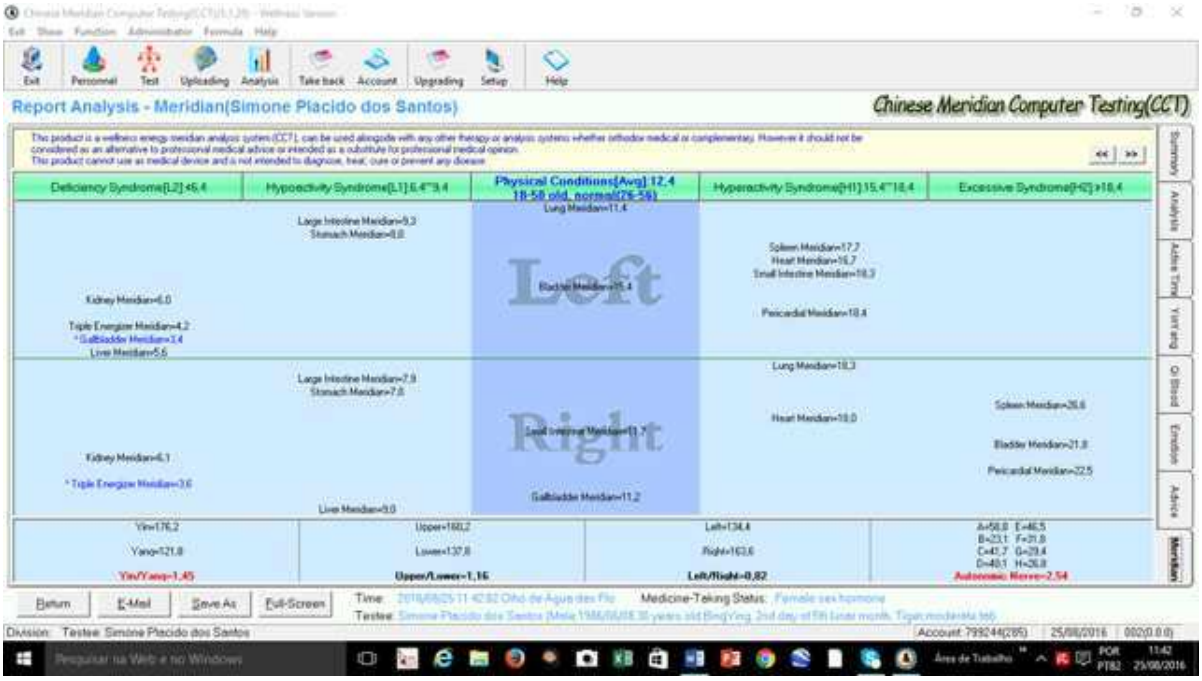


Table 9: Syndromes and energy status of the meridians before the sound application



After application of sound bath, it was possible to see a change in the energy states of the meridians.

Graph 6: Energy state of meridians after the sound application

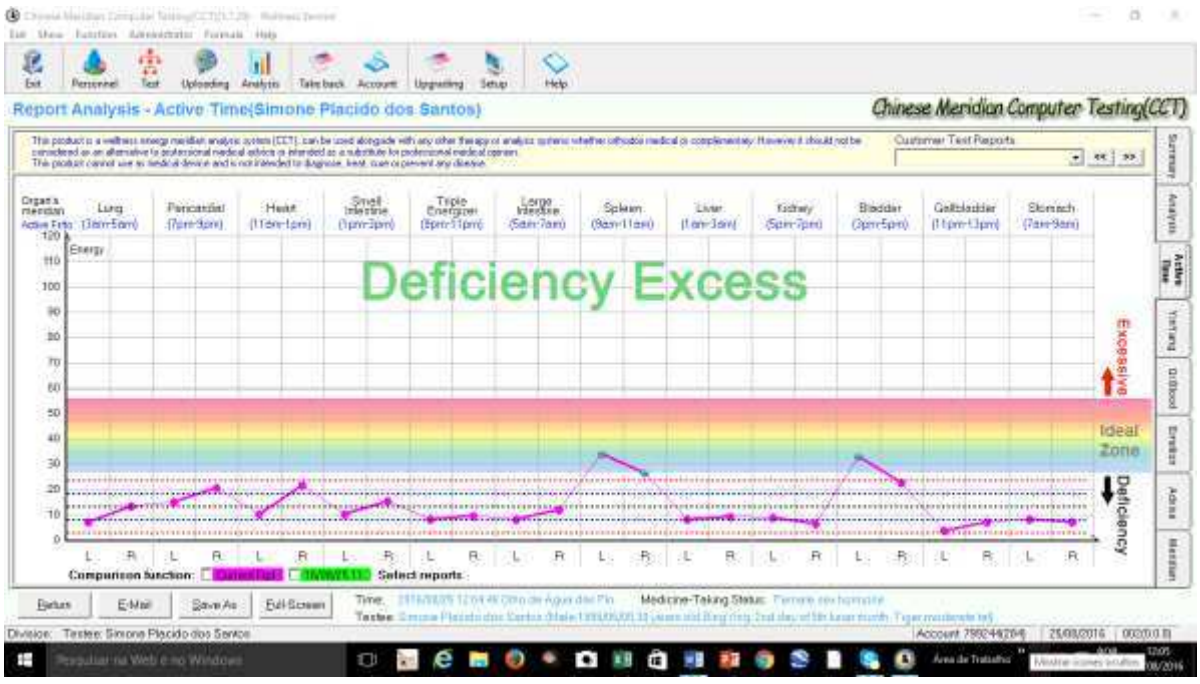
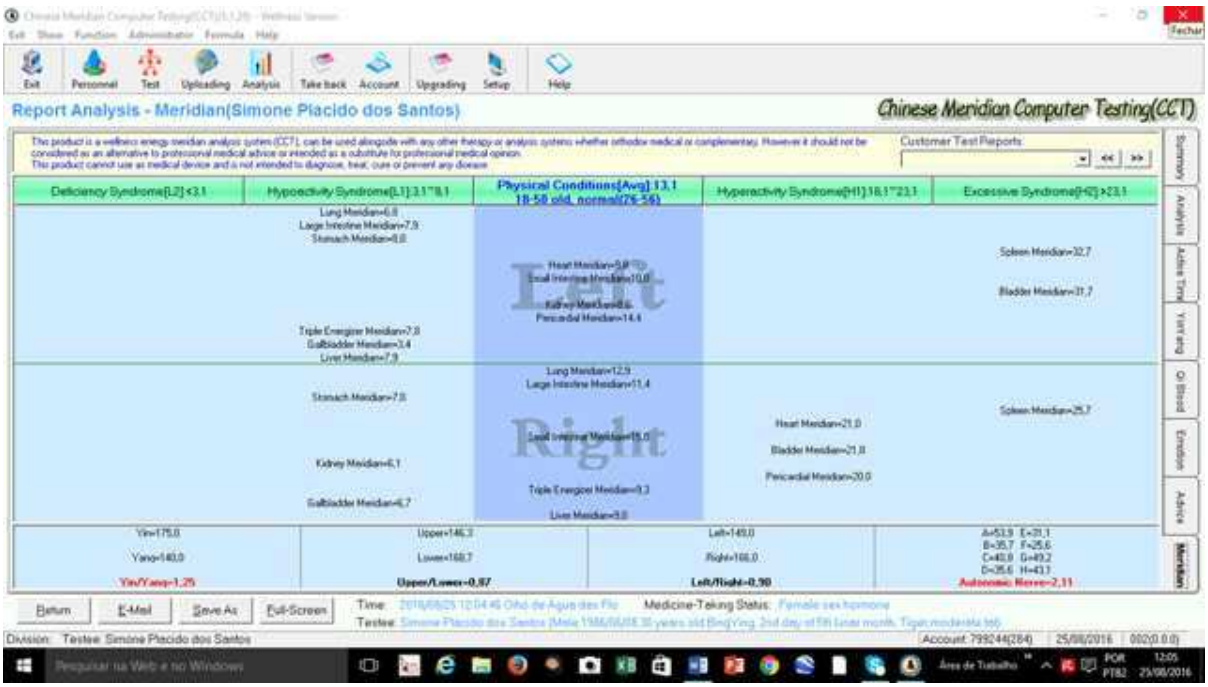


Table 10: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 25% in deficiency; 21% in hypo-activity; 17% in balance; 25% in hyperactivity and 12% in excess. After application of the sonic bath, the second test revealed: 0% in deficiency; 38% in hypo-activity; 38% in balance; 12% in hyperactivity and 12% in excess. The results showed a decline (25%) in deficiency state; an increase (17%) in hypo-activity; an increase (21%) in balance state; a decrease (13%) in hyperactivity state and no change in excessive state.

Table 11: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	25%	0%
Hypo-activity	21%	38%
Balance	17%	38%
Hyperactivity	25%	12%
Excessive	12%	12%

9.1.4 Evaluation (Patient 4)

The fourth assessment was a female patient, 33 years old, in good health. The first graph, before application of the sonic bath, revealed the following energy state of meridians: BL (left side), TW (left side), LU (right side), LI (right side), SI (right side), PC (right side) and TW (right side) were in a hypo-activity state; LU (left side), LI (let side), SP (left side), HT (left Side), SI (left side), KI (left side), PC (left side), ST (right side), SP (right side), HT (right side), BL (right side) and KI (right side) were in balance; ST(left side), GB (left side), GB (right side) and LV (right side) were in a hyperactivity state; and LV (left side) was in an excessive state.

Graph 7: Energy state of meridians before the sound application

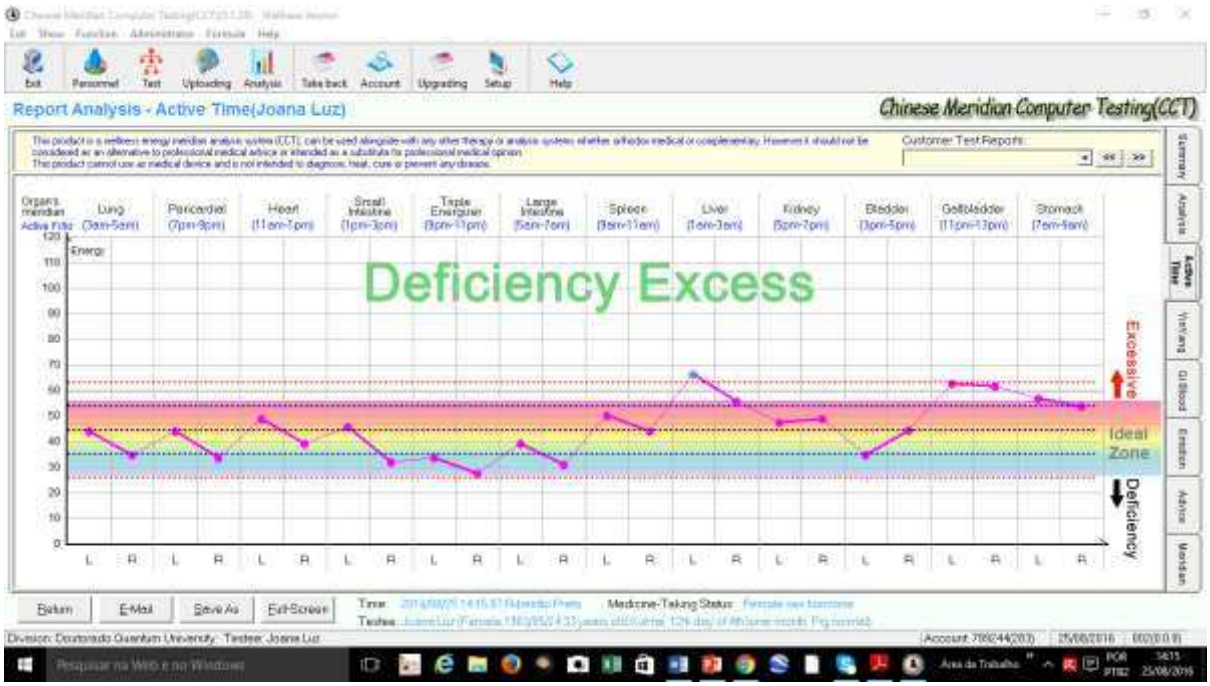
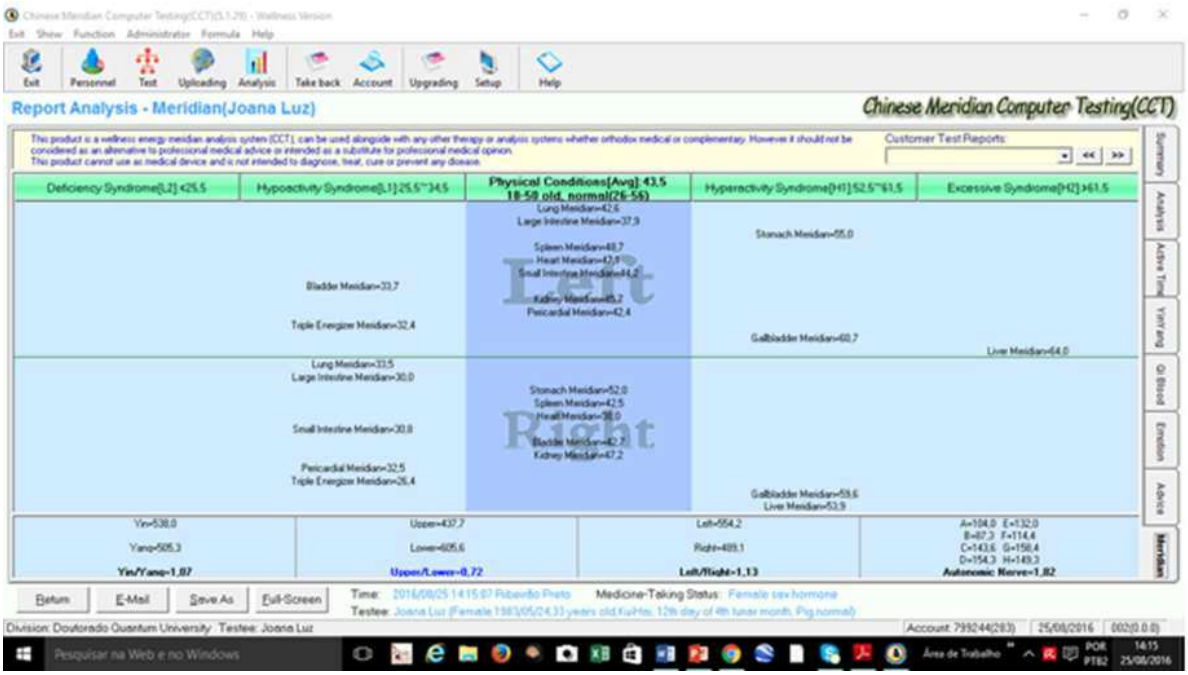


Table 12: Syndromes and energy status of the meridians before the sound application



After application of sound bath, it was possible to see a change in the energy states of the meridians.

Graph 8: Energy state of meridians after the sound application

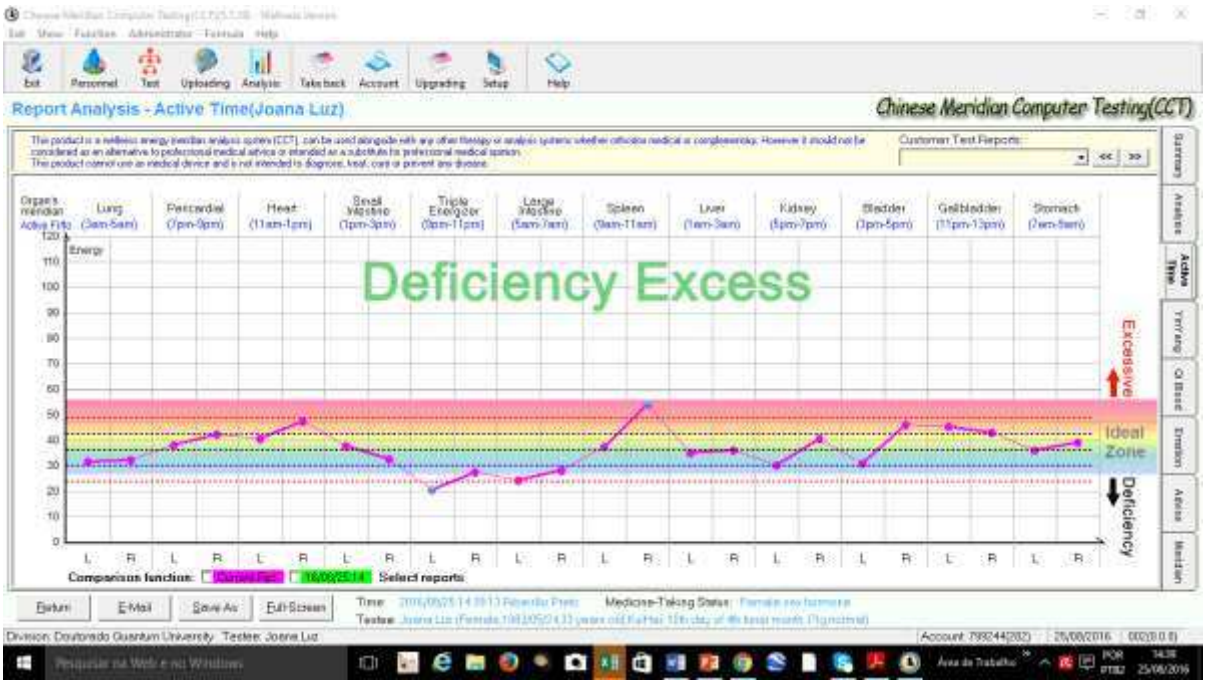
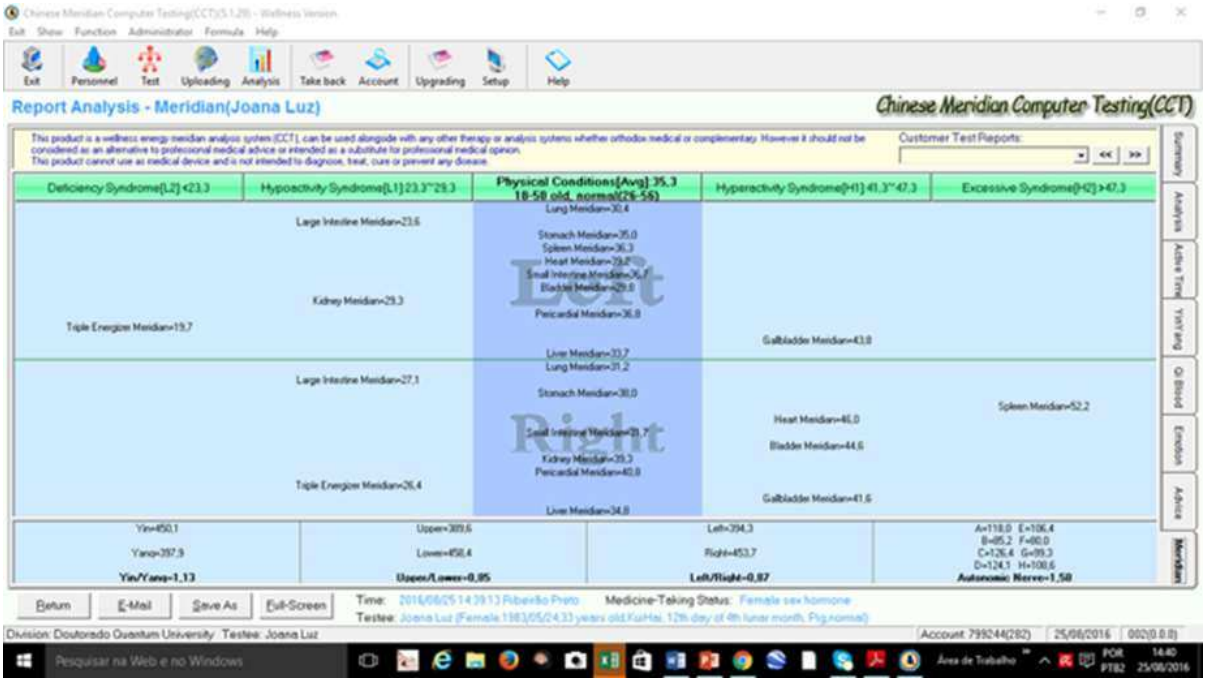


Table 13: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 0% in deficiency; 29% in hypo-activity; 50% in balance; 17% in hyperactivity and 4% in excess. After application of the sonic bath, the second test revealed 4% in deficiency; 17% in hypo-activity; 58% in balance; 17% in hyperactivity and 4% in excess. The results showed an increase (4%) in deficiency state; a decrease (12%) in hypo-activity; an increase (8%) in balance state and no changes in hyperactivity and excessive states.

Table 14: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	0%	4%
Hypo-activity	29%	17%
Balance	50%	58%
Hyperactivity	17%	17%
Excessive	4%	4%

9.1.5 Evaluation (Patient 5)

The fifth assessment was a male patient, 33 years old, in good health. The first graph, before application of the sonic bath, revealed the following energy state of meridians: TW (left side) and TW (right side) were in a deficiency state; LU (left side), LI (left side), PC (left side) and LI (right side) were in a hypo-activity state; SP (left side), HT (left side), SI (left side), BL (left side), KI (left side), LU (right side), SP (right side), SI (right side), BL (right side), KI (right side) and PC (right side) were in balance; ST (left side), GB (left side), LV (left side), ST (right side), HT (right side) and GB (right side) were in hyperactivity state; LV (right side) was in excessive state.

Graph 9: Energy state of meridians before the sound application

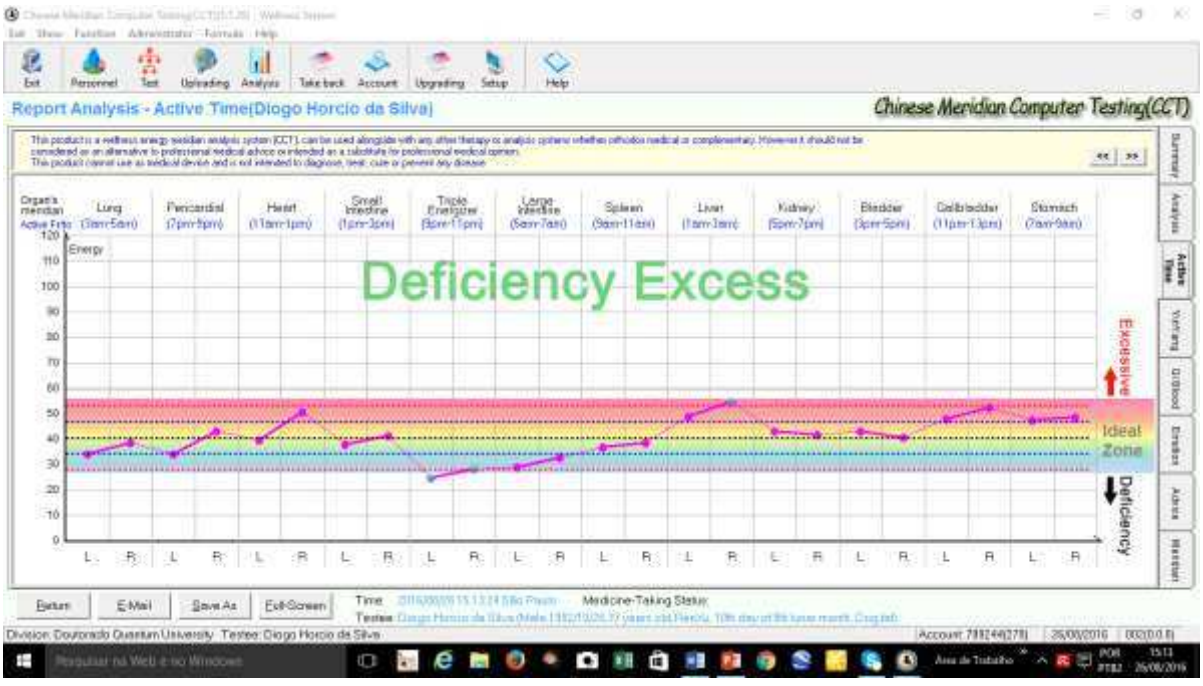
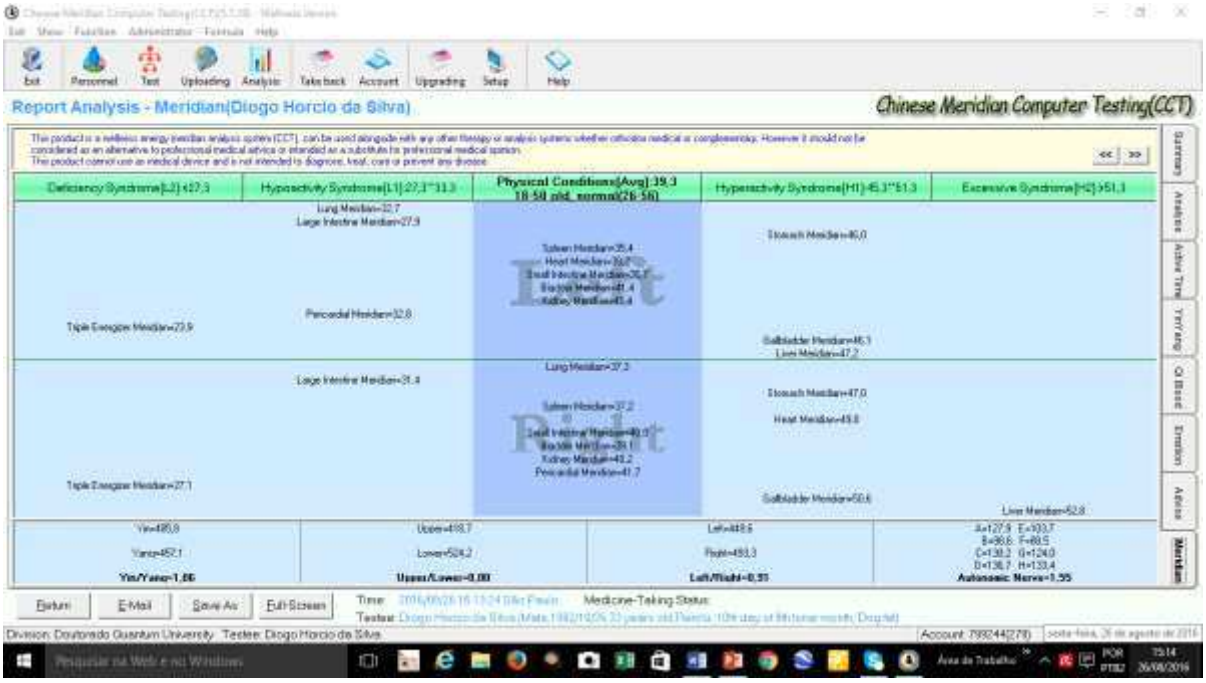


Table 15: Syndromes and energy status of the meridians before the sound application



The graph 12 shows two overlapping lines with different colors. The green one represents the energy status of the meridians before application and the pink one represents the energy states after sound bath application.

Graph 10: Energy state of meridians after the sound application

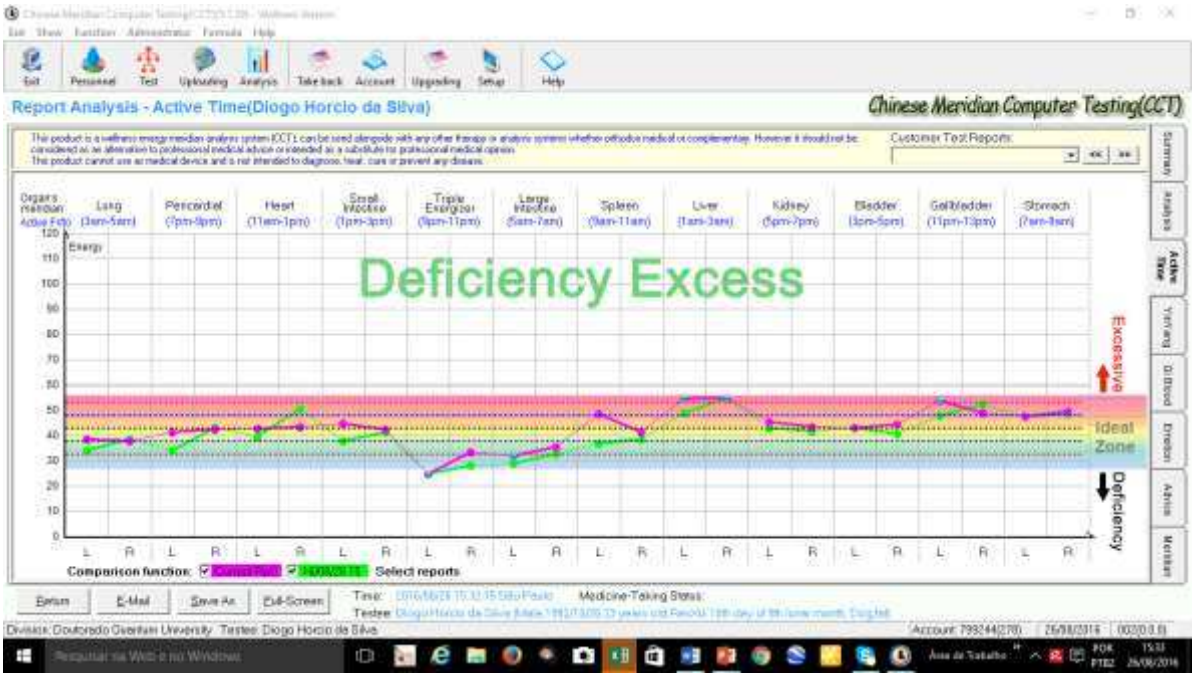
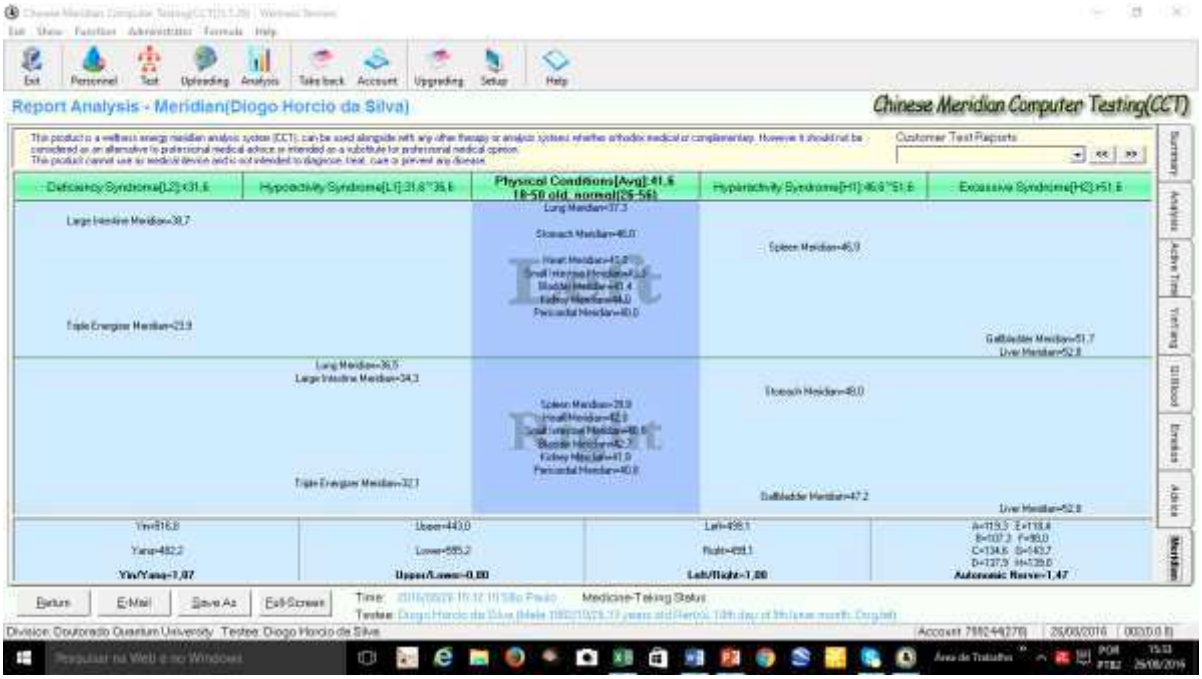


Table 16: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 8% in deficiency; 17% in hypo-activity; 46% in balance; 25% in hyperactivity and 4% in excess. After application of the sonic bath, the second test revealed: 8% in deficiency; 13% in hypo-activity; 53% in balance; 13% in hyperactivity and 13% in excess. The results showed: no change in deficiency state; a decrease (4%) in hypo-activity state; an increase (7%) in balance state; and an increase (9%) in excessive state.

Table 17: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	8%	8%
Hypo-activity	17%	13%
Balance	46%	53%
Hyperactivity	25%	13%
Excessive	4%	13%

9.1.6 Evaluation (Patient 6)

The sixth assessment was a female patient, 36 years old, with symptoms of insomnia and depression. The first graph, before application of the sonic bath, revealed the following energy state of meridians: BL (left side), TW (left side) were in a deficiency state; LU (left side), LI (left side), SP (left side), KI (left side), PC (left side), LI (right side), SP (right side), TW (right side) were in a hypo-activity state; ST (left side), HT (left side), SI (left side), LU(right side), SI (right side), BL (right side), KI (right side) and PC (right side) were in balance; ST (right side) was in a hyperactivity; and GB (left side), LV (left side), HT (right side), GB (right side) and LV (right side) were in an excessive state.

Graph 11: Energy state of meridians before the sound application

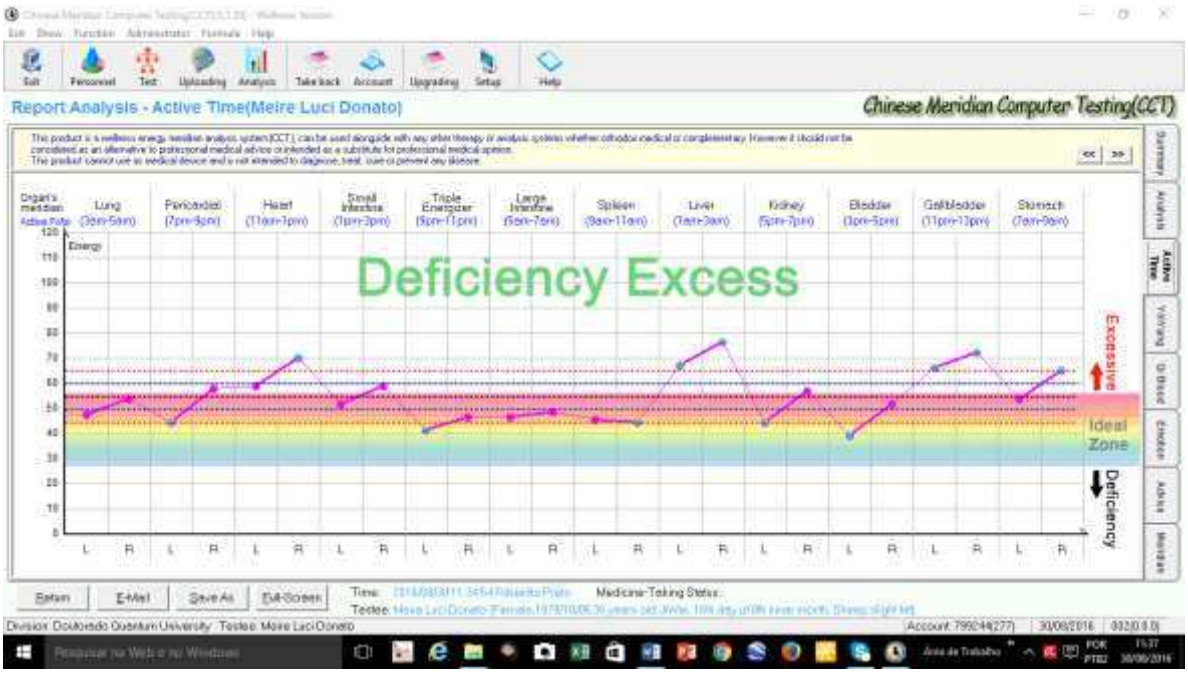
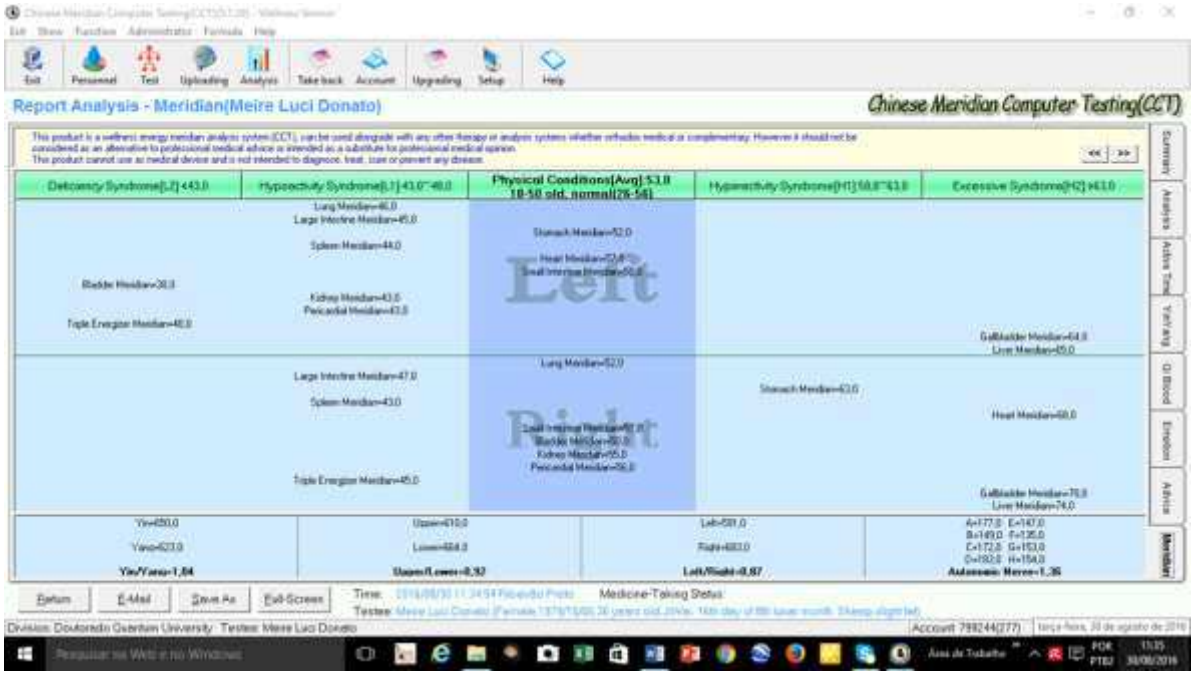


Table 18: Syndromes and energy status of the meridians before the sound application



After application of sound bath, it was possible to see a change in the energy states of the meridians.

Graph 12: Energy state of meridians after the sound application

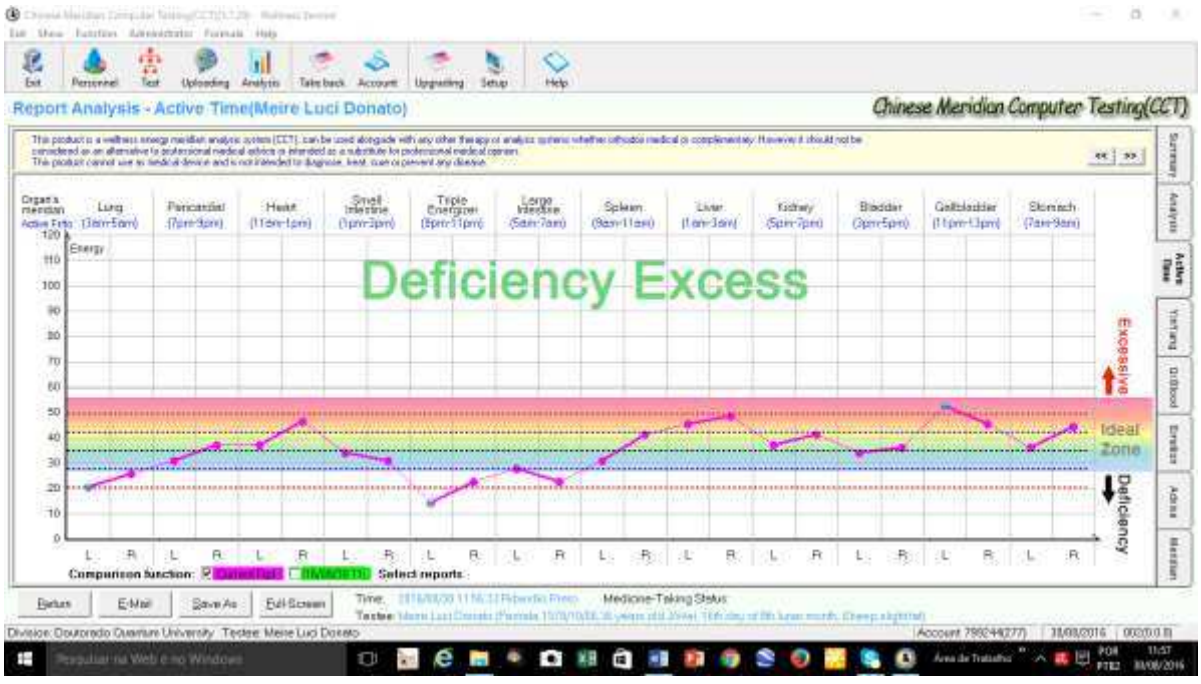
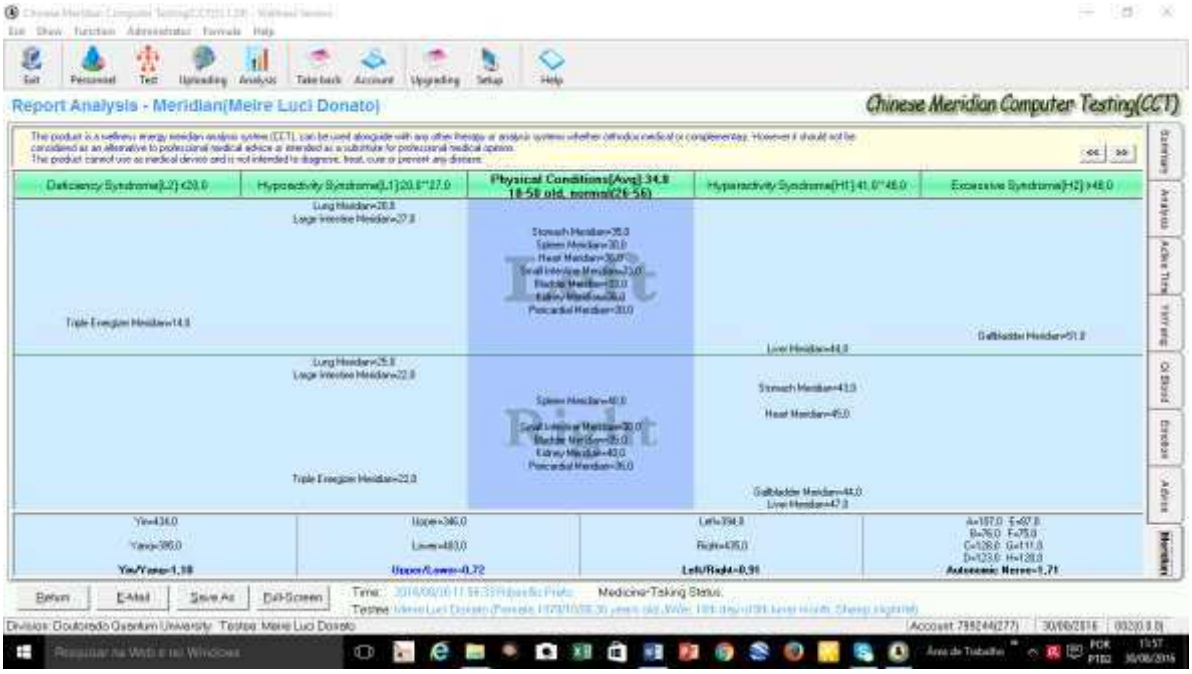


Table 19: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 8% in deficiency; 33% in hypo-activity; 33% in balance; 4% in hyperactivity and 21% in excessive state. After application of the sonic bath, the second test revealed: 4% in deficiency; 21% in hypo-activity; 50% in balance; 21% in hyperactivity and 4% in excessive. The results showed: a decrease (4%) in deficiency state; a decrease (12%) in hypo-activity state; an increase (17%) in balance; an increase (17%) in hyperactivity state; and a decrease (17%) in excessive state.

Table 20: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	8%	4%
Hypo-activity	33%	21%
Balance	33%	50%
Hyperactivity	4%	21%
Excessive	21%	4%

9.1.7 Evaluation (Patient 7)

The seventh assessment was a male patient, 77 years old, with rheumatoid arthritis and heart condition. The first graph, before application of the sonic bath, revealed the following energy state: of meridians: ST (left side), TW (left side), LI (right side), ST (right side), KI (right side), TW (right side) and GB (right side) were in a deficiency state; GB (left side) was a hypo-activity state; LI (left side), LV (left side), LU (right side) and SI (right side) were in balance; LU (left side), KI (left side), SP (right side), BL (right side) and PC (right side) were in a hyperactivity state; SP (left side), HT (left side), SI (left side), BL (left side), PC (left side), HT (right side) and LV (right side) were in an excessive state.

Graph 13: Energy state of meridians before the sound application

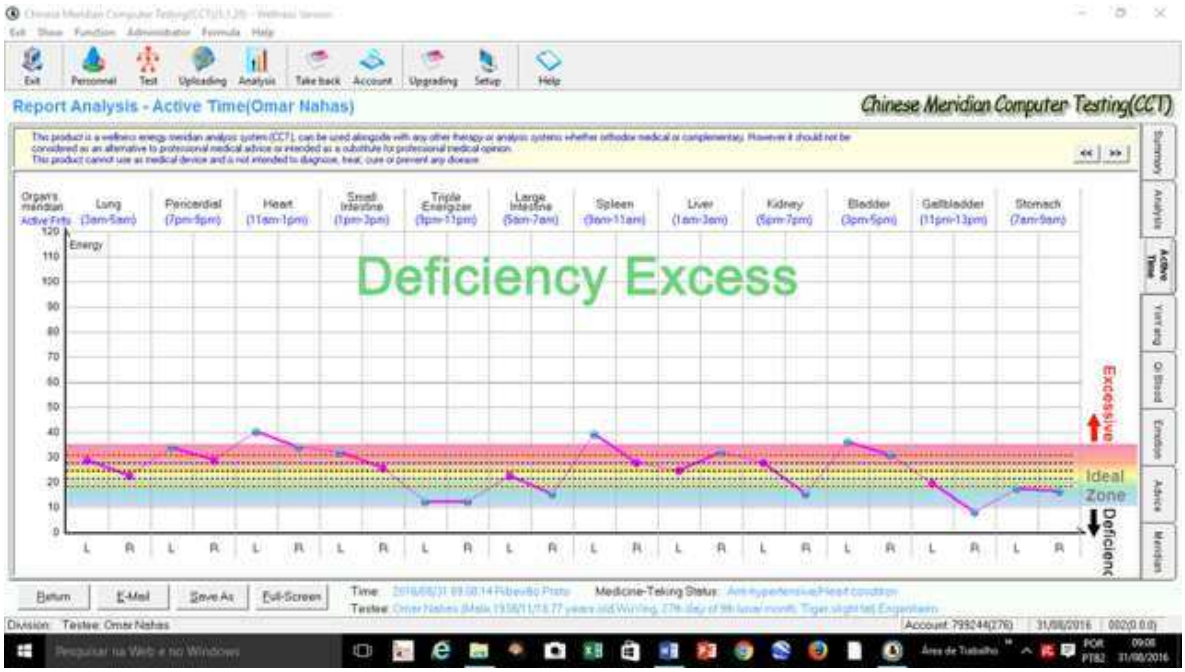
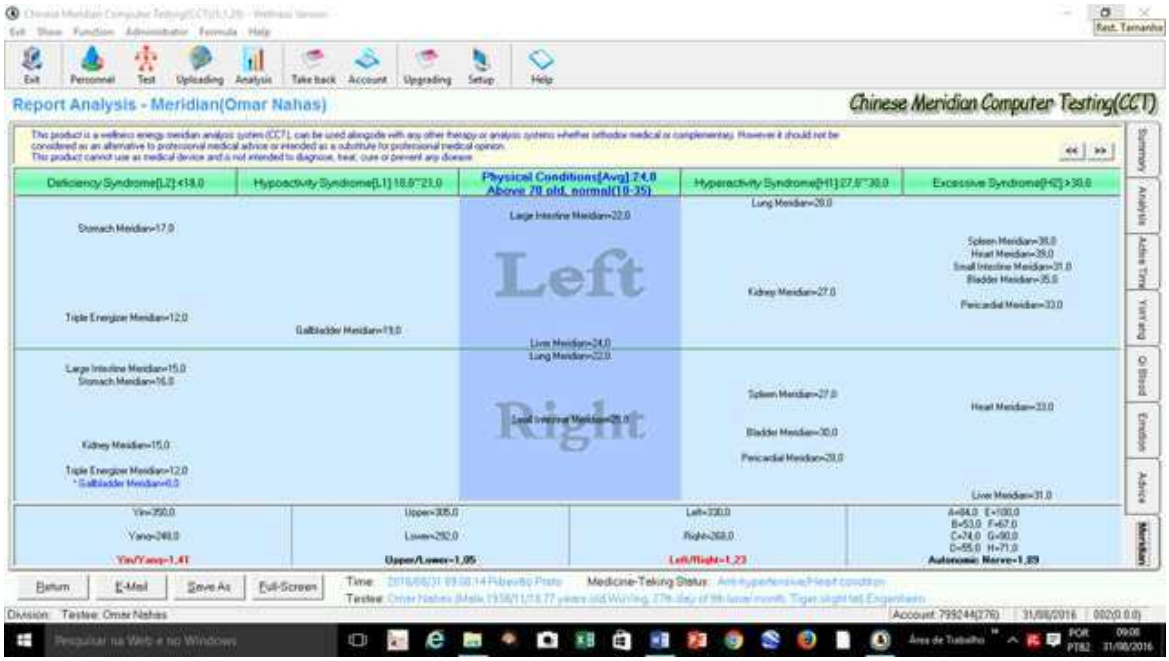


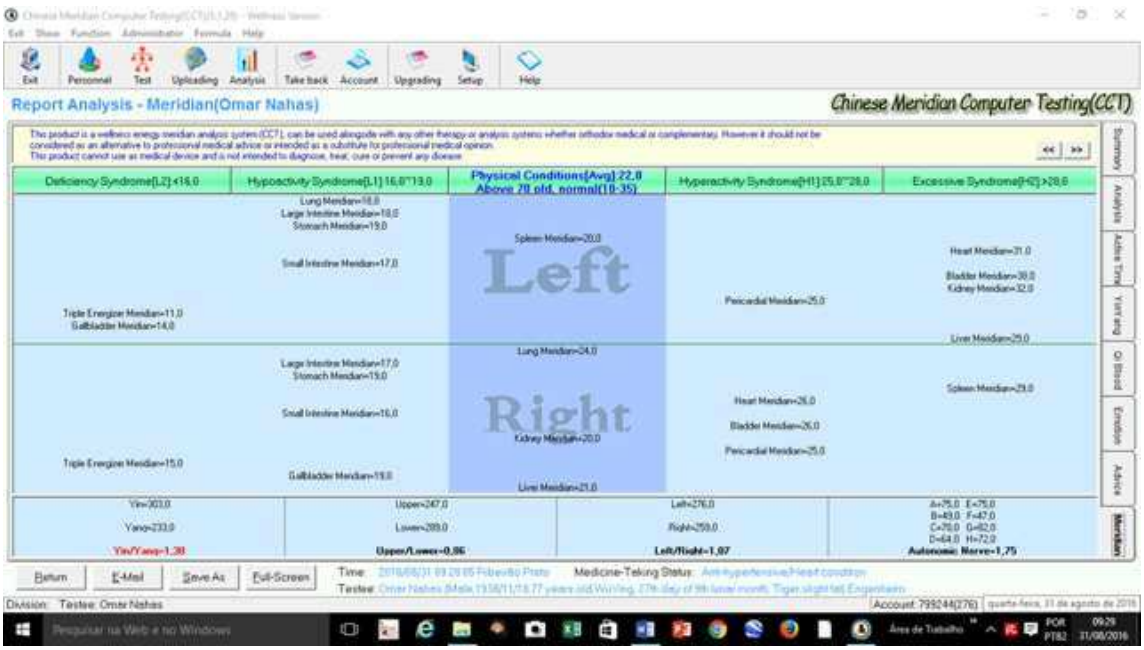
Table 21: Syndromes and energy status of the meridians before the sound application



After application of sound bath, it was possible to see a change in the energy states of the meridians.

Graph 14: Energy state of meridians after the sound application

Table 22: Syndromes and energy status of the meridians after the sound application



The meridians, in the first test, showed a percentage of 29% in deficiency; 4% in hypo-activity; 17% in balance; 21% in hyperactivity and 29% in excessive state. After application of the sonic bath, the second test revealed: 12% in deficiency; 33% in hypo-activity; 17% in balance; 17% in hyperactivity and 21% in excessive. The results showed a decrease (17%) in deficiency state; an increase (29%) in hypo-activity state; no change in balance state; a decrease (4%) in hyperactivity state; and a decrease (8%) in excessive state.

Table 23: Percentage of syndromes before and after the sound application

Syndrome	First Test	Second Test
Deficiency	29%	12%
Hypo-activity	4%	33%
Balance	17%	17%
Hyperactivity	21%	17%
Excessive	29%	21%

9.2 Control Group

9.2.1 Evaluation (Patient 8)

The eighth assessment was a male patient, 23 years old, in good health. The first graph, before relaxation, revealed the following energy state of meridians: TW (left side), LI (right side) and TW (right side) were in a deficiency state; LI (left side) was in a hypo-activity state; LU (left side), ST (left side), SP (left side), SI (left side), BL (left side), KI (left side), PC (left side), LU (right side), ST (right side), SP (right side), SI (right side), BL (right side), KI (right side) and PC (right side) were in balance; HT (left side), HT (right side), GB (right side) and LV (right side) were in a hyperactivity state; GB (left side) and LV (left side) were in an excessive state.

Graph 15: Energy state of meridians before the relaxation

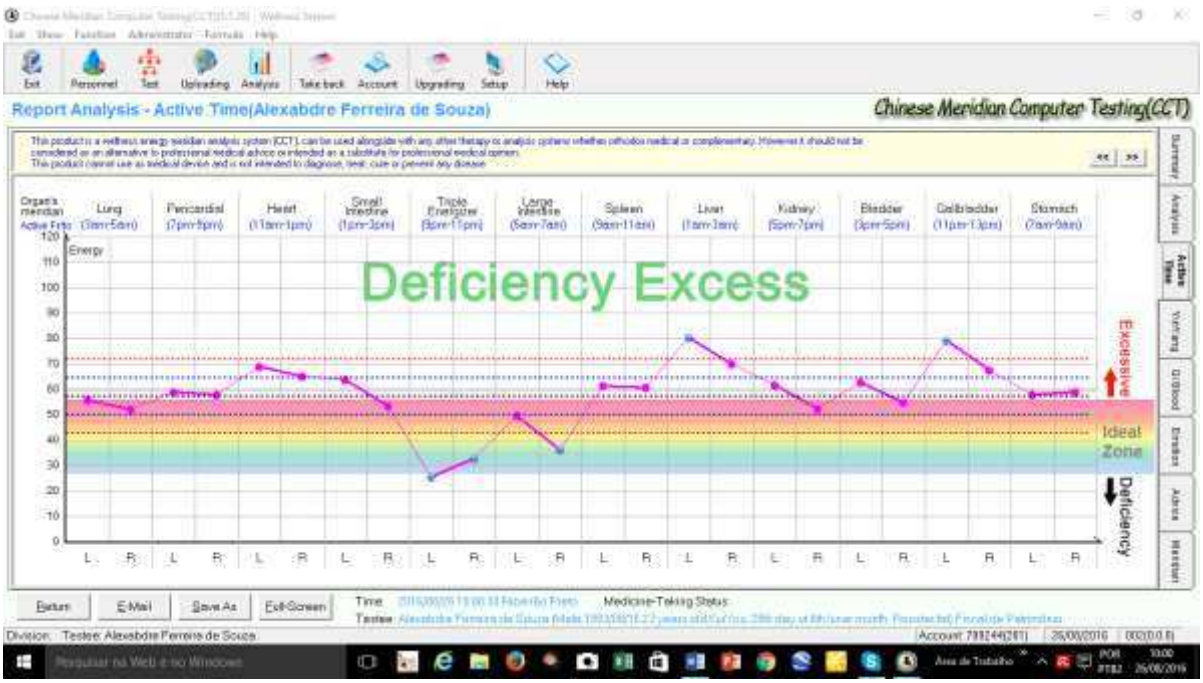
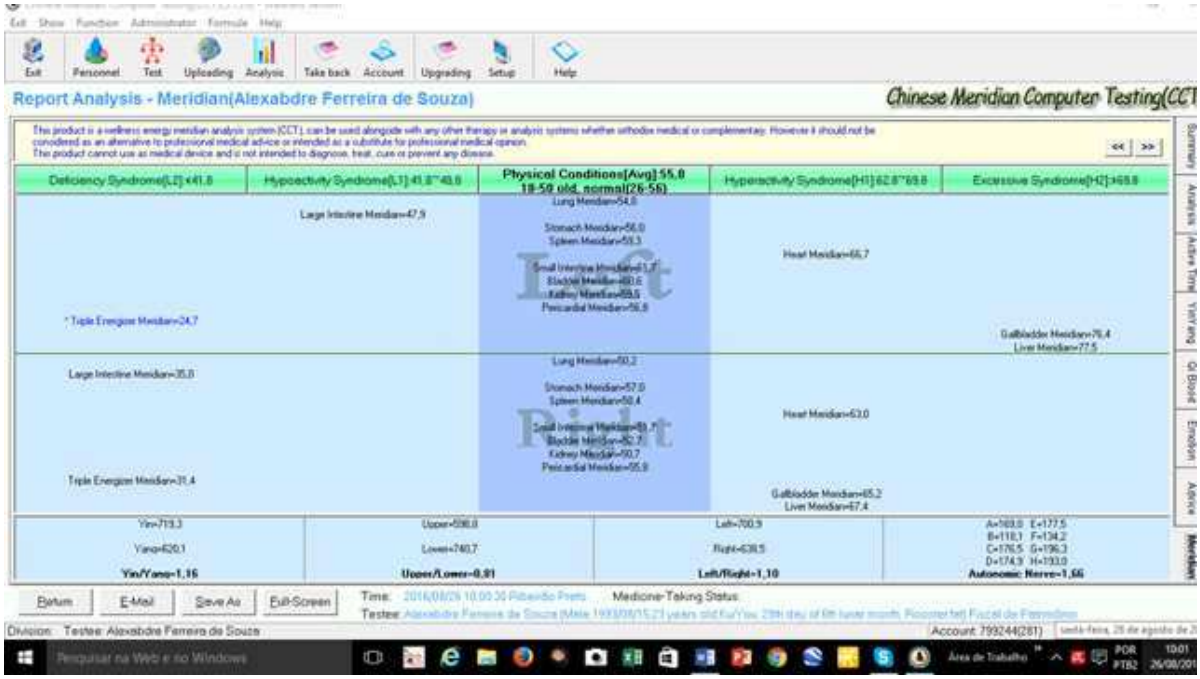


Table 24: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 16: Energy state of meridians after the relaxation

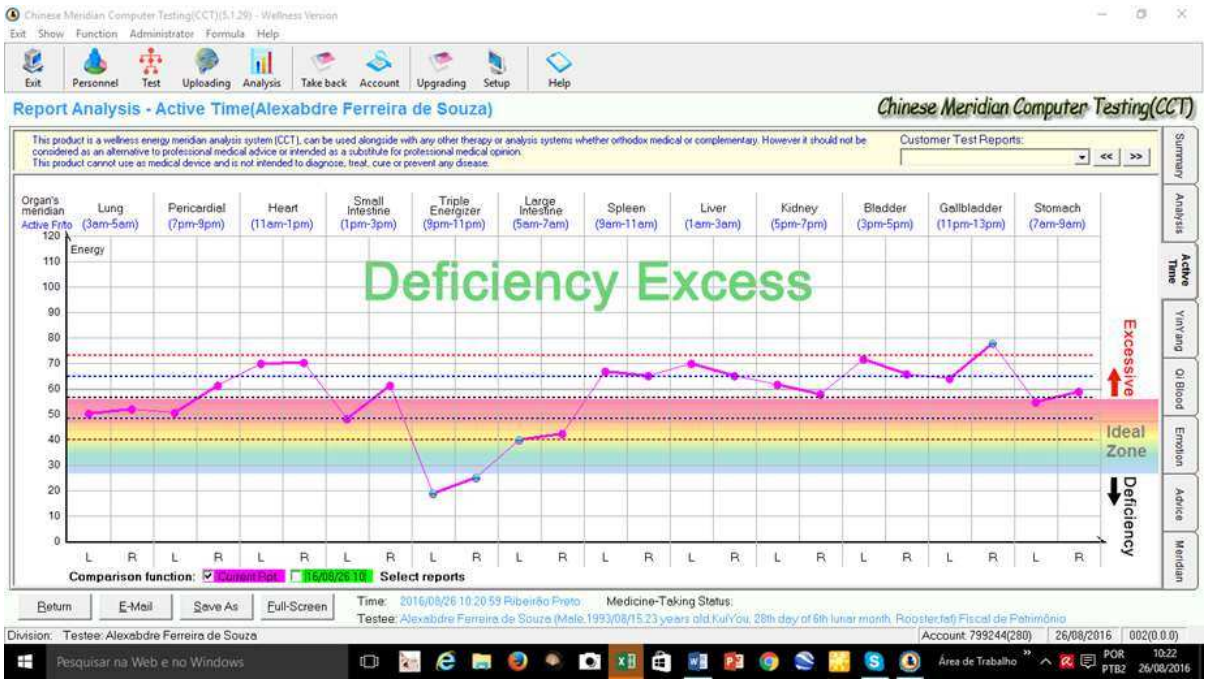
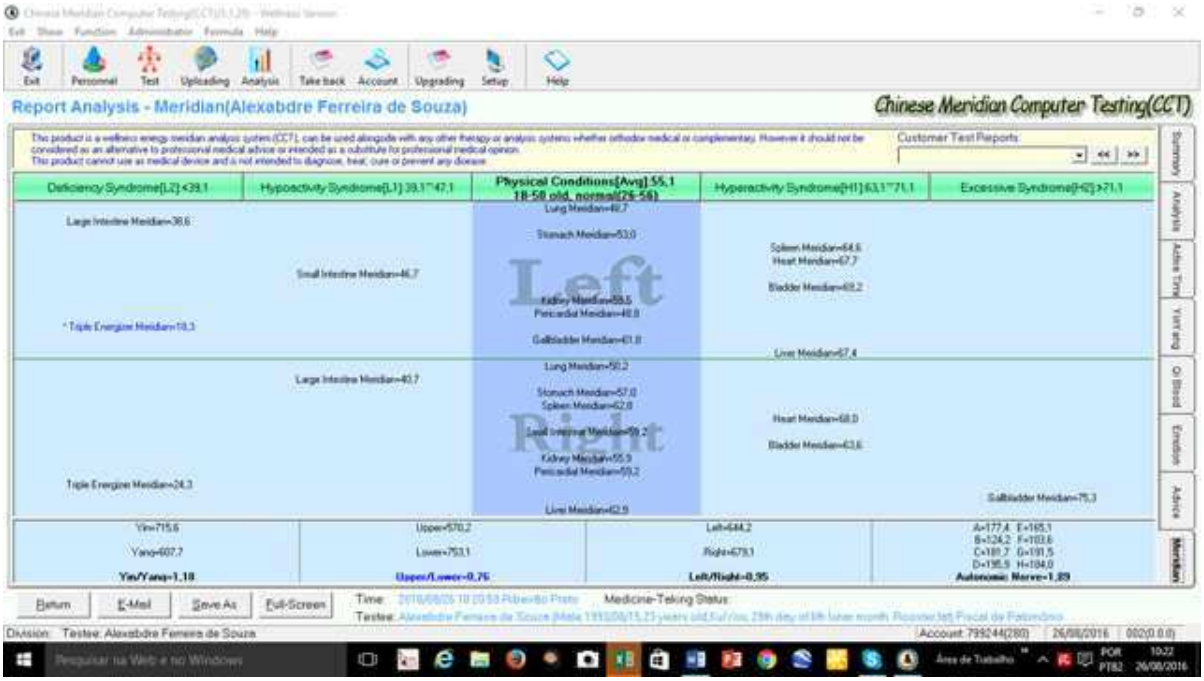


Table 25: Syndromes and energy status of the meridians after the relaxation



The meridians, in the first test, showed a percentage of 12% in deficiency; 4% in hypo-activity; 58% in balance; 17% in hyperactivity and 9% in excess. After relaxation, the second test revealed: 12% in deficiency; 4% in hypo-activity; 58% in balance; 17% in hyperactivity and 9% in excess. The results showed an increase (4%) in deficiency state; a decrease (12%) in hypo-activity state; an increase (8%) in balance and no changes in hyperactivity and excessive states.

Table 26: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	12%	12%
Hypo-activity	4%	8%
Balance	58%	50%
Hyperactivity	17%	25%
Excessive	9%	4%

9.2.2 Evaluation (Patient 9)

The ninth assessment was a female patient, 36 years old, in good health. The first graph, before relaxation, revealed the following energy state of meridians: KI (right side) was in a deficiency state; TW (left side), LI (right side) and TW (right side) were in a hypo-activity state; LU (left side), LI (left side), BL (left side), KI (left side), PC (left side), LU (right side), ST (right side), SP (right side), HT (right side), SI (right side), BL (right side), PC (right side), GB (right side), LV (right side) were in balance; ST (left side), SP (left side), HT (left side), SI (left side) and GB (left side) were in a hyperactivity state; and LV (left side) was in an excessive state.

Graph 17: Energy state of meridians before the relaxation

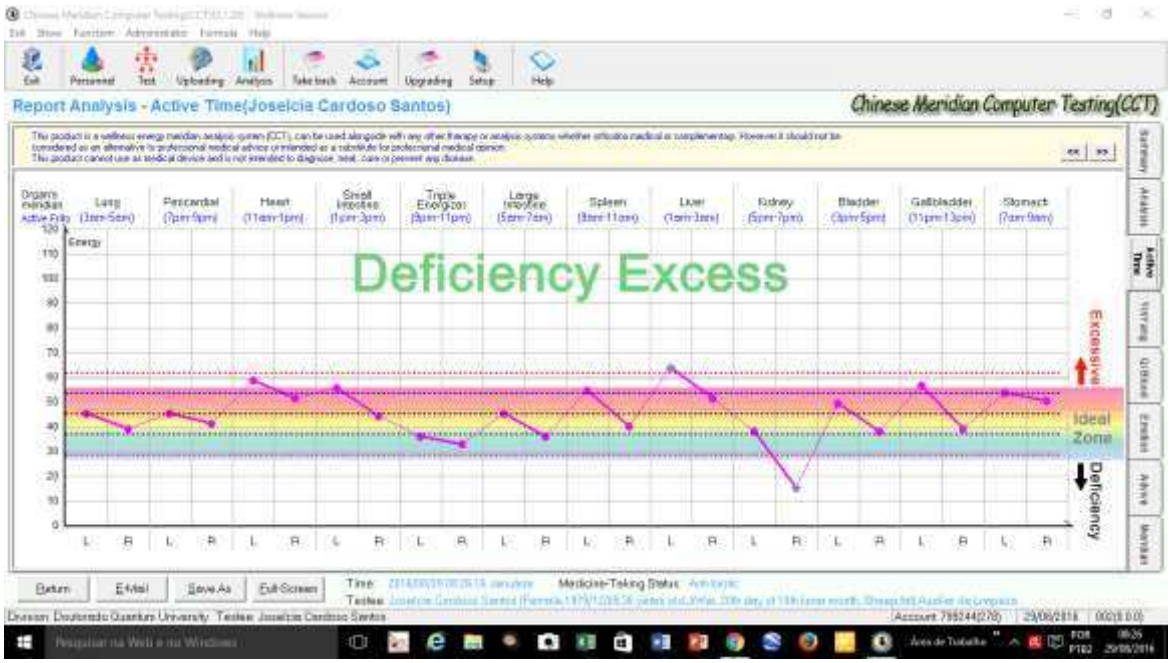
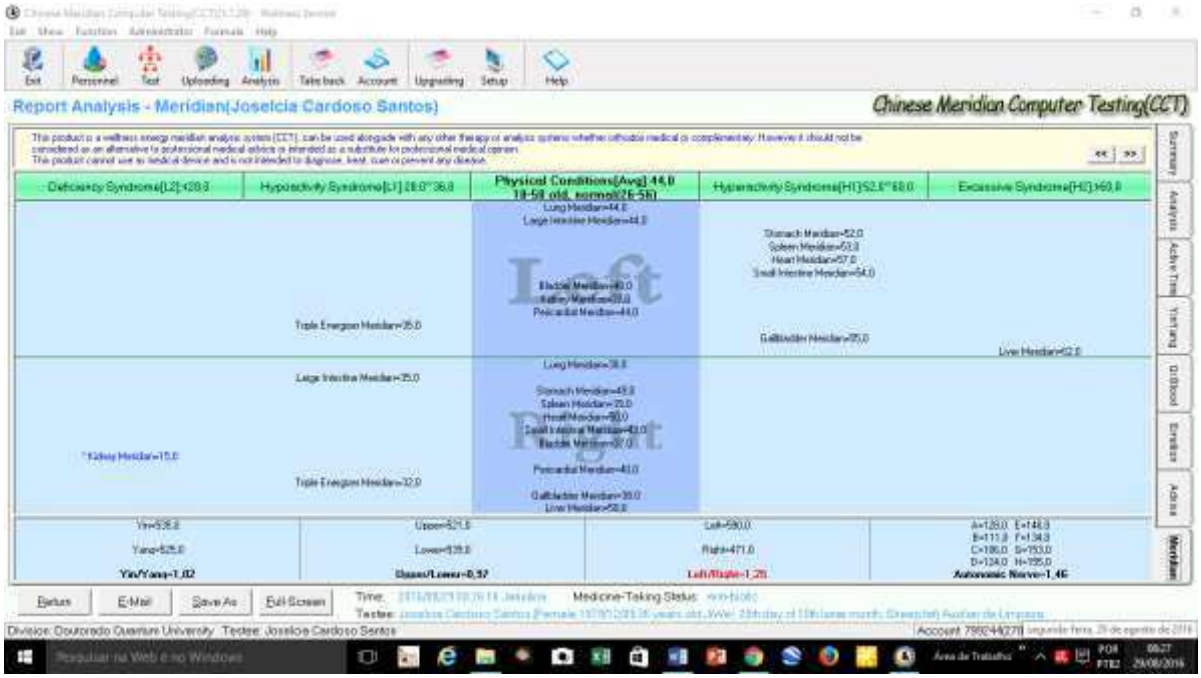


Table 27: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 18: Energy state of meridians after the relaxation

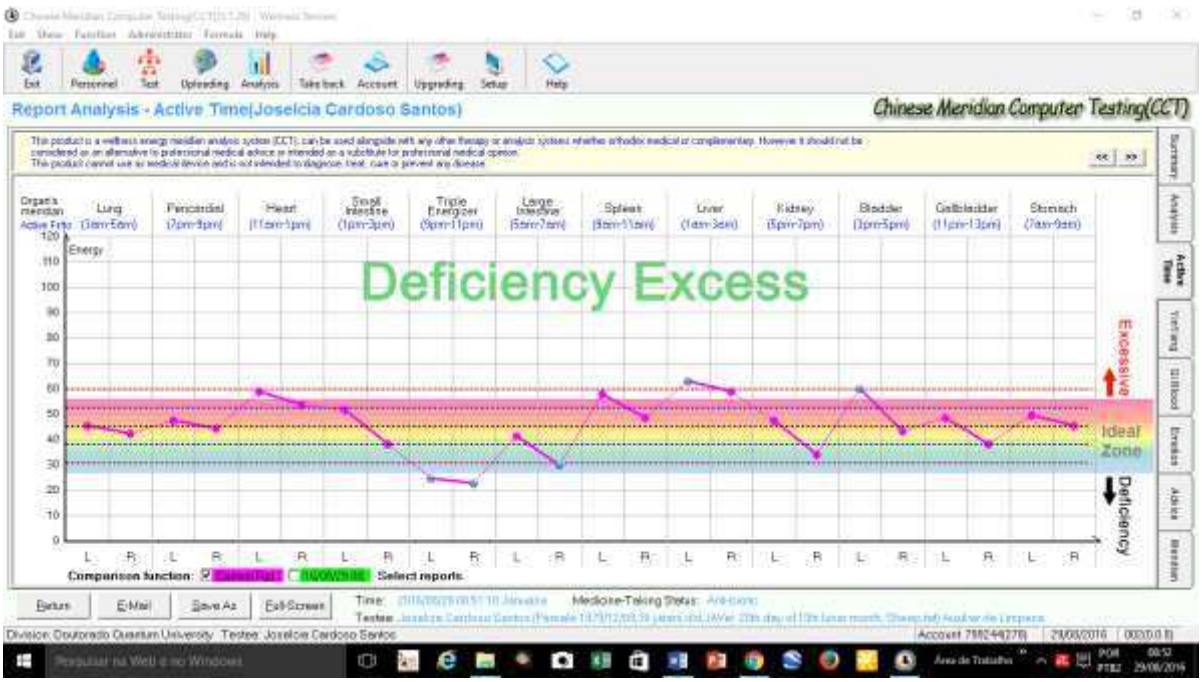
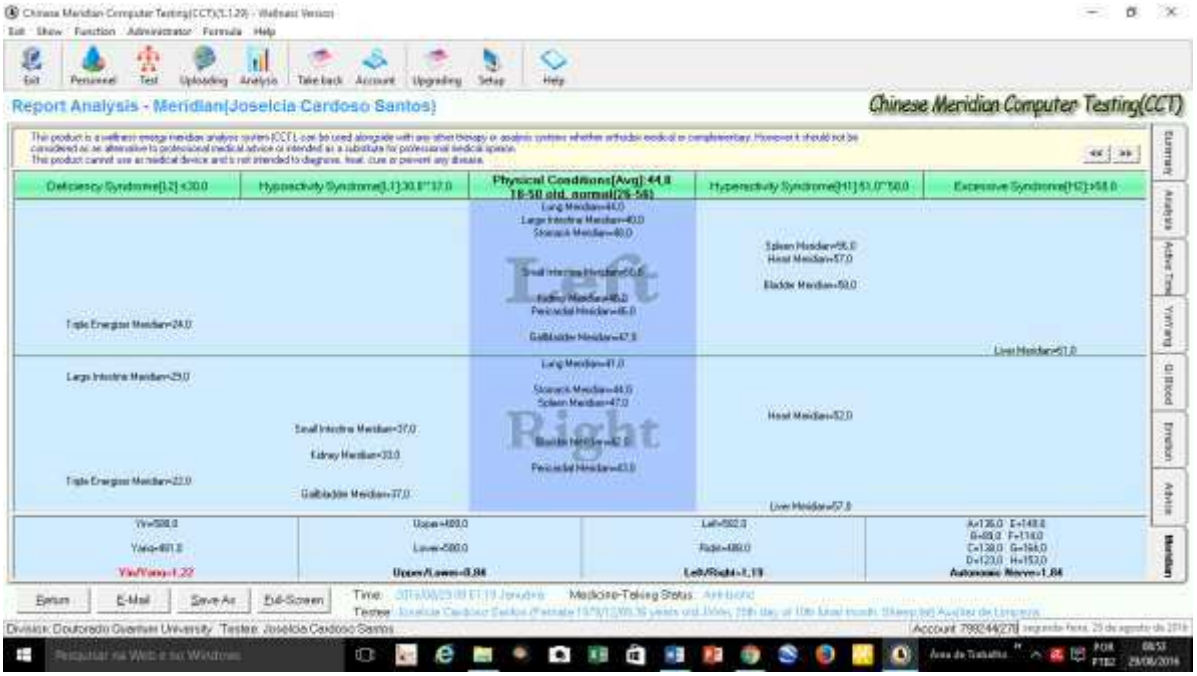


Table 28: Syndromes and energy status of the meridians after the relaxation



The meridians, in the first test, showed a percentage of 4% in deficiency; 13% in hypo-activity; 58% in balance; 21% in hyperactivity and 4% in excess. After relaxation, the second test revealed: 13% in deficiency; 13% in hypo-activity; 50% in balance; 21% in hyperactivity and 4% in excess. The results showed: increase (9%) in deficiency state; no change in hypo-activity state; a decrease (8%) in balance state; no changes in hyperactivity and excessive states.

Table 29: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	4%	13%
Hypo-activity	13%	13%
Balance	58%	50%
Hyperactivity	21%	21%
Excessive	4%	4%

9.2.3 Evaluation (Patient 10)

The tenth assessment was a male patient, 22 years old, with in very good health. The first graph, before relaxation, revealed the following energy state of meridians: TW (left side), LI (right side) and TW (right side) were in a deficiency syndrome; LI (left side), LU (right side) and PC (right side) were in a hypo-activity state; LU (left side), ST (left side), HT (left side), SI (left side), KI (left side), PC (left side), GB (left side), HT (right), SI (right side), BL (right side) and KI (right side) were in balance; SP (left side), BL (left side), ST (right side), SP (right side), GB (right side) and LV (right side) were in a hyperactivity state; LV (left side) was in an excessive state.

Graph 19: Energy state of meridians before the relaxation

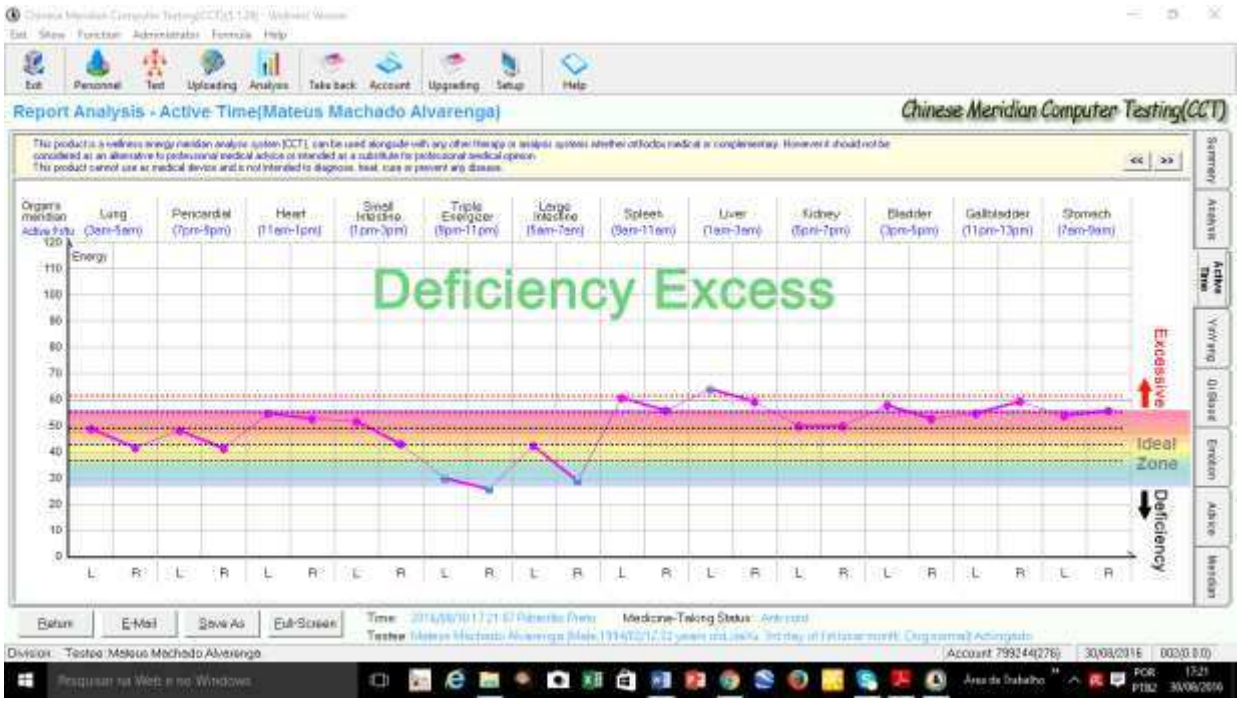
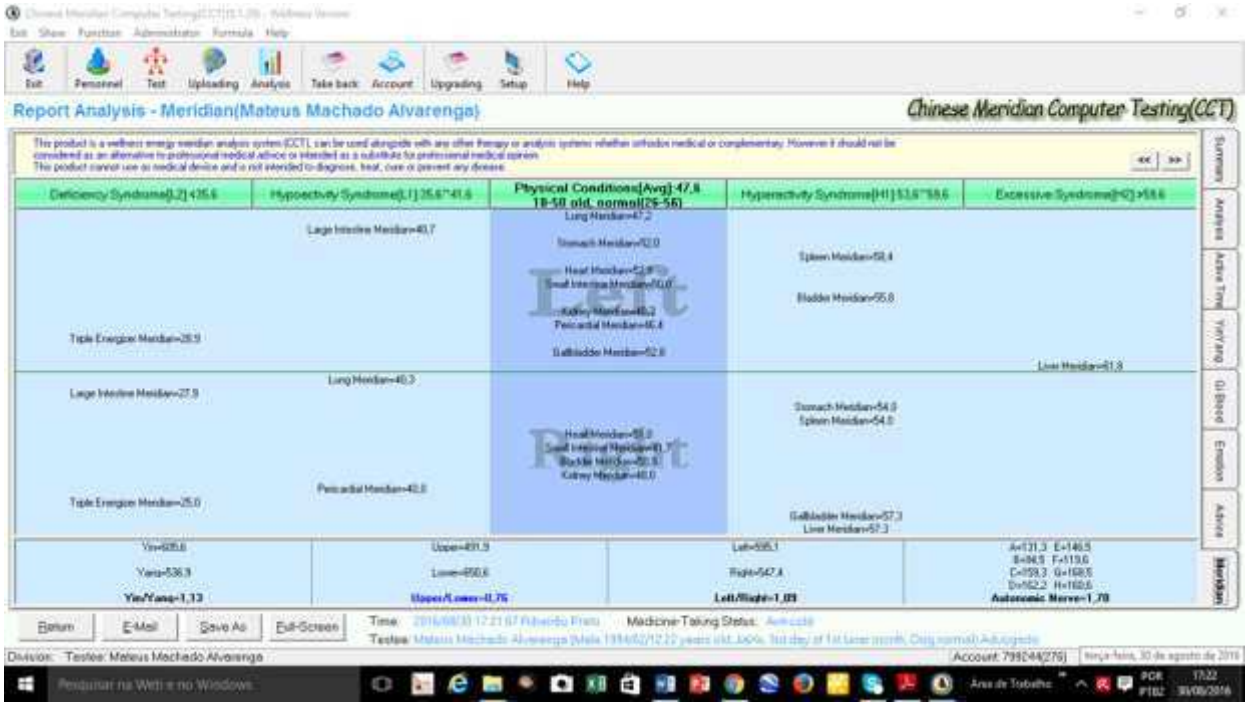


Table 30: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 20: Energy state of meridians after the relaxation

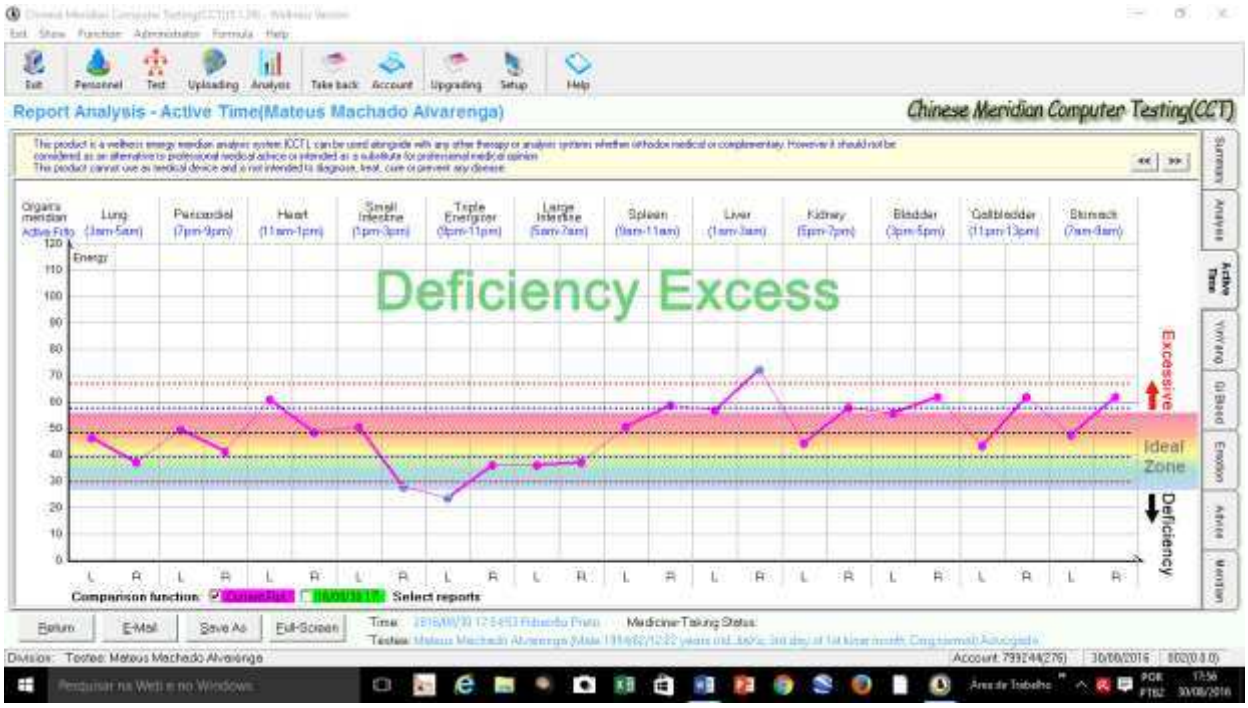
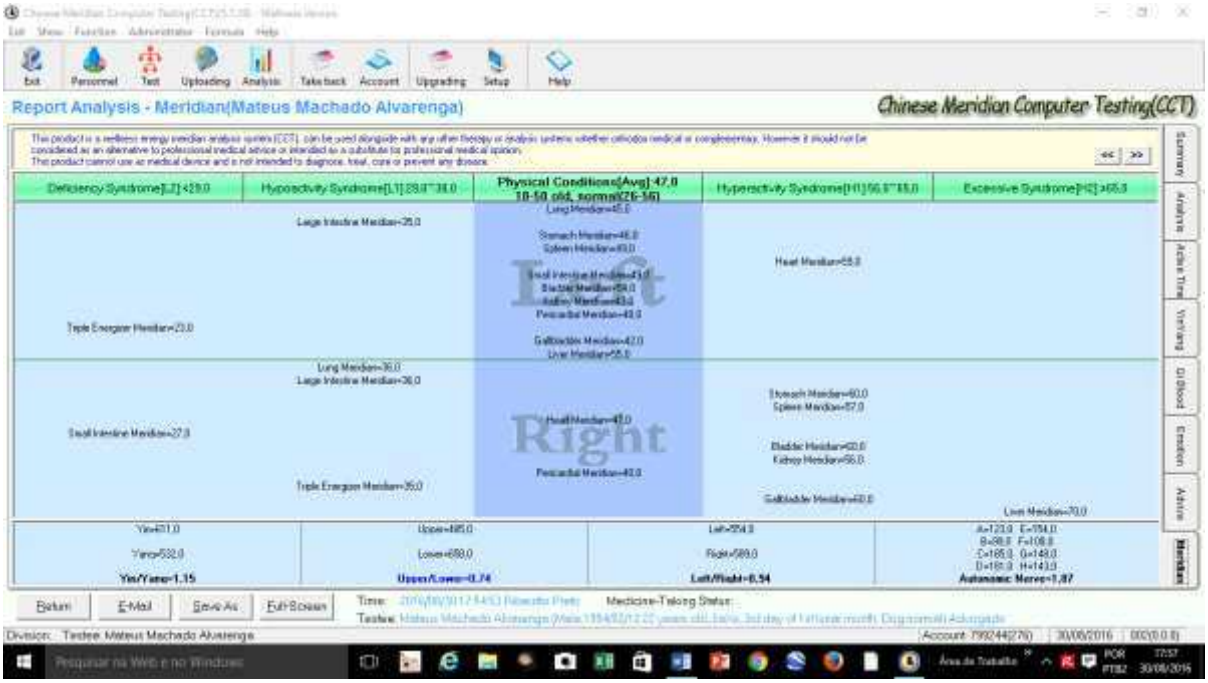


Table 31: Syndromes and energy status of the meridians after the relaxation



The meridians, in the first test, showed a percentage of 12,5% in deficiency; 12,5% in hypo-activity; 46% in balance; 25% in hyperactivity and 4% in excessive state. After relaxation, the second test revealed: 8% in deficiency; 17% in hypo-activity; 46% in balance; 25% in hyperactivity and 4% in excessive. The results showed: a decrease (4,5%) in deficiency state; an increase (4,5%) in hypo-activity state; no change in balance state; no change in hyperactivity state, and no change in excessive state.

Table 32: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	12,5%	8%
Hypo-activity	12,5%	17%
Balance	46%	46%
Hyperactivity	25%	25%
Excessive	4%	4%

9.2.4 Evaluation (Patient 11)

The eleventh assessment was a female patient, 19 years old, with anxiety symptoms. The first graph, before relaxation, revealed the following energy state of meridians: TW (left side) and TW (right side) were in a deficiency state; LI (left side) and LI (right side) were in a hypo-activity state; LU (left side), ST (left side), HT (left side), SI (left side), KI (left side), PC (left side), LV (left side), LU (right side), ST (right side), SP (right side), SI (right side), KI (right side) and PC (right side) were in balance; SP (left side), BL (left side), GB (left side), HT (right side), BL (right side), GB (right side) and LV (right side) were in a hyperactivity; no meridians were in an excessive state.

Graph 21: Energy state of meridians before the relaxation

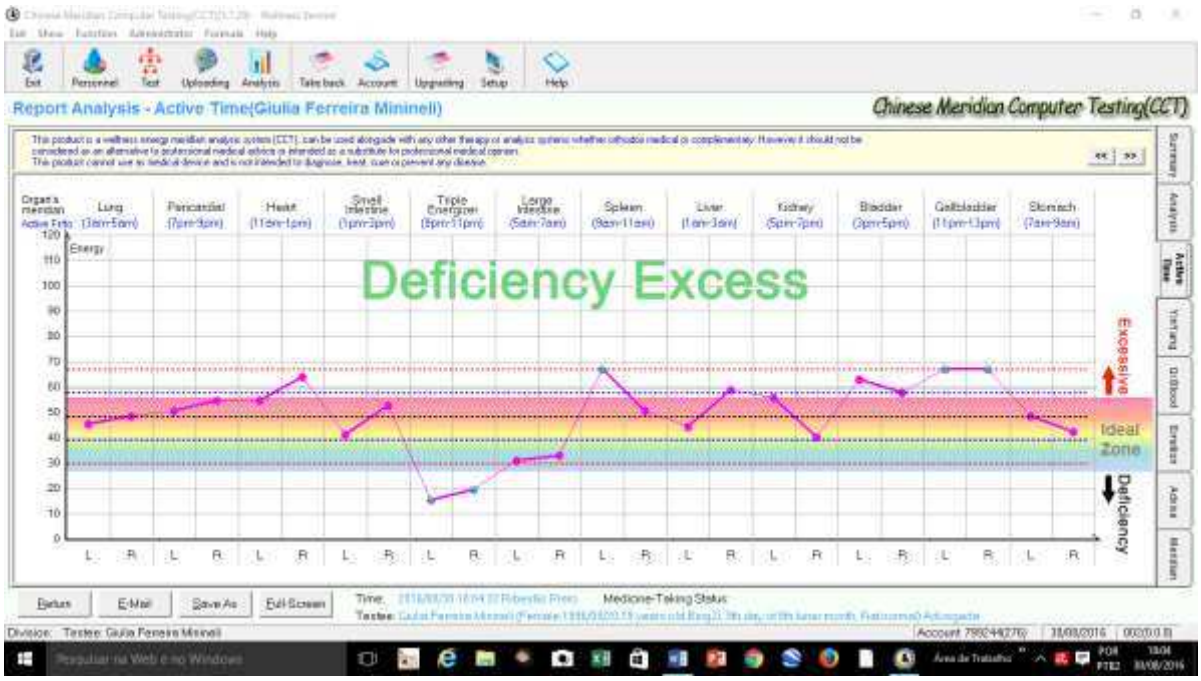
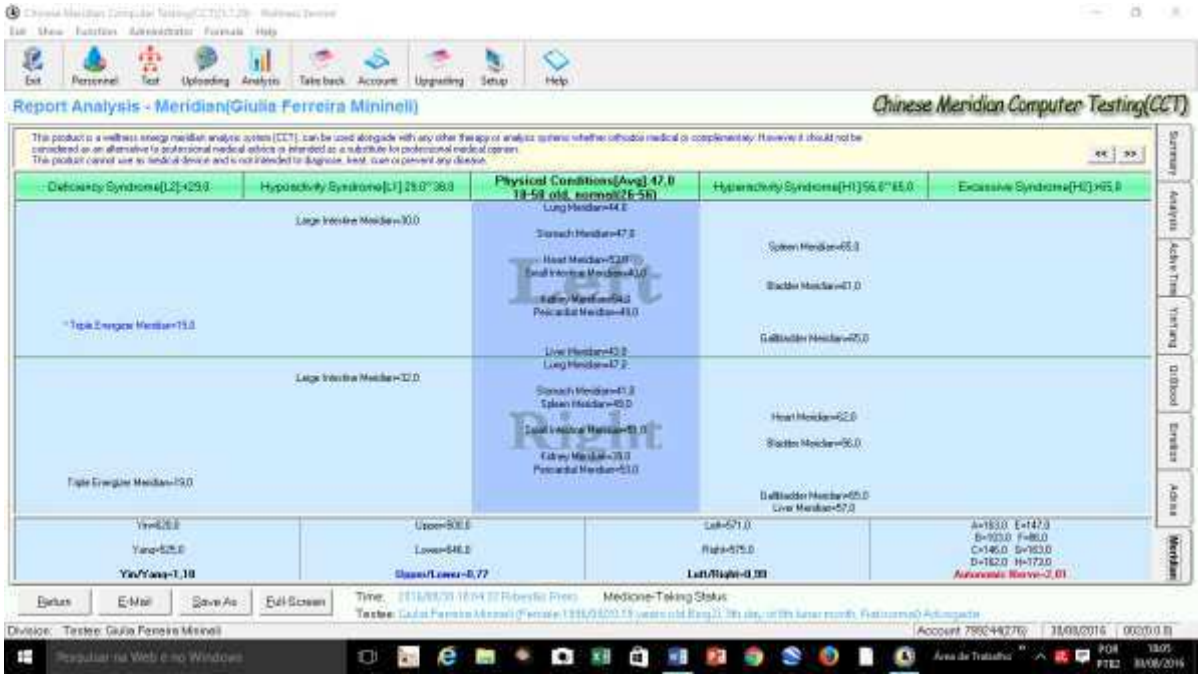


Table 33: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 22: Energy state of meridians after the relaxation

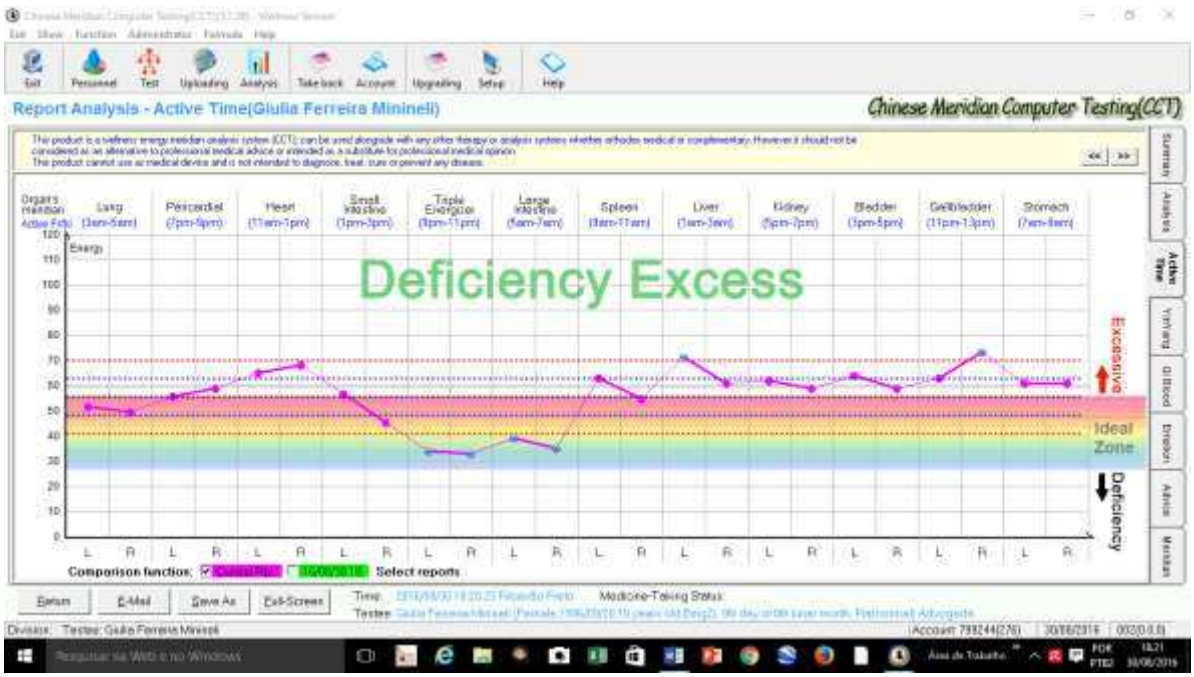
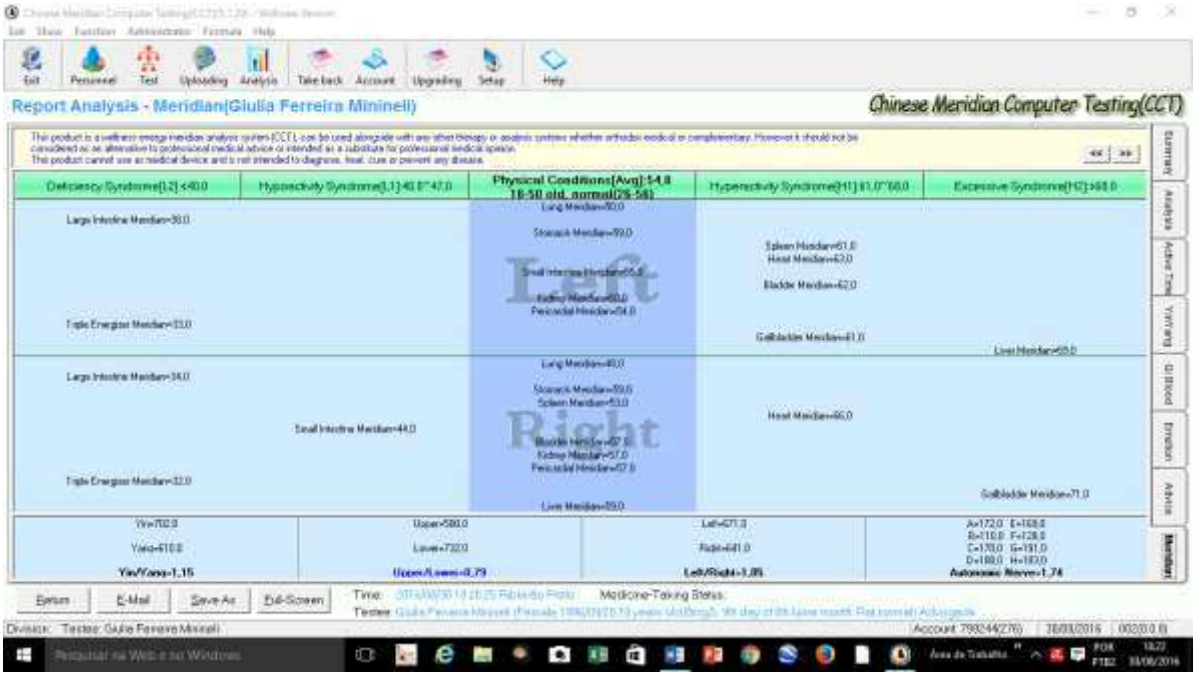


Table 34: Syndromes and energy status of the meridians after the relaxation



The meridians, in the first test, showed a percentage of 8% in deficiency; 28% in hypo-activity; 54% in balance; 30% in hyperactivity and 0% in excessive state. After relaxation, the second test revealed: 17% in deficiency; 4% in hypo-activity; 50% in balance; 21% in hyperactivity and 8% in excessive. The results showed: an increase (9%) in deficiency state; a decrease (4%) in hypo-activity state; a decrease (4%) in balance state; a decrease (9%) in hyperactivity state, and an increase (8%) in excessive state.

Table 35: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	8%	17%
Hypo-activity	8%	4%
Balance	54%	50%
Hyperactivity	30%	21%
Excessive	0%	8%

9.2.5 Evaluation (Patient 12)

The twelfth assessment was a female patient, 67 years old, with depression symptoms. The first graph, before relaxation, revealed the following energy state of meridians: GB (right side) was in a deficiency syndrome; KI (left side), TW (left side), GB (left side), LI (right side), KI (right side) and TW (right side) were in a hypo-activity state; LU (left side), LI (left side), ST (left side), BL (left side), PC (left side), LV (left side), LU (right side), ST (right side), SI (right side) and LV (right side) were in balance; SP (left side), HT (left side), SI (left side), HT (right side), BL (right side) and PC (right side) were in a hyperactivity; SP (right side) was in an excessive state.

Graph 23: Energy state of meridians before the relaxation

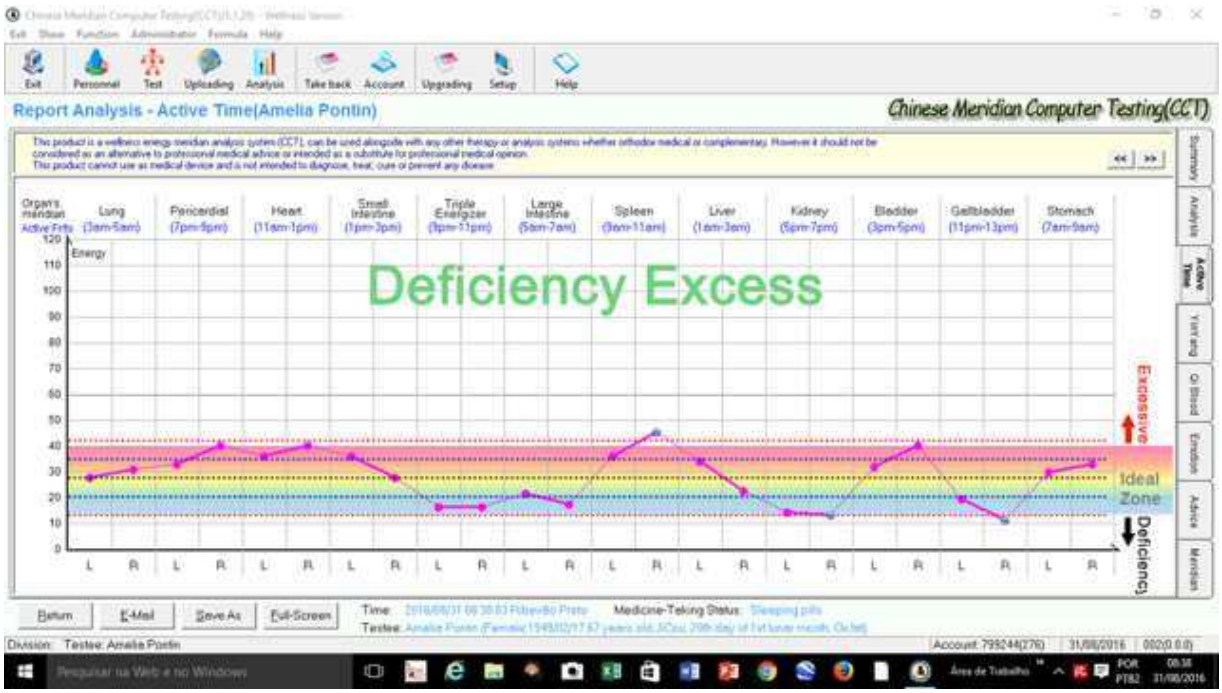
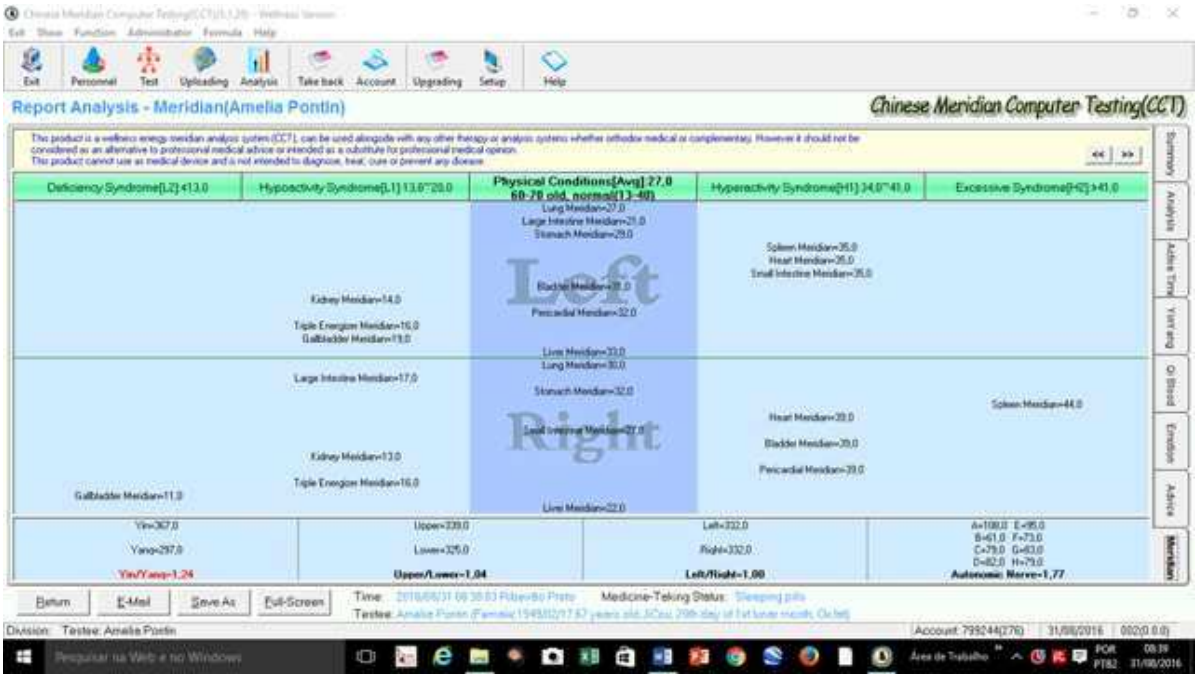


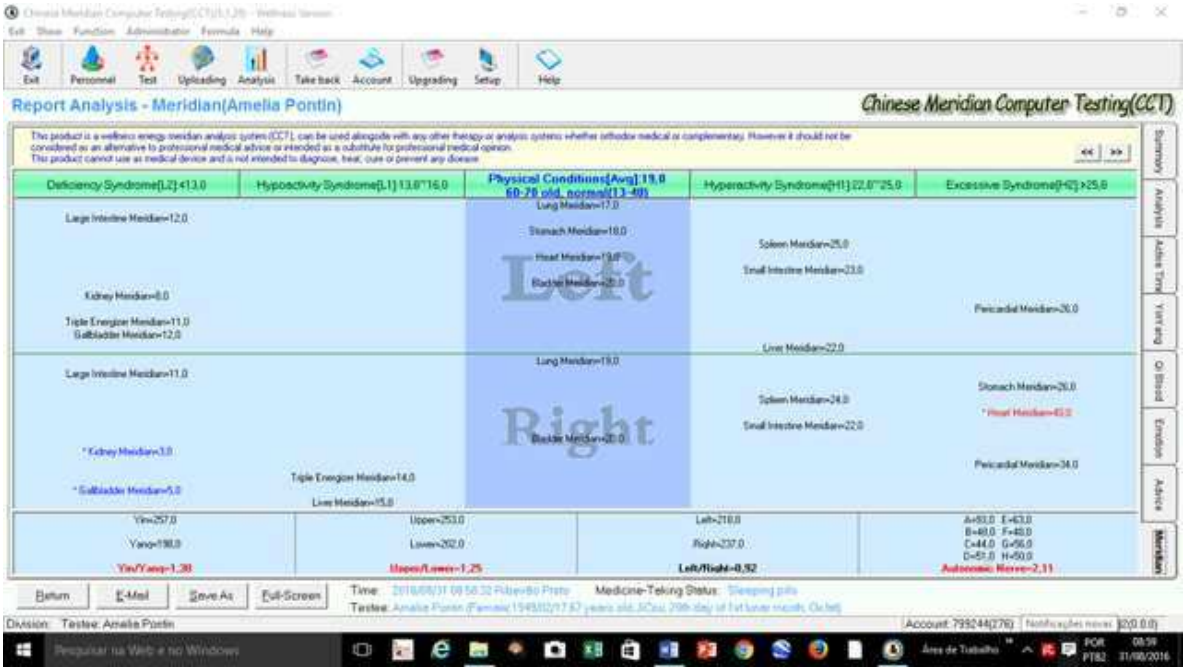
Table 36: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 24: Energy state of meridians after the relaxation

Table 37: Syndromes and energy status of the meridians after the relaxation



The meridians, in the first test, showed a percentage of 4% in deficiency; 25% in hypo-activity; 42% in balance; 25% in hyperactivity and 4% in excessive state. After relaxation, the second test revealed: 29% in deficiency; 8% in hypo-activity; 25% in balance; 21% in hyperactivity and 17% in excessive. The results showed: an increase (25%) in deficiency state; a decrease (17%) in hypo-activity state; a decrease (17%) in balance state; a decrease (4%) in hyperactivity state and an increase (13%) in excessive state.

Table 38: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	4%	29%
Hypo-activity	25%	8%
Balance	42%	25%
Hyperactivity	25%	21%
Excessive	4%	17%

9.2.6 Evaluation (Patient 13)

The thirteenth assessment was a male patient, 35 years old, with allergic and respiratory problems due to excessive cigarette. The first graph, before relaxation revealed the following energy state of meridians: TW (left ride), TW (right side) were in a deficiency state; LU (left side), LI (left side) and LI (right side) were in a hypo-activity state; SP (left side), SI (left side), PC (left side), LU (right side), ST (right side), SP (right side), SI (right side), PC (right side) were in balance; ST (left side), BL (left side), BL (right side), KI (right side) were in a hyperactivity; HT (left side), KI (left side), GB (left side), LV (left side), HT (right side), GB (right side) and LV (right side) were in an excessive state.

Graph 25: Energy state of meridians before the relaxation

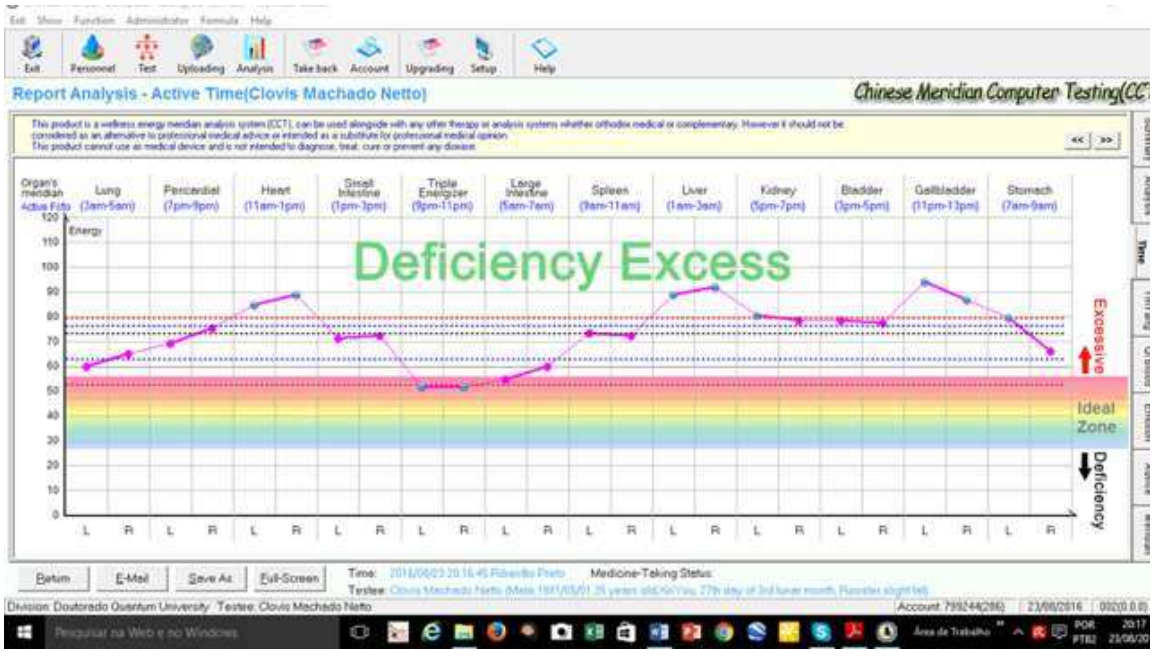
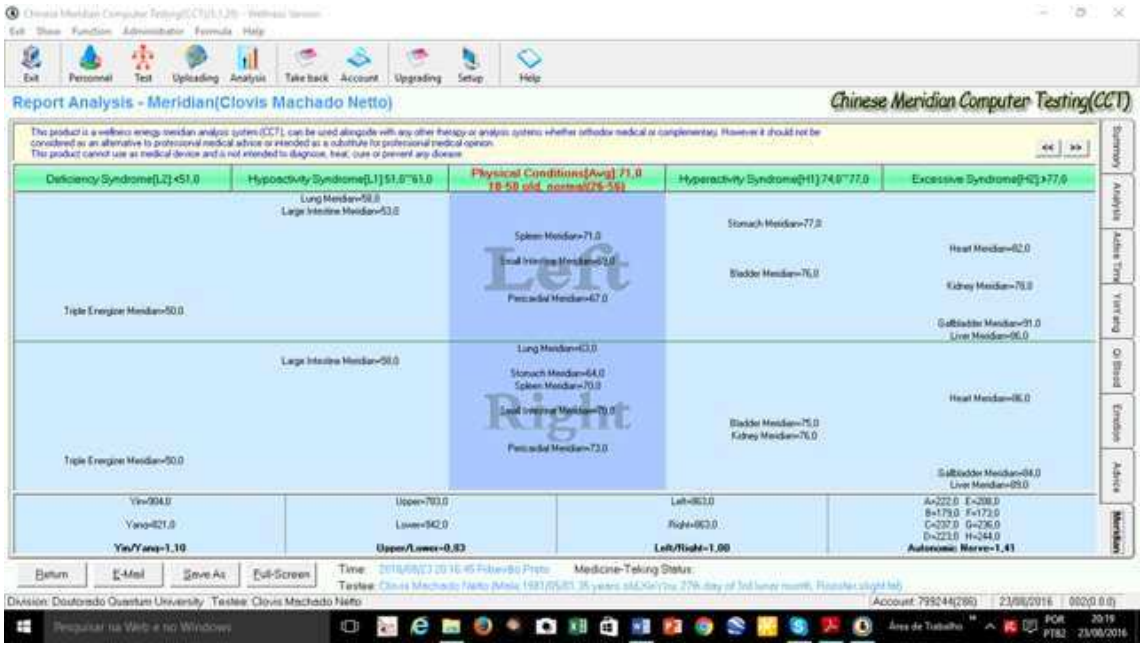


Table 39: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 26: Energy state of meridians after the relaxation

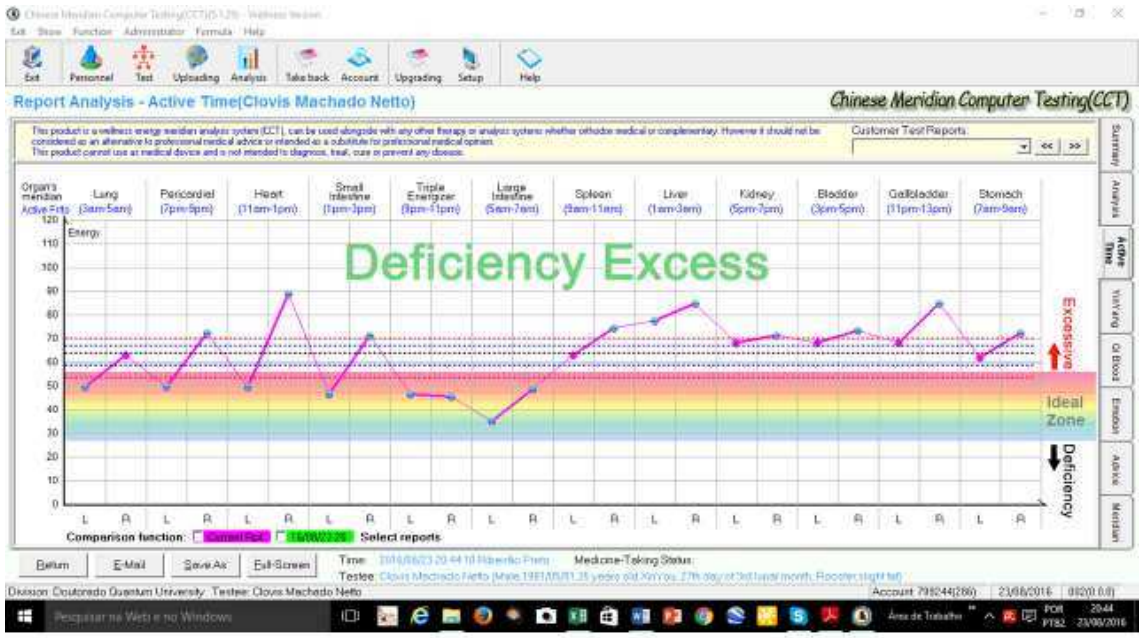


Table 40: Syndromes and energy status of the meridians after the relaxation

The meridians, in the first test, showed a percentage of 8% in deficiency; 12% in hypo-activity; 33% in balance; 17% in hyperactivity and 29% in excessive state. After relaxation, the second test revealed: 33% in deficiency; 0% in hypo-activity; 12% in balance; 12% in hyperactivity and 42% in excessive syndrome. The results showed: an increase (25%) in deficiency state; a decrease (12%) in hypo-activity state; a decrease (21%) in balance state; a decrease (5%) in hyperactivity state and an increase (13%) in excessive state.

Table 41: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	8%	33%
Hypo-activity	12%	0%
Balance	33%	12%
Hyperactivity	17%	12%
Excessive	29%	42%

9.2.7 Evaluation (Patient 14)

The fourteenth assessment was a female patient, 45 years old, healthy and hard to relax. The first graph, before relaxation revealed the following energy state of meridians: no deficiency state; LU (left side), LI (left side), TW (left side) and PC (right side) were in a hypo-activity state; SP (left side), HT (left side), SI (left side), BL (left side), KI (left side), PC (left side), LU (right side), LI (right side), ST (right side), SI (right side), BL (right side), KI (right side) and TW (right side) were in balance; ST (left side), LV (left side), SP (right side), HT (right side), GB (right side) and LV (right side) were in a hyperactivity and GB (left side) was in an excessive syndrome.

Graph 27: Energy state of meridians before the relaxation

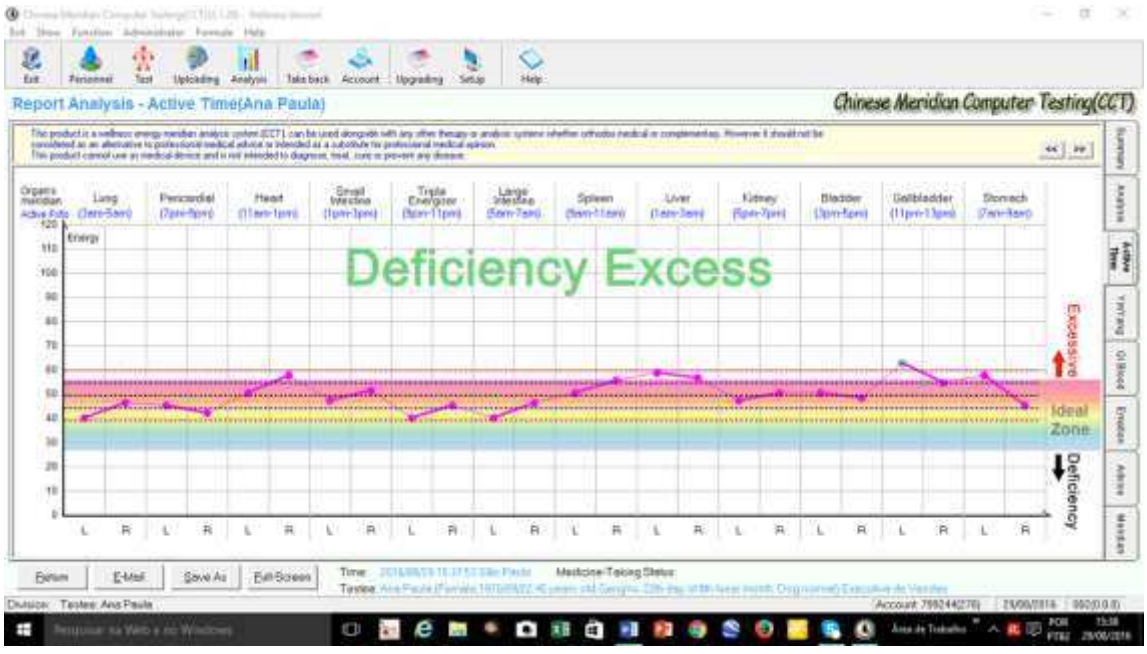
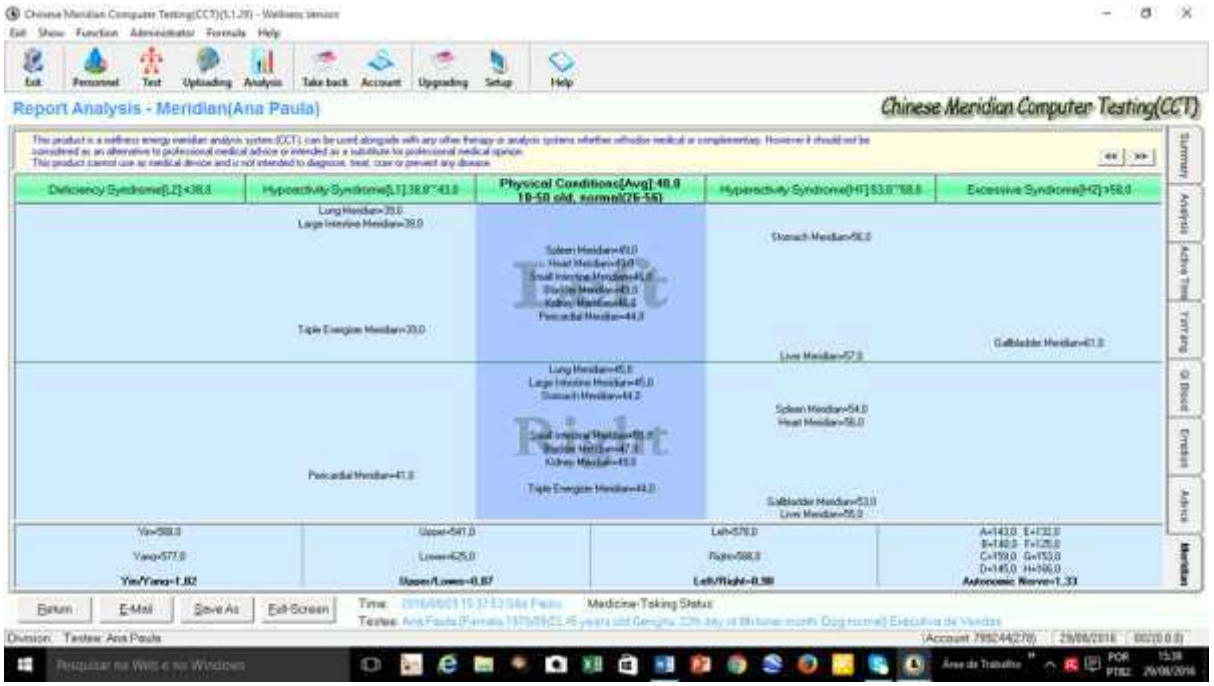


Table 42: Syndromes and energy status of the meridians before the relaxation



After relaxation, it was possible to see a change in the energy states of the meridians.

Graph 28: Energy state of meridians after the relaxation

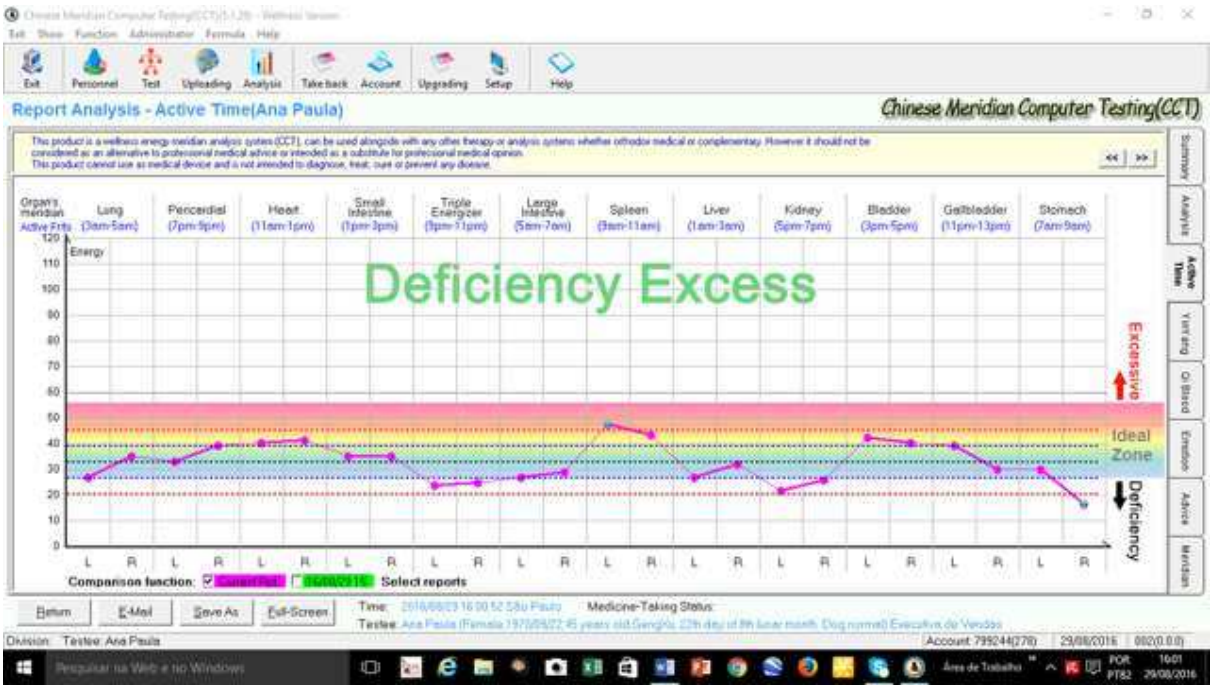
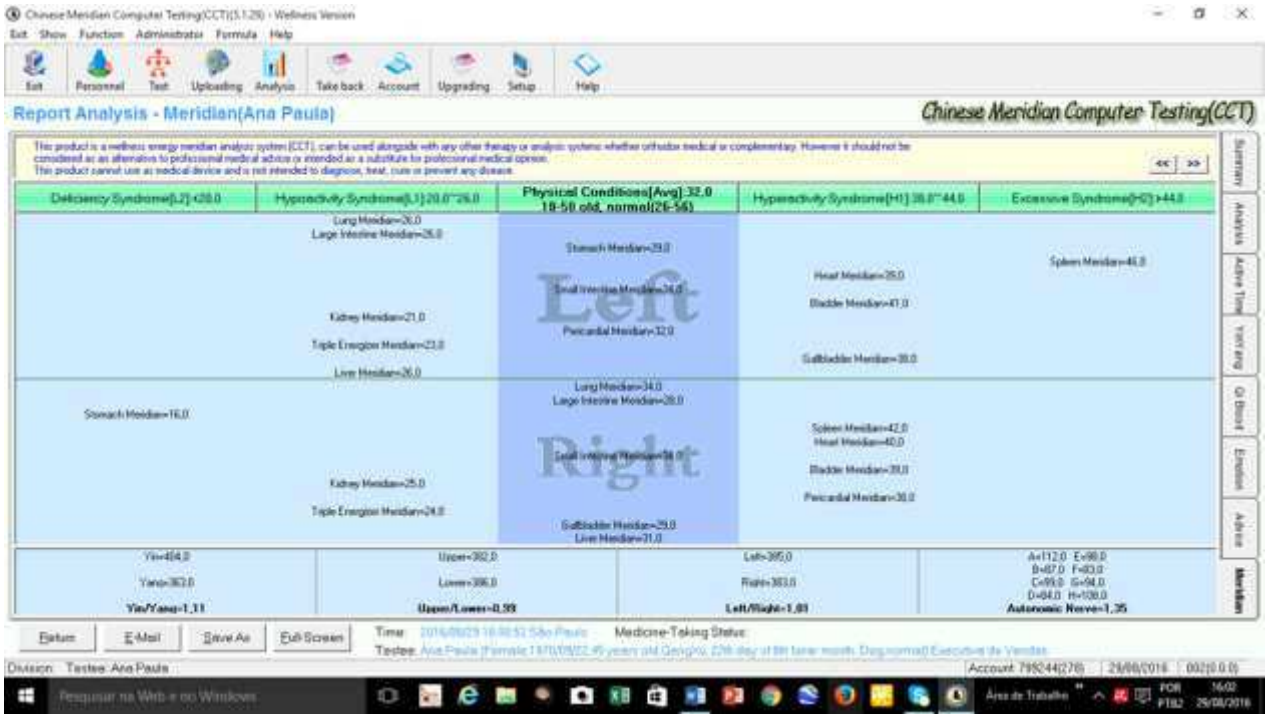


Table 43: Syndromes and energy status of the meridians after the relaxation



The meridians, in the first test, showed a percentage of 0% in deficiency; 17% in hypo-activity; 54% in balance; 25% in hyperactivity and 4% in excessive state. After relaxation, the second test revealed: 4% in deficiency; 29% in hypo-activity; 33% in balance; 29% in hyperactivity and 4% in excessive. The results showed: an increase (4%) in deficiency state; an increase (25%) in hypo-activity state; a decrease (21%) in balance state; an increase (4%) in hyperactivity state, and no change in excessive state.

Table 44: Percentage of syndromes before and after the relaxation

Syndrome	First Test	Second Test
Deficiency	0%	4%
Hypo-activity	4%	29%
Balance	54%	33%
Hyperactivity	25%	29%
Excessive	4%	4%

Chapter 10: Discussion

The analysis revealed that both the control and the experimental groups showed changes in the energy state of meridians, but only the experimental group showed positive results in increasing balance state. The values related to the increase of the balance state ranged between 7% (minimum) and 21% (maximum) and only one patient in the experimental group maintained the initial value.

No one in the experimental group showed a decrease in the percentage of the balance state of energy. In the control group only one kept the initial value of the balance state. The other ones showed decreases between 4% and 21% of the value associated with the initial state of balance.

Table 45: Percentages of balance increase in the experimental group

Experimental Group	% Balance State Before Sound Application	% Balance State After Sound Application	% Increase
9.1.1	29%	38%	9%
9.1.2	17%	29%	12%
9.1.3	17%	38%	21%
9.1.4	50%	58%	8%
9.1.5	46%	53%	7%
9.1.6	33%	50%	17%
9.1.7	17%	17%	0%

Table 46: Percentage of balance decrease in the control group

Control Group	% Balance State Before relaxation	% Balance State After relaxation	% Decrease
9.2.1	58%	50%	8%
9.2.2	58%	50%	8%
9.2.3	46%	46%	0%
9.2.4	54%	50%	4%
9.2.5	42%	25%	17%
9.2.6	33%	12%	21%
9.2.7	54%	33%	21%

The data revealed that 86% of patients in the experimental group had an increased percentage of balanced meridians, while 86% of the control patients had a decrease of these percentages.

Six out seven patients studied in the control group had a decrease of at least 4% of the initial value, but in this same group: 14% of patients had an improvement in the excessive state; 14% had an improvement in the deficiency state and 43% had an improvement in the hypo-activity and hyperactivity states (Table 47). Although there is no improvement in the balance state, all patients in the control group felt relaxed and quiet after work.

In the experimental group: 71% of patients had improvement in the deficiency state; 45% of patients experienced an improvement in the excess state; 57% of patients had an improvement in the hyperactivity state and 43% of patients had an improvement in the hypo-activity state (Table 47).

Table 47: Percentage improved in both groups

Groups	Deficiency Syndrome	Hypo-activity Syndrome	Balance	Hyperactivity Syndrome	Excessive Syndrome
Control	14%	43%	0%	43%	14%
Experimental	71%	43%	86%	57%	45%
Difference	57%	0%	86%	16%	31%

Table 47 shows that the improvement of the percentages in the experimental group were superior to the values of the control group, except for the hypo-activity state, which the percentages were equal. As in other states, the smallest difference was 16%, related to the hyperactivity state and the highest difference was 86% was related to increasing the number of balanced meridians.

In the experimental group, 36% of meridians that were in balance state changed negatively their energetic state (see Table 48).

Table 48: Percentage of balance state output after sound application

Group	To Deficiency Syndrome	To Hypo-activity Syndrome	To Hyperactivity Syndrome	To Excessive Syndrome
Experimental	2%	18%	10%	6%

The graphs of the experimental group revealed that some balance meridians before the sound bath, changed state after their completion, entering into deficiency, hypo-activity, hyperactivity or excessive state. Although, after the application, there was an increase in the

total number of meridians in balance state, there were changes in the energy state of some meridians for better or worse.

The fact that some meridians entered in a state of imbalance, after the sound application, may be related to domain and codomain cycles present within the pentagram of the five elements. Inside the logic of the pentagram of five elements, changing the energy state of an element (and associated meridians), positively or negatively the energy status of other elements (or meridians) can be affected.

Future studies may assess if a sound field, generated only with the frequencies associated with the meridian presenting energy deficiency, will have a better result or not. New research also reveals if specific sound arrangements, based both on Ryodoraku reading and in the five elements analysis (pentagram), will have even better effects than those obtained in this research.

10.1 Beyond The Vital Body

The use of multi-frequency sound field around the patient showed not only increase in the amount of balanced meridians, but also revealed that the range of sounds can transcend the limits of the vital body, reaching the more subtle bodies: mental, supramental and Bliss.

Dr. Paul Drouin states that the Acupuncture is much more than the number of protocols involved in the use of needles in different acupoints to treat different pathologies. He proposes an Acupuncture able to access a more efficient level of information, aimed at restoration and harmonization of morphogenetic fields.

Statements that were made by patients after the sound applications (experimental group), reported mental and also spiritual experiences of profound beauty and subtlety. Many of these reports were similar involving the same subjective experiences:

1. Color Visions and various geometric shapes;
2. Deep physical and mental relaxation;
3. Loss of body sensation with perceived lack of weight;
4. Tingles in specific parts of the body;
5. Feelings of deep peace, joy and inner calm;
6. Expansion of consciousness and plunge into a state of mental vacuity;
7. Insights;
8. Release of negative records of the past;
9. Reminding dreams.

The patient testimonials revealed that the sound field, that was generated by the singing bowls could also function as a gateway to the inner world, stimulating a creative dialogue of the ego with the Self, promoting be more sublime contact with subtle levels, far beyond the mental domain.

According to Dr. Paul Drouin (2014), *"Quantum Medicine proposes an integrative approach that will restore the morphogenetic field, the blueprint for the organs, to its full potential, tuning into a creative mode of operating in relation with the higher self."*[144]

[144] (Creative Integrative Medicine) p. 60

All these reflections affirm the informative nature of quantum channels or meridians of acupuncture, revealing the existence of an intimate relationship between light, sound, meridians and information fields (or morphogenetic fields).

Chapter 11: Summary and Conclusion

The sensitivity of the meridians to the sounds revealed that the vital body also has a sound nature. According to Sonopuncture and Acousto-Optics, there is a musical body formed for sound vibrations as well as Rainbow Body formed for color vibrations. The colors and sounds can be energetic complementary aspects of the vital body. In Integrative and Quantum Medicine, the sound body can be treated by Sound Therapy and Vibroacoustic Therapy.

Recent studies and research about the sound nature of the vital body and its meridians opened avenues for new treatments of energy imbalances using non-invasive instruments such as tuning forks and singing bowls.

The empirical data obtained in this research confirm that the audible sound vibrations produced for Indian and Tibetan singing bowls have a positive impact on the energy balance of the vital body meridians, as well as the improvement of the four states or syndromes. The use of singing bowls in the Acupuncture can be an alternative in the care of the meridians of the vital body.

This research showed that a circular arrangement of the sound field, produced for the twelve musical notes and based on the scales of fifth and fourth, is able to influence positively the energy state of meridians, without physical contact between body and bowls.

Future research will investigate if different geometric arrangements of sound fields, produced for singing bowls, are capable to produce different effects on the vital body, contributing to a non-classic intervention in Acupuncture and recognizing the nonlocal

nature, and also the dynamic, changeable and quantum features of points and meridians of the vital body. According to Dr. Amit Goswami (2004), the acupoints are local condensation or quantum collapse of a nonlocal nature field.

Considering the Heisenberg Uncertainty Principle applied to quantum dynamics of the vital body, the nonlinear dynamics of energy involved and the nonlocal nature of biophotons and meridians, it is possible to think about an Acupuncture practice without needles and not focused on local acupoints, but in energy regions: a nonlocal Acupuncture, where the sound fields can be used according to what Dr. Paul Drouin (2014)[145] calls "Consciousness Acupuncture".

This research also revealed that the therapeutic effects of singing bowls can go far beyond the vital body, reaching more subtle levels: mental, spiritual and supramental. Reports of patients after session revealed that the sounds can also open channels of communication with the inner world.

The great challenge of this transition moment of the paradigm is the discovery and practice of more integrative, natural and holistic way that are able to recognize and take care of the different layers related to physical, vital, mental, supramental and spiritual bodies.

The new doctors and therapists of Integrative Medicine have beautiful tasks and missions: integrating knowledge with love, promoting the expansion of consciousness beyond the ego, facilitating the reunion of every being with his or her own light, and tapering the musicality of each human being with the wonderful divine symphony.

[145] (Creative Integrative Medicine)

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Biography

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