Editorial

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The Ancient Wisdom at Intersection with Modern Cardiac Sciences

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Since human creation, the human heart is occupying honourable role from physical health, mental and spiritual aspects and beyond. Pharaonic Period, is dated from the 32nd century BC, when Upper and Lower Egypt were unified, until the country fell under Macedonian rule, in 332 BC. The ancient Egyptians believed that the heart, rather than the brain, was the source of human wisdom, as well as emotions, memory, the soul and the personality itself. The ancient Egyptians also did not think much of the brain. In fact, when creating a mummy, the Egyptians scooped out the brain through the nostrils and threw it away.

The human heart was a sacred body part, and its health depended on its contribution to the universal harmony. Historically, the ancient Greeks acknowledged the value of Egyptian medicine. "It was said in Greece that to have studied medicine in Egypt was the highest credential a physician could present"[1]. Scholars agree, "The role of Egyptian medicine in the development of the scientific foundations of Greek and Roman medicine is significant"[2].

The knowledge of the heart, pulse, and vessels in ancient Egypt ought not to be surprising. "To the ancient Egyptians, the heart was the centre of thought, emotion, and all other nervous function, an organ of such importance that it was thought necessary to salvation after death, and was left in the body at the time of mummification to ensure its availability at judgment and during the afterlife.

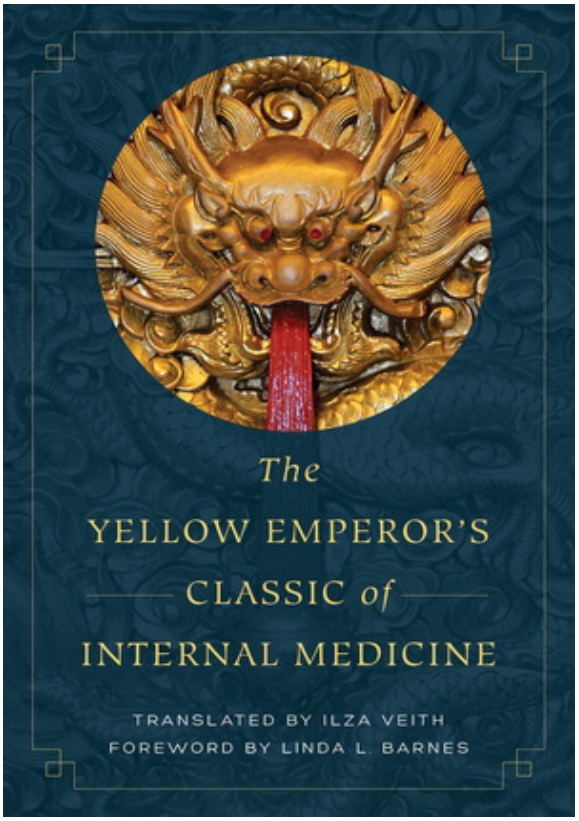
The heart was thought capable of recording all the good and evil acts performed by a human being during life"[3]. Laura M. Zucconi affirms that for ancient Egyptians, "The soul of a person was seated in the heart and during the Judgement of the Dead one's heart was weighed against the Feather of Maat"[4].

The ancient Egyptians faith denotes that the soul of a person was seated in the heart and during the Judgment of the dead one's heart was weighed against the Feather of Maat.

In ancient Egyptian texts there are two words that are used for the heart, IB and HATY. Teodor Lekov explains that the usage of IB "implies nuances of 'internal', 'hidden', 'invisible', 'inner self." The usage of HATY, on the other hand, "means literally something like '(that) which is in front', in sense of 'outer', 'visible'"[5]. Lekov agrees with the proposal that "in most of the cases the heart-IB is identified with the consciousness, with the organ of thoughts and senses, while the heart-HATY more often designates the physical heart, the anatomical organ"[6]. At this point, it may appear that similar to our contemporary view of the heart; ancient Egyptians used "heart" in two ways, metaphorically and literally. When the heart-IB is used, it is a metaphor, and when the heart-HATY is used, it denotes the literal heart. However, Lekov, reveals in his article that "in many cases the two words are used as synonyms, and one can replace the other in variants of given text" [7]. Moreover, he states, "when the heart-IB is not present, the heart-HATY is lacking too,"[8] implying that there is a real,

non-metaphorical, interdependence between the two modes of the heart. In addition, Lekov offers examples to show that in ancient Egyptian texts the heart-HATY, which is commonly assumed the anatomical physical organ, can and at times does leave the body, and when this occurs, "the whole complex of human perception is interrupted" [9]. The presence of the heart-HATY is necessary for the organs of perception to function because, "The heart is the center who commands the process of perception, and controls every limb in the body" [10].

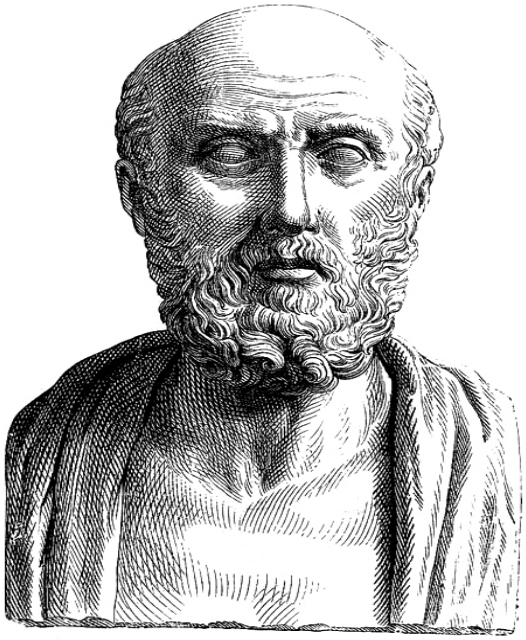
The traditional Chinese medicine (TCM) is a style of traditional medicine based on more than 2,500 years of Chinese medical practice that includes various forms of herbal medicine, acupuncture, massage (tui na), exercise (qigong), and dietary therapy. According to the bible of traditional Chinese medicine, the Huangdi Nei Jing, or the Yellow Emperor's Classic of Medicine, which is an ancient treatise on health and disease said to have been written by the famous Chinese emperor Huangdi around 2600 BC, the Heart is responsible for housing Spirit. Because TCM is a by-product of a spiritual journey by ancient masters, much of the language in this classical text is related to spiritual purpose. These ancient masters lived in a very different cultural context—free from the unique pressures, problems and distractions of life in the twenty-first century. However, it explains the Heart's role very well. It says simply the king's responsibility is to follow Natural Law. Its ultimate function is to be happy.



The Yellow Emperor's Classic of Medicine
Heart is responsible for housing Spirit

Ayurveda, the traditional Indian medicine (TIM) and traditional Chinese medicine (TCM) as a model of the most ancient yet living traditions as well as tibtian medicine are all sharing the common philosophy and believe of the heart being the centre of energy and the master of the process of body mind alignment.

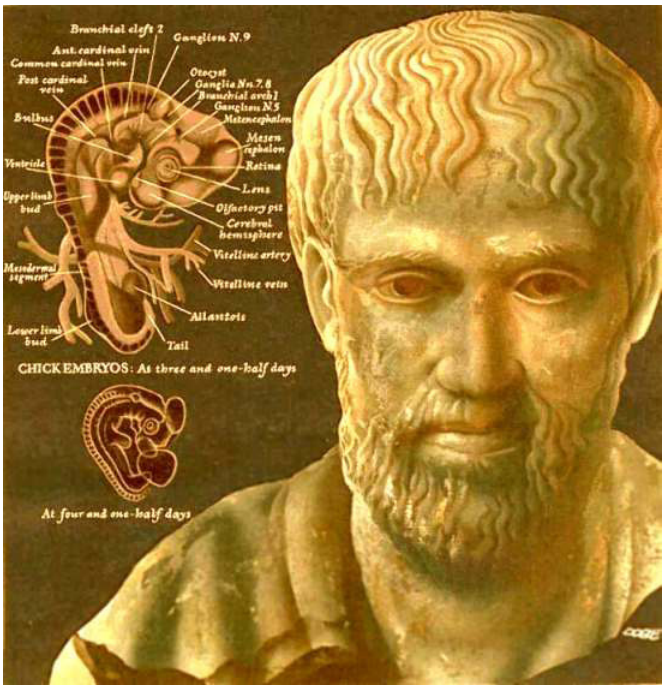
Hippocrates (c. 460 – c. 370 BC) was a Greek physician of the Age of Pericles (Classical Greece), who is considered one of the most outstanding figures in the history of medicine. Hippocrates was the first to introduce the concept of 'physis' and to transform hieratic or theocratic medicine into rational medicine. The overall construction of the Asclepieion on Kos clearly indicates that he and his school followed a holistic concept, combining scientific thought with drug therapy, diet schedules, and physical and mental exercise, also asking for God's help [11]. He is often referred to as the "Father of Medicine". He was the first known practitioner to adopt a rational method in diagnosis and therapy, which subsequently developed into the scientific method of today. It has been said that Hippocrates did for medicine what Socrates and Plato did for philosophy. According to Katz and Katz [12], the location of the intellect was an important question being debated at the time of Hippocrates. In the treatise "The Heart" (vide infra), it was said, "For man's intelligence, the principle which rules over the rest of the soul, is situated in the left ventricle." From his book Wounds in the Head XIX (Withington, 1927) [13], and similar references in The Sacred Disease, it is unlikely that Hippocrates considered consciousness to have resided in the heart [14,15].



Hippocrates, father of medicine (c. 460 – c. 370 BC)
[Intelligence is situated in the left ventricle]

In the fourth century B. C., the Greek philosopher Aristotle (384-322 BC). He was great biologist of his era. He opened fertilized

chicken eggs at various times and observed so the temporal development of the chicken and his organs.



Aristotle (384-322 BC) use chick embryo to explore developmental biology

[The heart is the seat of intelligence, motion, and sensation a hot, dry organ]

Artstole exploited wars and politics for scientific developments. The expedition of Alexander the Great into Asia helped Aristotle to extend his knowledge not only of the animal tribes, but also of their structure. He performed some dissection experiments that was allowed only with animals.

Aristotle studying animals

He identified the heart as the most important organ of the body, the first to form according to his observations of chick embryos. It was the seat of intelligence, motion, and sensation a hot, dry organ. In his treatise On the Usefulness of the Parts of the Body, written in the second century A. D., Galen1 (129 AD – 210 AD), reaffirmed common ideas about the heart as the source of the body's innate heat and as the organ most closely related to the soul.

Galen1 (129 AD – 210 AD)
The heart the organ most closely related to the soul

Ibn Sina known in the west as Avicenna (c. 980 – June 1037) was a Muslim scientist who is regarded as one of the most significant physicians, astronomers, thinkers and writers of the Islamic Golden Age and in scientific history as a whole [11]. He has been described as the father of modern medicine His most famous works are The Book of Healing, a philosophical and scientific encyclopedia, and The Canon of Medicine, a medical encyclopedia [12-14], which became a standard medical text at many medieval universities [15] for more than sex hundred years and remained in use as late as 1650 [16].

He pulled together his own experiences and compiled the teachings of his predecessors, Aristotle, Hippocrates, and Galen, in order to write his Canon. The eleventh section of the third book principally deals with various kinds of heart diseases, their effects, and treatment [17,18], in his Canon of Medicine integrated Aristotle's ideas within his largely Galenic physiology when he wrote: The heart is the root of all faculties and gives the faculties of nutrition, life, apprehension, and movement to several other members." He believed that heart produced breath, the "vital power or innate heat" within the body; it was an intelligent organ that controlled and directed all others. He was great posologist. He identified the pulse as "a movement in the heart and arteries which takes the form of alternate expansion and contraction, whereby the breath becomes subjected to the influence of the air inspired."

Ibn Sina (Avicenna), father of modern medicine (c. 980 – June 1037)
[The heart is the root of all facultie. it was an intelligent organ that controlled and directed all others]

William Harvey (1 April 1578 – 3 June 1657) was an English physician who was described as significant contributor in anatomy and physiology and mainly in discovery of circulation. Meticulous investigation of his work necessitate two major commentaries that were discussed in King of Organs conferences (The International Congress for Advanced Cardiac Sciences: 2006-2008-2010-2012 and 2019). First, William Harvey contribution specifically on pulmonary circulation was precedent by Ibn Alnafees (1213-1288) by three hundred years. This fact was known after the rediscovery of Ibn Nafis' manuscript no. 62243- by an Egyptian physician, Dr M. Altatawi - titled Sharah al Tashreeh al Qanoon, or "Commentary on the anatomy of Canon of Avicenna" in 1924 AD in Europe, it became clear that Ibn Nafis had described the pulmonary circulation almost 300 years before Harvey, and the historians like Aldo Mieli, Max Mayrhoff, Edward Coppola etc. clearly state that Ibn Nafis is the real discoverer of the pulmonary circulation and that he should be given the credit for the discovery of the pulmonary circulation, not William Harvey [19].

Second, Harvey views to human heart as merely physical pump has been challenged during his life by Rene Descart (March 1596-February 1650). Despite his mechanistic tendencies, Descartes (who was not a physician) rejected Harvey's notion that the heart was simply a pump that propelled blood through the body. In part, this reflected Descartes 'belief that all muscles were controlled by the will'. Although Descartes acknowledged that some muscular actions, such as scratching, could result from a reflex action, he rejected the notion of involuntary muscular contraction. In 1648, two years before his death, he was working on a book on the human body that he never finished. Parts of the manuscript, entitled La description du Corps Humain, were published posthumously in 1664. A recent translation of a passage from this text demonstrates Descartes' conviction that the mind and the body were critically linked: "If we suppose that the heart beats the way Harvey describes it, we would have to imagine some faculty causes this motion, and the nature of this faculty would be much more difficult to understand than what it claims to explain" [20,21].

He agreed with Harvey that blood returned to the heart through a system of veins, but it was the heated blood that animated the system rather than the heart itself [18].

René Descartes (March 31, 1596–February 11, 1650.)

At all times the basic interpretation of the nature of the human heart was perceived with religious and philosophical spirit. This holistic perspective was cumulative in all holy books until it reaches a peak with the descend of the holy Quran. The human heart occupies holy and honorable position in the holy Quran. It was mentioned as a heart in singular and pleural form 132 times. The real astonishment which contrast very well with William Harvey and supporters was the total absence of the meaning of propelling of blood function, which is the dominant believe created in the twenty century. In contrast the heart was referred in articulated Arabic language as a mind and origin of intention and human decision making functions. Our interpretation for this massive discrepancy is the fact that we, humans, as the top creatures has been distinguished by the mind while the heart pumping function - although being very important for life- is common between us and animals.

If religion is pure as it is in the holy books, it should carry the ultimate wisdom. Religion and science must be compatible and complementary but not competitive nor contradicting each other. The heart and its anonyms in the holy Quran is a true scientific treasure that need to be explored utilizing the state of art technological advances now a days. The Islamic era scientists and philosophers explored the new knowledge of the heart and its different anonyms and functions in a way that is creating virgin field for scientific explorations.

In this context, we will confined our discussion to two philosophers who were guided by The Holy Quran in their discussions of the heart: Abu Abdullah Mohammad Ibn Ali Alhakeem Altrmothy

(referred later as Altrmothy) who died in 942 AD, and The great philosopher Alemam Abu Hammed Algazaly (referred later as Algazaly [1058-1111AD]). Altrmothy wrote delicate treatise where he navigated in the detailed descriptions of the heart, the chest, the heart of the heart (alfuad), and the nucleus (al-lob refers to the mind). He explored extensively in the human emotions associated with each term of the four terms under his investigation.

Algazaly wrote his well-known diamond: The Wonders of the Heart as part of his encyclopedic book: Ehya Aloom Aldeen. He explored in the difficult fields that were dealt with marginally by his ancestors: Spirit, Soul, Mind and Heart. He navigated deeply to document that the heart is the reference and the central issue of the soul, spirit and mind. The way he described the heart is truly miraculous. In our state of art and cutting edge international conferences that we held in 2006, 2008, 2010, 2012 and 2019 (King of Organs International Congresses For Advanced Cardiac Sciences) we feel that we are just touching the great scientific heritage denoted by Algazaly in his treatise: Wonders of the Heart. He is the first scholar in human history who detailed about the flush of the muscular heart and the higher functioning Spiritual Heart. Before discovery of waves and energetic fields he refers to those meanings in his miraculous description of the human heart and its higher functions as: ***The nice spiritual goddess with physical heart attached and that gentle is the reality of human being and the conscious of the world a round and the know legible piece of the human and the addressee, punished, appellant and demanded that has relationship to the physical heart.***

We believe this definition is the most accurate and comprehensive description of the human heart and its higher cognitive functions describing its cellular memories and responsibilities for the later day and illustrating its role in human consciousness and upper cosmic connections.

Alemam Abu Hammed Algazaly [1058-1111AD]

In the current era there is great and historical move to link back to the ancient wisdom of heart views but with the flavor of scientific evidence utilizing the technical advances, discoveries and observations.

Scattered scientific groups and individuals started to explore the new discipline of neurocardiology [22-29], heart energetic fields and other related disciplines. But the most important scientific breakthroughs in this direction were related to Heart Rate Variability (HRV) and its different frequencies and the heart capabilities to communicate with the biology around the planet and the far away galaxies [30-33]. Rev. Stephen Hales (1733) was the first to note that pulse varied with respiration and in 1847 Carl Ludwig was the first to record Respiratory Sinus Arrhythemia. With the measurement of the ECG (invented in 1895) and with the emergence of modern signal processing in the 1960s and 1970s, the relationship between HRV and human body in health and disease became more cospicious. The irregular behavior of the heartbeat is readily apparent when HR is examined on a beat-to-beat basis, but is overlooked when a mean value over time is calculated. These fluctuations in HR result from complex, nonlinear interactions among a number of different physiological systems. HRV is thus considered a measure of neurocardiac function that reflects heart–brain interactions and autonomic nervous system (ANS) dynamics [34,35].

The perspective to the human heart as emotional organ is a breakthrough that was not possible without HRV science. The ability to perform quick heart focused breathing to initiate cardiac coherence state is remarkable discovery in the field, after which large number of research and publications start to infiltrate the main medical arena. Coherent heart rhythm can be defined as a relatively harmonic (sine-wave-like) signal with a very narrow, high-amplitude peak in the LF region of the HRV power spectrum and no major peaks in the VLF or HF regions (Figure 1).

The term psychophysiological coherence is a distinctive mode of function driven by sustained, modulated positive emotions. At the psychological level, the term "coherence" is used to denote the high degree of order, harmony, and stability in mental and emotional processes that is experienced during this mode. Physiologically speaking, "coherence" is used here as a general term that encompasses entrainment, resonance, and synchronization—distinct but related phenomena, all of which emerge from the harmonious activity and interactions of the body's subsystems. The complexity of heart functioning in physiological as well as psychological and emotional aspects was disclosed clearly with the advances to understand the complex regulation of HRV. An optimal level of HRV within an organism reflects healthy psychophysiological function and an inherent self-regulatory capacity, adaptability, or resilience [35-41].

The importance of HRV as an index of the functional status of physiological control systems was noted as far back as 1965 when it was found that fetal distress is preceded by reductions in HRV before any changes occur in HR itself [42]. In the 1970s, reduced HRV was shown to predict autonomic neuropathy in diabetic

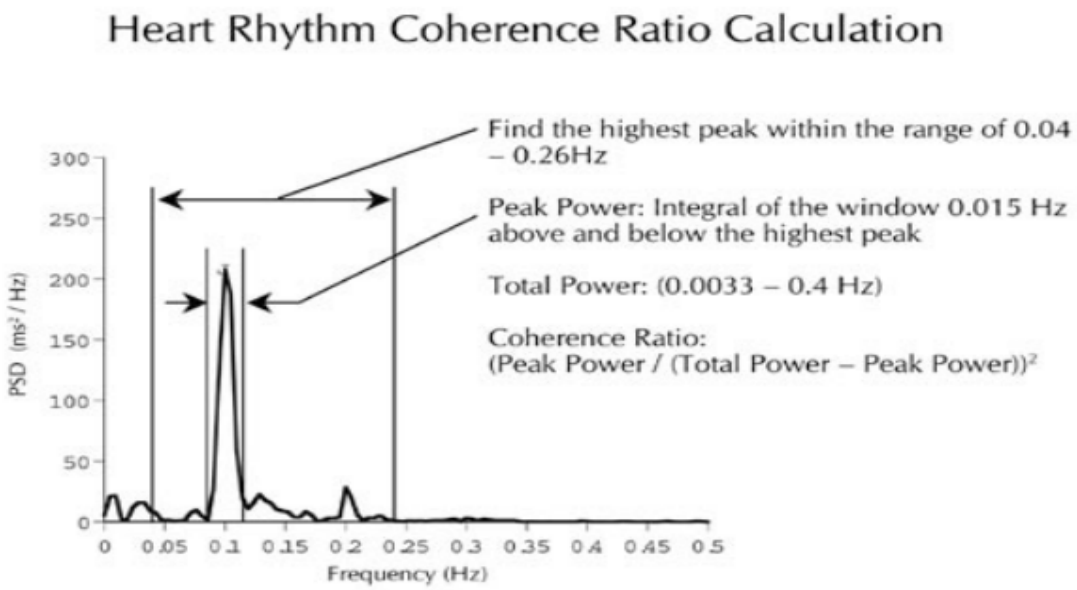


Figure 1: Heart rhythm coherence ratio calculation: high-amplitude peak in the LF region of the HRV power spectrum and no major peaks in the VLF or HF regions. (Rollin McCraty, et al. The Coherent Heart, Heart–Brain Interactions, Institute of HeartMath).

patients before the onset of symptoms [43-45]. Reduced HRV was also found to be a greater risk factor of death post–myocardial infarction than other known risk factors [46]. It has clearly been shown that HRV declines with age and age-adjusted values should be used in the context of risk prediction [47].

A number of studies have shown that reduced HRV is associated with measures of inflammation in subjects with no apparent heart disease [48].

In the last fife decades the science of HRV gained exponential developments.Many thanks to Richard Gevirtz, Rollin McCraty, Karl Pribram, Joe Kamiya, Don Singer (who coined the term HRV), David Joffee, Fredric Shaffer, Robert Nolan,Paul Lehrer and others who contributed to our new HRV understanding and endorsed to us the keys to navigate in opening its remaining closed doors.

Land mark of the scientific advances in the field started in the early 1990,s with the establishment of the HeartMath Institute (HMI) by Doc Childre as a director and Rollin McCraty as chief scientist and their successful group in Boulder Creek, California. Much of the scientific understanding of the heart central role in human psychophysiology would not be reality without HMI contributions to the scientific communities. HMI research suggests the heart is an access point to a source of wisdom and intelligence that we can call upon to live our lives with more balance, greater creativity and enhanced intuitive capacities. All of these are important for increasing personal effectiveness, improving health and relationships and achieving greater fulfillment. For more than 30 years, the HeartMath Institute Research Center has explored the physiological mechanisms by which the heart and brain communicate and how the activity of the heart influences our perceptions, emotions, intuition and health.

King of Organs (KOO) International Conferences for Advanced Sciences established by Abdullah Alabdulgader in Hofuf, Saudi Arabia is the first scientific congress of its type exploring the non-pumping functions of the human heart, heart intelligence, and the spiritual heart. This new scientific direction is a real call for scientific revolution [49]. Five International conferences were hold in 2006,2008,2010,2012 and 2019.The KOO conferences were hold with academic and research partnership with HMI since 2007. Thanks to King of Organs heroes: Rollin McCraty, Paul Rosch, Franz Hlberg (founder of chronobiology science in modern medicine), Elchin Khalilov, Zglool Alnajar, James Lynch, Zuhair Alhalees, Cornelissen Germaine Irving H. Zucker, Jmes S. Gordon, Jeffrey L Ardel, Neha Sangwan, Jack Ginsberg, Peter Ganger, Alfonsas Vainoras, Minvidas Ragulskis. Helane Wehhbeh, Carlo Ventura and others, In 2012 KOO was awarded the Gold Medal for scientific advances being able to open new field of heart sciences especially related to the intimate relationship between human heart, solar eruptions and cosmic rays. This was a reality after the successful cooperation with HMI and its great project called the Global Coherence Initiative (GCI). The (GCI) is a science-based, international effort that seeks to help activate the heart of humanity and promote peace, harmony and a shift in global consciousness. GCI is working in concert with other initiatives to help realize the increased power of collective intention and increase consciousness using a scientific approach that conducts groundbreaking research on the interconnections between humanity and Earth's magnetic field environment. The first station was in HMI and the second being in the counterpart hemisphere of the planet under the care of King of Organs Foundation in Hofuf, Saudi Arabia.

The foundation of the Saudi Global Coherence Monitoring System in 2010 (Rollin McCraty and Abdullah Alabdulgader)

The personal relation of Abdullah Alabdulgader with his Heart Brother, Rollin McCraty was reflected to the scientific arena. They were able to perform the longest record in human history of the activity of human heart synchronized with solar activity and cosmic rays. This record extended for 24686 hours, long exceeded the one-week similar record done by our spirit father and great teacher the later Franz Halberg, the founder of chronobiology in modern science. This scientific milestone was published in nature scientific reports [50].

In this longest synchronization study in human history, we examined the relationships between solar and magnetic factors and the time course and lags of autonomic nervous system (ANS) responses to changes in solar and geomagnetic activity. HRV measures were correlated with solar and geomagnetic variables using multivariate linear regression analysis with Bonferroni corrections for multiple comparisons after removing circadian influences from both datasets. Overall, the study confirms that daily ANS activity responds to changes in geomagnetic and solar activity during periods of normal undisturbed activity and it is initiated at different times after the changes in the various environmental factors and persist over varying time periods. Increase in solar wind intensity was correlated with increases in heart rate, which we interpret as a biological stress response. Increase in cosmic rays, solar radio flux, and Schumann resonance power was all associated with increased HRV and parasympathetic activity. The findings support the hypothesis that energetic environmental phenomena affect psychophysical processes that can affect people in different ways depending on their sensitivity, health status and capacity for self-regulation [50].

In another paper, we published the results of a study on the effect of the Heart Lock-In meditation technique on the synchronization between heart rate variability and local magnetic field activity [51]. A technique based on the near-optimal chaotic attractor embedding was applied in order to evaluate the geometrical synchronization between analysed time series. The results demonstrate that optimizing HRV to reach cardiac coherence using Heart Lock-In technique had a strong influence on the relationship between cardiac and geomagnetic activity.

In another work, we documented that coupling between geomagnetic activity and the human nervous system's function was identified by virtue of continuous monitoring of heart rate variability (HRV) and the time-varying geomagnetic field [52]. A time series correlation analysis identified a response of the group's autonomic nervous systems to various dynamic changes in the solar, cosmic ray, and ambient magnetic field. There were significant correlations between the group's HRV and solar wind speed, Kp, Ap, solar radio flux, cosmic ray counts, Schumann resonance power, and the total variations in the magnetic field. In addition, the time series data were time synchronized and normalized, after which all circadian rhythms were removed. It was found that the participants' HRV rhythms synchronized across the 31-day period at a period of approximately 2.5 days, even though all participants were in separate locations. Overall, this suggests that daily autonomic nervous system activity not only responds to changes in solar and geomagnetic activity, but is synchronized with the time-varying magnetic fields associated with geomagnetic field-line resonances and Schumann resonances [52].

At the conclusion of the Fifth International Congress for Advanced Cardiac Sciences in 28 March 2019, where the cutting edge research in heart intelligence as well as biological and cosmic connections were discussed and the global coherence application was launched.

Those publications [50-52] are the strongest scientific evidence in human history to document that the connections of the human heart to the planet and the universe can be optimized when we are in peace with ourselves and environment as described by the coherent state.

Physiological correlates of the coherence mode include: increased synchronization between the two branches of the ANS, a shift in autonomic balance toward increased parasympathetic activity, increased heart–brain synchronization, increased vascular resonance, and entrainment between diverse physiological oscillatory systems [53].

Positive emotions will gave distinctive HRV pattern compared to negative emotions. Positive emotions have been found to broaden the scope of perception, cognition, and behaviour [54-56] thus enhancing faculties such as creativity [57] and intuition [58].

Afferent input from the heart, and, in particular, the pattern of the heart's rhythm plays a key role in emotional experience. It is important to emphasize, however, that the heart's rhythmic beating patterns not only reflect the individual's emotional state, but they also play a direct role in determining emotional experience. At the physiological level, afferent input from the heart is conveyed to a number of subcortical regions of the brain that are involved in emotional processing, including the thalamus, hypothalamus, and amygdala. Moreover, cardiac afferent input has a significant influence on the activity of these brain centers [59-64]. For example, activity in the amygdala has been found to be synchronized to the cardiac cycle. These understandings support the proposition that afferent information from the heart is directly involved in emotional processing and emotional experience. As amatter of fact, Emotions and psychophysiological patterns are reflected in heart rhythm patterns and frequencies (Figure 2).

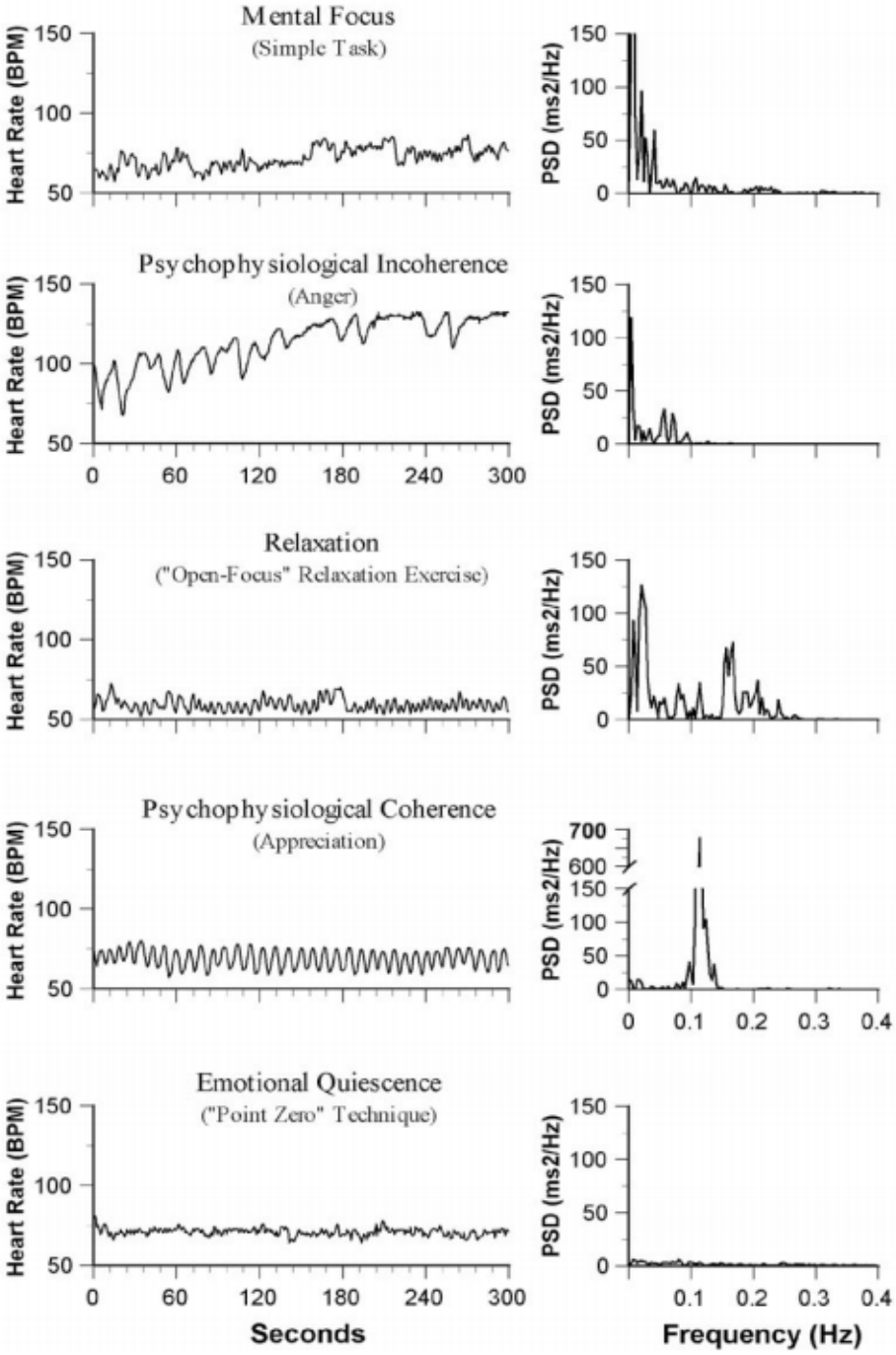


Figure 2: Emotions and psychophysiological patterns are reflected in heart rhythm patterns and frequencies [53].

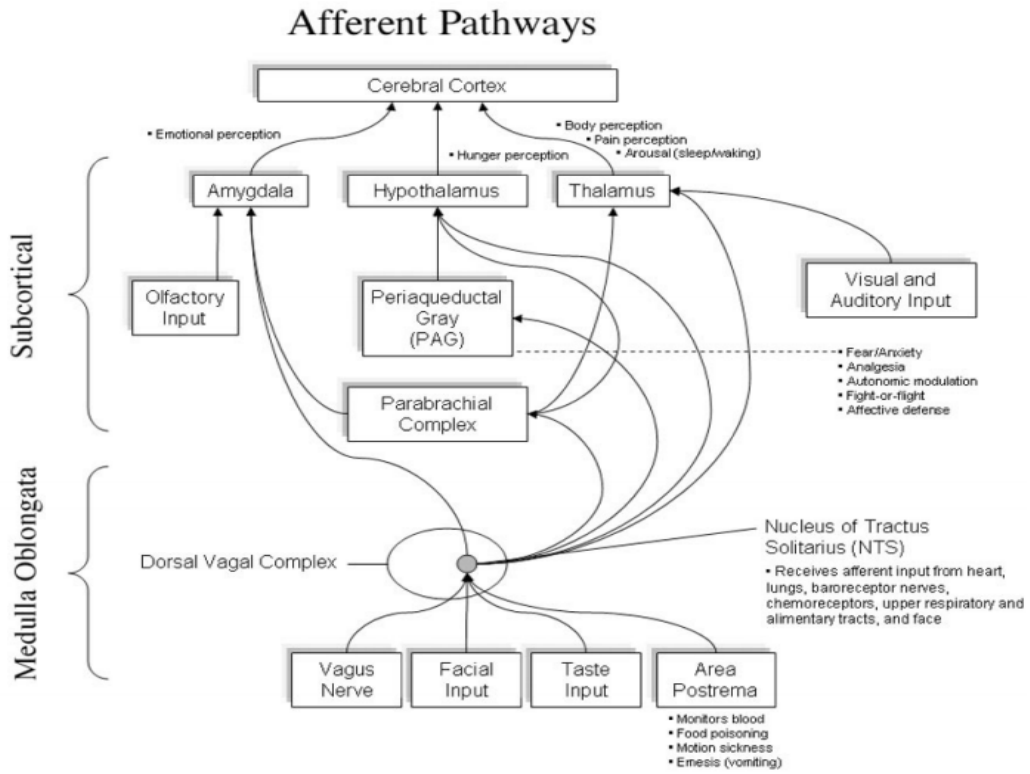


Figure 3: Afferent pathways. Diagram of the currently known afferent pathways by which information from the heart and cardiovascular system modulates brain activity. Note the direct connections from the NTS to the amygdala, hypothalamus, and thalamus. Although not shown, there is also evidence emerging of a pathway from the dorsal vagal complex that travels directly to the frontal cortex [53].

Input from the heart not only affects the homeostatic regulatory centers in the brain, but also influences the activity of higher brain centers involved in perceptual, cognitive, and emotional processing, thus in turn affecting many and diverse aspects of our experience, behavior and consciousness experience (Figure 3).

Centrality of the Heart in the Psychophysiological Network is now evident. There is substantial evidence that the heart plays a unique role in synchronizing the activity in multiple systems of the body and across different levels of organization, and thus in orchestrating the flow of information throughout the psychophysiological network. As the most powerful and consistent generator of rhythmic information patterns in the body, and possessing a far more extensive communication system with the brain than other organs, the heart is in continuous connection with the brain and other bodily organs and systems through multiple pathways: neurologically (through the transmission of neural impulses), biochemically (through hormones and neurotransmitters), biophysically (through pressure and sound waves), and energetically (through electromagnetic field interactions). Of all the organs, the heart generates the largest rhythmic electromagnetic field, one that is approximately 5000 times stronger than that produced by the brain. This field is measured in the nanotesla ranges and can be detected several feet from the body with Superconducting Quantum Interference Device (SQUID) based magnetometers. Rollin McCraty and colleagues in HeartMath Institute have found that the rhythmic patterns in beat-to-beat heart rate variability reflect emotional states and thus encode and transmit biologically relevant information patterns via the electromagnetic field radiated into the environment.

The heart generates a series of electromagnetic pulses in which the time interval between each beat varies in a complex manner. These pulsing waves of electromagnetic energy give rise to interference patterns when they interact with magnetically polarizable tissues and substances [65]. There is evidence to suggest an energetic field connection is formed among individuals in groups through which communication among all the group members can occur simultaneously. In other words, there may well be a "group field" that connects all the members [66]. Sociologist Raymond Bradley, in collaboration with neuroscientist Karl Pribram, developed a theory of social communication to explain the patterns of social organization common to most groups, independent of size, culture, degree of formal organization, length of existence or member characteristics [67].

A recent evidence published in nature neuroscience emphasizing the heart precedence in perception and guidance of the brain, Hyeong-Dong Park et al., showed that in humans, neural events locked to heartbeats before stimulus onset predict the detection of a faint visual grating in the posterior right inferior parietal lobule and the ventral anterior cingulate cortex, two regions that have multiple functional correlates and that belong to the same resting-state network (Figure 4) [68].

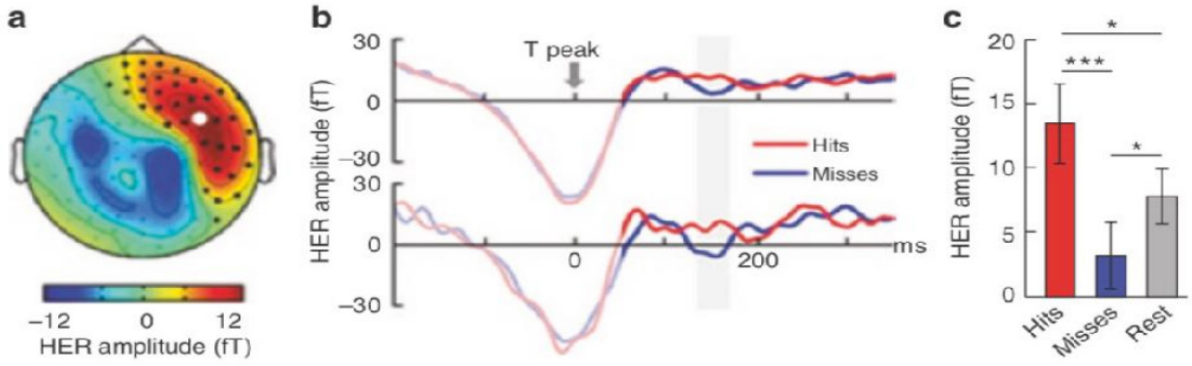


Figure 4: Neural events locked to heartbeats before stimulus onset predict the detection of a faint visual grating in the posterior right inferior parietal lobule and the ventral anterior cingulate cortex [69].

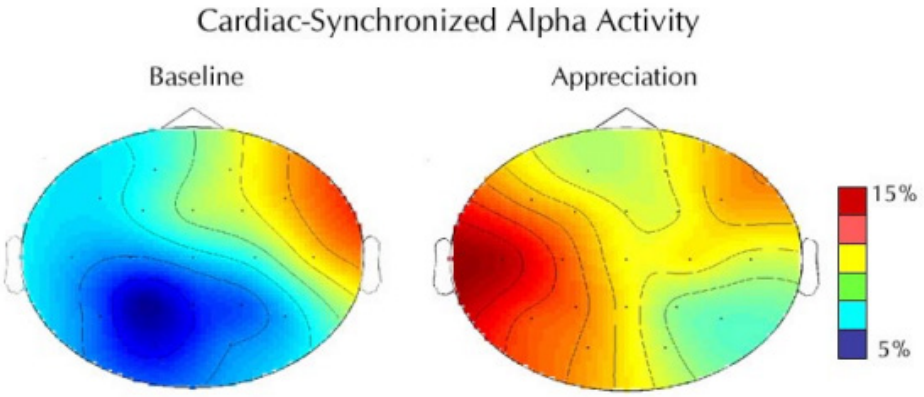


Figure 5: Alpha activity synchronized to the cardiac cycle. Group mean topographical maps for 30 subjects, showing the percentage of alpha activity in different regions of the brain that is synchronized to the heartbeat during a resting baseline as compared to during actively feeling appreciation (psychophysiological coherence mode).

Another important consideration, in relation to heart–brain interactions, is that Afferent Input to brain centers other than the Thalamus are evident. There are other neural pathways by which the heart has input can modulate cortical activity and thus performance. Alpha rhythm was found to be synchronized to the cardiac cycle and it increases during psychophysiological coherence and those other brain rhythms—namely, the beta rhythm and lower frequency brain activity—also appear to be synchronized to the cardiac cycle (Figure 5).

Reviewing this spectacular perception and understanding of the human heart from the dawn of humanity until the twentieth century is truly marvelous. As a matter of fact the humanity passed a period of linger and loiter or even retardation in the twentieth century to conceptualize the functions of the heart as merely a pump.

Our conventional view of the heart as merely a pump was shaped by William Harvey mechanistic views and others. Certainly Harvey was not alone to shape this deficient mechanistic view of the human heart as merely a pump but his name was probably bound to the pump function of the human heart more than any other name before him or afterward.

In 2019, our King of Organs conferences represent the top notch of the world cardiac sciences, we just start to touch understand what our great ancestors were perceiving the heart as truly the seat of emotion and perception and the intelligence.

This new understanding of the detailed mechanistic interactions between the heart and other organs especially the brain has been transformed to clinical practice and therapeutic models especially in the cardiovascular diseases and psychology practices [69-72].

This level of holistic perception of human heart in the realm of our current life introduced us smoothly to revolutionary paradigm of novel understanding of one of the most elusive issues in life, that is human consciousness. Our published experimental work in the field represent novel understanding of the universal symphony composed of human ANS represented by HRV on one hand and Shumann Resonances, Solar Wind Indices and Cosmic Rays on the other hand [50]. Neuroanatomical aspects of consciousness, the delicate and powerful contribution of cardiac afferent input to brain consciousness related cortical and subcortical structures and pathways and heartbeat evoked potentials (HEP) considered in the universal context are all ground breaking scientific discoveries in

the field [73]. The author new definition of consciousness is based on the presence of beating heart.Recently we defined consciousness as a state of alertness and being aware, active and vigilant of the self and surroundings with volition, based in memory and personal identity.This state is ineffable and intrinsic and express itself in presence of soul through activation of different sensing and perceptive body organs but may pass through lighter densities and variable dimensions in quantum nature, if heart stop beating and soul leaves the body [73]. This holistic comprehensive definition is based on our theory which perceive human heart as the center of human consciousness experience that orchestrate with the planetary and cosmic energetic fields: Alabdulgader Theory of Consciousnesss, The Heart Based Resonant Fields [HBRF] [74].
This new comprehensive understanding of human consciousness should bring many scientific disciplines closer to illustrate the necessity of the intelligent blend of science branches to solve historical human issues in medicine, science, philosophy, and religion through the gate of human heart.

This ancient wisdom and believe of the human heart as a mind, source of intelligence and consciousness experience and souvenir of soul, which was thought as the myth of ancient ages is truly intersecting to the state of art cutting edge cardiac sciences of our current era. This wisdom is complementing with the explosive technical advances of other sciences in quantum physics, astrobiology, computer science, vibroengineering and others in historical declaration that our honorable ancestors who started the wisdom have their honorable successors proving the heart genuine but in our own epochal scientific language.

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