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Editor's Note

Welcome to the inaugural public issue of *The Journal of BioAcoustic Biology* (JBAB) sponsored by the Sound Health Research Institute, Inc., a duly recognized exempt organization (SHRI). This Journal has been established in response to the calls for a peer-reviewed venue for the publication of articles and practice notes on the subject of Human BioAcoustic Vocal Profiling and Sound Presentation.

The SHRI trustees responded by adopting, as part of the Credentials System sponsored by the Institute, authorization for the establishment of this Journal. According to the enabling Resolution, "The Journal publishes in the area of HBA as established by the research initiated by Sharry Edwards…" articles and practice notes subject to the oversight of the Peer Review Subcommittee. The Peer Review Standards can be found on the SHRI web site.

Our premier public issue features a seminal article on the Definitive Theory of Human BioAcoustics, prepared by Ms. Edwards with the Journal staff. This issue represents the first public issue of a Journal that has been privately published since 1995.

The Research Reports published in the Journal have had any specific Frequencies referenced redacted (and usually replaced with the musical note in which the Frequency occurs). The Reports are intended to provide brief introductions to ongoing research.

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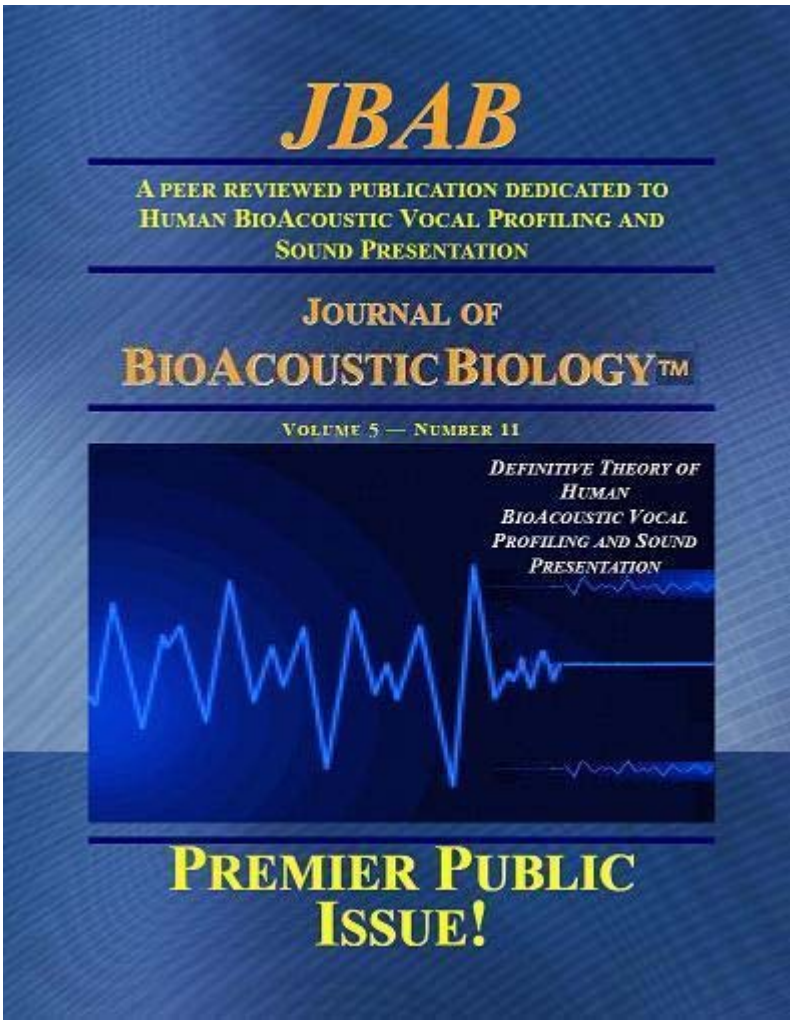


Abstract

Definitive Theory of Human BioAcoustic Vocal Profiling & Sound Presentation

Human BioAcoustic Vocal Profiling has begun to model the frequencies and architecture of human vocalizations to identify the innate mathematical templates of the human body. Using the idea that the voice is a holographic representation of health and wellness, these non-invasive techniques are being advanced to the extent that a computerized Vocal Profile, using a system of Frequency Equivalents™ can be used to accurately quantify, organize, interpret, define and extrapolate biometric information from the human voice. This information, in turn, provides the opportunity to predict, direct and maintain intrinsic form and function of the body.

Human BioAcoustic Vocal Profiling & Sound Presentation, at present, is an emerging research modality that has the potential to provide pre-diagnostic assessment using a predictable Mathematical Matrix of frequency-based protocols.

The practice of Human BioAcoustic Vocal Profiling requires two distinct processes if maximum results are to be achieved. First, it is essential to determine the individualized vocal patterns for each person, prior to any low frequency sound being provided. Second but just as important, are the sound formula protocols of Sound Presentation that must be specifically constructed and presented to each individual. Both steps must be comprehensively performed to ensure that each person is being provided the most accurate and comprehensive approach available.

Vocal Profiling offers interpretative information that stands independently as a valuable assessment tool. Sound Presentation provides the management phase through brain wave entrainment using low-frequency, ambient sound.

The emerging “Mathematical Model” being assembled from Human BioAcoustic research data has the potential to allow Vocal Profiling to be used to predict health issues; from the very first cries of a newborn through the frequency foundations of disease and aging. We are energy based biological units that can be defined and monitored through math-based biofrequency biomarkers.

This novel approach has provided an accumulation of significant data that, until recently, had been without an efficient biological framework of reference. The lack of a scientifically-based foundational theory of Human BioAcoustic Vocal Profiling has prevented the field from moving forward as quickly as one might expect. Although the research results are impressive, historians will likely look at what has been accomplished to date as rudimentary. This thesis strives to set forth the, previously lacking, theoretical basis of the protoscience of Human BioAcoustic Vocal Profiling.

Author: Sharry Edwards, MEd

Definitive Theory of Human BioAcoustic Vocal Profiling & Sound Presentation

Sharry Edwards, MEd.

BioAcoustic Basics

Vocal Profiling identifies the stressed frequencies of the voice, Sonostats™, which in turn can be used as a tool to identify and interpret the dynamic, complicated frequency interactions within the body. The technique has provided insight into the possibility that the frequencies contained in the vocal patterns present a holographic representation of the human body.

Vocal Profiling sound assessment can most aptly be described as a combination of music therapy, fractal mathematics and biofeedback. It is related to music inasmuch as specific combinations of sounds are used; but not necessarily sounds that would be considered musical by even the most lenient critic. Biofeedback comes into play when specifically constructed numeric protocols of low-frequency sounds are presented to elicit specific biological and emotional responses.

Some of the successful applications include: 1) monitoring of nutrients and food requirements from an internal perspective to support optimal cellular health 2) evaluation of weak and strong muscles to optimize physical strength and stamina 3) pre-screening for indications of disease, stress and trauma and 4) determination of bioterrorist substances and toxins in their genomic state before they become pathogenic and 5) the establishment of new paradigms of health based on a Mathematical Model of BioAcoustic Biology. Vocal Profiling has the potential to determine the biometric frequencies designed to diagnose and provide dominion over Self Health and well-being.

Some similarities to light therapy are obvious since both utilize the concept of full-spectrum oscillation. Light as a healing modality seeks to use full-spectrum light, while Human BioAcoustic Vocal Profiling & Sound Presentation employs the idea of full-spectrum sound.

Sound therapy seeks to influence the systems within the body that produce, interpret and use frequency. It was probably performed intuitively, as a response to human interactions, even before the ability to make and interpret sound consciously was realized. Using computer analysis, the sounds of spontaneous moaning, groaning, yawning, screaming, sighing, laughing, and 'filler' sounds such as "mmm" and "ah" have been found to contain the stressed frequencies that are required to elicit improvement.

The principles of sound based therapies originate with the concept that the brain perceives and generates impulse patterns that can be measured as brain-wave frequencies which, in turn, are delivered to the body by way of nerve pathways. The theory incorporates the assumption that these frequency impulses serve as directives that sustain structural integrity and emotional equilibrium. When these patterns are disrupted, the body seeks to reveal the imbalance by manifesting symptoms that could be interpreted as symptoms of disease and stress. Inquiries by modern as well an ancient researchers have attempted to develop a screening procedure that would accurately delineate the frequency measurements of the body.

In the case of Human BioAcoustic Vocal Profiling the modality is based on the concept that vocal sounds are made possible by the oscillations of the vocal cords located in the larynx (voice box). The muscles of the larynx are innervated by braches of the laryngeal nerve, which is a branch of the vagus nerve. Through the entrainment of the vocal cords with the vagus nerve, a direct message pathway from the vocal cords and the brain seems apparent. The frequencies of the voice, therefore, can be seen as representations of the parasympathetic nervous system. Together the sympathetic and parasympathetic nerve branches monitor and manage body functions.

These models of thought from ingenious minds down through the ages, show that both science and philosophy have attempted to correlate the relationships between music and health, music and emotion, math and music and ultimately math and health. The Human BioAcoustic Mathematical Model is built upon this theoretical base.

The Self-Healing Body

The body has the ability to self-diagnose, self-prescribe and reorganize according to its own intrinsic information! If this were not a true statement, the body would neither repair nor regulate itself. The inherent healing of wounds and bones, recovery from a disease and the cycles of hormones, sleep and hunger would be totally implausible. Certainly the idea of generating an entirely new human life during gestation would not be possible without a self-instructed, reproductive directive functioning independently within the biological terrain of the body.

Continuous networks of biological signals, called biofrequencies, provide information and direction to produce and reproduce intrinsic form and function. Tapping into these self-healing biological pathways from brain to neuron to cell has long been a goal of scientific medical investigations as an approach to provide and promote optimal health.

These observations are obvious, but who, or what, has dominion over these processes? Why has medical science not been able to completely access and explain this internal alchemy? In our limited wisdom, should we have access to knowledge of such potent significance? The answer may not be obvious but it is inevitable. If such a unifying premise were to exist it would contain not only a diagnostic component but also a method of management and resolution!

If such an operative prescription for maintenance and renewal could be accessed, it would permit dominion over the innate processes of the body that are mandatory for rejuvenation; nutritional and structural requirements, appropriate detoxification systems and potentially, perpetual regeneration. If, in addition, that system could predict how the body would react based on genomic, environmental and internal stimuli, it would be an incredible advancement in the world of medicine. Human BioAcoustic Vocal Profiling & Sound Presentation is such a dual system.

BioAcoustic Sound Presentation

The autonomic nervous system, through billions of neural interactions, is responsible for the monitoring, maintenance and stasis of every minute detail of individual existence.

This regenerative process is not limited to sentient beings. Therefore this course of development is not necessarily a feature of intention, advanced cognitive planning or something that is under conscious control. For example, if sexual intercourse occurs within the appropriate time frame,

without preventative intervention, pregnancy will likely result without much forethought of the reproductive potential. The body, independently, knows how to handle this biological feature. All creatures large and small, brained and brainless reproduce in some way. If reproduction did not happen, that organism would cease to exist in one generation.

The actions and reactions of the autonomic nervous system are largely involuntary. So how does the body "know" how to act, how to regenerate, how to repair? What system is involved? Is it pure mechanics? Are we simply organic robots dancing to a mathematical tune?

Mankind, in his quest for qualitative and quantitative enlightenment, has divided the nervous system of the body into several layered branches beginning with the peripheral nervous system and the central nervous system. The peripheral nervous system is further divided into the sensory-somatic nervous system and the autonomic nervous system. The autonomic nervous system consists of sensory neurons and motor neurons that run between the central nervous system and various organs.

The autonomic nervous system is divided into the parasympathetic and sympathetic nervous systems. These two regulatory agents monitor and regulate the actions and reactions of the body.

When we anticipate eating a favorite dessert, the sympathetic system stimulates saliva in anticipation of receiving the fare. The body is so adaptive that it will recognize which variety of enzyme is required by the expected sweet even before we experience the first morsel.

The body responds to unusual stimuli through the sympathetic nervous system. Responses to loud, non-habituated sounds normally produce an excretion of adrenalin to prepare the body for an unfamiliar event. A person can learn to sleep near a loud railway and not be awakened by the noise but not all responses to sound are learned. A baby, even a baby animal, has an instinctual reflex to loud noises. Even if the noise is familiar, hearing it at an unexpected interval can cause a startle response.

As stated earlier, the parasympathetic nervous system is regulated through the vagus nerve that also regulates the motor impulses of the vocal cords. The vagus nerve, through the spinal cord, has a direct pathway to the brain. Through entrainment of the vocal cords and the vagus nerve, the sounds produced by the vocal cords can be perceived as a holographic representation of the regulating parasympathetic nervous system.

BioAcoustically Biological Entrainment

The Central Nervous System (CNS) is an interactive intranet that allows constant information from millions of body processes—which keep us functioning as an inclusive unity of atoms, cells, tissues, organs and systems—to collaborate. The majority of these activities unite via the brain through the twelve cranial nerves; in particular the vagus nerve plays a significant role in these processes.

Human BioAcoustic Vocal Profiling & Sound Presentation offers a glimpse into the mathematical modeling and understanding of that CNS process through entrainment of the vagus nerve and the vocal cords. Since the vagus nerve is a direct pathway to the brain, and the vocal cords lie within the structures of the vagus nerve bundle, the voice can be perceived as a direct frequency representation of the sympathetic and parasympathetic expressions of the body.

At present, BioAcoustic Sound Presentation is designed to allow the skin to accept the sounds being presented. Ongoing studies have shown that changing the timing of the frequency formulation protocols allows organs to be directly targeted for intervention. Using a vocal sample in comparison to the known principles of the body's Mathematical Matrix allows frequency intervention to support the fundamental conduct of self-healing.

Through BioAcoustics, the self-healing is often perceived as being so natural that people sometimes insist that it was just time for the body to get well on its own. An anecdotal video demonstration of the management of gout pain by manipulating the frequencies associated with gout shows the absolute dominion over gout pain using BioAcoustic Sound Presentation. The video shows an MD who was experiencing the pain, redness and swelling of gout, as the symptoms were provoked and then eliminated. This was repeated several times in the same session by the presentation and withdrawal of frequencies known to support the body in dealing with the symptoms of this very painful type of arthritis.

This influence of the body's ability to respond to low frequency sound has repeatedly been demonstrated. Case study videos showing the testing of muscle strength and weakness; the stimulation of vitamin B_{12} to increase strength and stamina; the control of adrenalin related behaviors in children; and the dominion over muscle related trauma and stress (multiple sclerosis for instance) provide ample proof that BioAcoustic brain wave entrainment can influence the structure and function of the body.

A BioAcoustic Frequency Equivalent (FE) can be defined as a frequency representation of a nutrient, muscle, biochemical, genome, pathogen, toxin, etc. Biofeedback is used to identify appropriate Frequency Equivalent combinations for the body. Using low frequency ambient sound, the client is asked to experience the sounds for specific amounts of time and to report their responses. Reassessment is essential to insure that the sounds are being used for the appropriate amount of time.

The presentation of Frequency Equivalents seems to be akin to ingesting a vitamin. It is not the vitamin that achieves the healing; it is what the body does with the vitamin that makes the difference.

The Voice as a Holographic Representation of the Body

The voice, as music, is a calculated mathematical arrangement of sounds. The voice as spoken language is a complex, yet often mathematically chaotic, conglomeration of sounds. Each word is made up of individual sound units called phonemes. Human BioAcoustics examines the chaos, the disharmony, of these phonemes. The foundational principle on which BioAcoustics has been established is the perception that the voice is an in-depth representation of the body. The frequencies, the coherence patterns and the architecture of the voice have been used to develop a computerized Mathematical Matrix that can provide a glimpse into the individual, mathematical patterns that make-up the body.

Steven Xue, Ph.D., a noted researcher in the arena of the voice and health, has shown a definitive relationship between the voice, health and aging. Xue has studied the role of vocal changes and health such as the role of apnea and snoring as it relates to vocal sound waves. In a recent interview with Perspectives Magazine, Xue reiterated the importance of understanding which vocal changes are normal and which may signal health problems.

Danielle Campbell-Angah, Editor of ADVANCE for Audiologists and Speech Pathologists, states that the quality of nutrients ingested has a significant impact on vocal health. Campbell explains, "On a cellular level the body depends on specific nutrients for the best performance of each individual cell. In this same way certain enzymes, co-enzymes, vitamins and minerals have an effect on the functioning of the vocal mechanism".

Rita Holl in a 1996 article in *Alternative Health Practitioner* hypothesized that the vocal prints of clients who had been diagnosed as having osteoarthritis and/or osteoporosis would demonstrate stress in the frequency equivalents assigned to calcium and magnesium (N=26).

Voice Analysis (Vocal Profiling) is much more than listening for allophones – a phonetic variation of a word that would differentiate the speech patterns of persons who might have a Texan or French accent. BioAcoustic computerized evaluations examine the biometric principles of the frequencies contained in the voice and then relate those patterns to an emerging Mathematical Matrix™ that is being assembled using several thousand case studies as a base.

Thousands of mathematical associations, which closely follow the known biochemical relationships of the body, have been identified. For example, when the FE of calcium is combined with the FE of magnesium, the resulting Frequency Equivalent is the bone matrix protein. Medical science has long recognized that calcium and magnesium are needed, in combination, to support bone growth. Lab tests, and double blind, long-term and homogeneous case studies have all provided useful information that has worked to substantiate the voice as a multi-dimensional view of homeostasis status.

BioAcoustic Theory Compared to the Tomatis Method

Human BioAcoustics uses vocal analysis and Vocal Profiling as a tool to identify and interpret the constant, complicated frequency interactions within the body. The technique has given insight into the possibility that the frequencies contained in the vocal patterns can be used to model health and wellness. (In the animal kingdom, vocalization patterns are being studied as a representation of the environment. This is a separate branch of BioAcoustics.)

A second approach, known as the Tomatis Method, identifies stressed frequencies by auditory screening. It is based on the theory that the voice contains only what the ear can hear.

Each method is clearly distinct in approach and strategy, but both evaluate the body for stressed frequencies. By introducing individualized sets of sound formulas, each approach seeks to establish continuity within the frequency systems of the body.

Although different in approach, evaluation, instrumentation and fields of research interest, both BioAcoustics, using vocal assessment, and the Tomatis auditory method are compatible considering that both have the same goals in mind: structural and emotional integrity.

Auditory assessment for the purposes of sound therapy was founded by Alfred A. Tomatis, a French physician, psychologist and educator. Human BioAcoustics, with emphasis on human voice spectral analysis combined with Vocal Profiling interpretation, was originated in 1982 by Sharry Edwards, M.Ed. The foundational work accomplished by these two pioneers will likely support many variations of sound therapy as the data and acceptance expands.

Principal Concepts of Human BioAcoustic Vocal Profiling & Sound Presentation Theory

Sound therapy proposes the idea that the body requires the presence of a full range of harmonious frequencies working cooperatively. Consider the body as a musical instrument. When even one note is out-of-tune, the result is often discordant. Tune the instrument and the sounds become consonant.

It has long been known that sounds reflected from a metal girder can predict the integrity of the structure. This parallel was applied to develop the process of using sound to test the integrity of bone density and formation. Each structure and process within the body has a distinctive combination of frequencies that must be present for the body to maintain normal form and function. Although the body is capable of being self-diagnostic, it is not always capable of self-generating the frequencies that are required for the reinstatement of vitality and strength.

The idea of using sound to facilitate change within the body is not just a contemporary notion. Song and movement to create mood and provide physical dominion over the body is an intimate part of almost every human culture, but those efforts were often surrounded with superstition and mysticism.

It is well known, historically, that sound and rhythms have the ability to influence mood and behavior. Literature published in the field of music therapy is replete with data which proves that frequency in the forms of music, rhythm, resonance, vibration, magnetics, etc. all influence the body in a myriad of dramatic ways.

This is obvious and can be witnessed through predictable adrenalin responses to potentially dangerous sounds and to a hormonal response to sexually explicit suggestions. We use sound to soothe our infants and throughout life to stimulate and entertain. At the end of life funeral services are accompanied by dirges that have been expressly written to help the survivors move through grief. A great deal of the response to sound is learned but even newborn animals respond to unknown or startling sounds as part of their survival instincts. Animals, like humans, learn to ignore habituated sound. Research also demonstrates that animals and plants respond differently to different types of music.

Sound, music, rhythm and song are all used to create mood for entertainment purposes. There are books written with listings of which songs and note combinations elicit specific emotions.

Candace Pert skillfully concluded, in her revolutionary book, Molecules of Emotion, that a biological relationship exists between the body and mind. Her research clearly confirms that sensory influences shape the biochemical and structural characteristics of the body. Particularly, peptide based proteins have been identified as the molecules of emotion.

This has been an enigma to scientists and a never-ending inquiry of philosophers and poets. The answers range from “love is all there is” to a totally mechanistic view of the body. Any authentic healing mechanism probably lies somewhere in between.

Sounds have the ability to make your skin prickle, make your knees weak, make you perspire, cause the heart to beat in an irregular fashion, cause loss of control of the bladder, cause you to be sad, tense – the list goes on.... The sensory input of sound (via voice, music, noise, rhythms) has a demonstrated influence on the form and function of the body. Probably one of the most common examples of this phenomenon is the hormonal change that a young man experiences as he moves through puberty. These changes certainly have an influence on the voice.

It was not until the advent of computerized technology and instrumentation to assist BioAcoustic researchers in the extrapolation of frequency based information, that the ability of the body to overtly predict and prescribe for itself could be scientifically demonstrated. By correctly interpreting the data, appropriate patterns could be provided to help the body achieve wellness and reverse its own diseases.

The Frequency Based Universe

Science has long held the model of the Universe as frequency based. Our world is in a state of constant oscillation. We interpret these vibrations through our senses as each pulsation reaches the brain as a frequency representation. When the eye perceives the frequency vibrations of light, the eye changes those vibrations into electrical-chemical energy (another form of frequency) and sends those frequency impulses to the brain. The brain, receiving the information as frequency, routes that range of frequency to the appropriate area of the brain to interpret the input as visual data. The same sequence of events takes place when we are exposed to aromas, auditory input, tactile stimulation, emotional situations and so on.

Ancient, as well as modern, religious practices incorporate sound (frequency), vibration and rhythm into their rituals of worship. It is a common Yogic belief that even a single atom deprived of vibration could wreck the universe. Science dictates that the lowest common denominator of all structure, the atom, is energy – measured as frequency. Therefore, from our primeval beliefs to our scientific realities, frequency is the basis of our universe.

Essentially all forms of curative intervention influence the frequency systems of the body. There are many forms of frequency based medicine: X-rays, sonograms, ultrasounds, MRIs, CAT scans, TENS units, etc. One of the most common medical devices rooted in frequency medicine is the heart pacemaker. Modern medicine is slowly learning to understand the use of frequency to help the body diagnose and heal itself. When we learn the governing patterns of each person's individual frequency signatures, we will be able to interpret and have dominion over all aspects of our mechanical and biochemical conditions and likely, our emotional issues.

Einstein proved that there are no solids; that we exist in a universe that consists entirely of energy. Frequency defines this universe and can be used to characterize the body through predictable mathematical relationships. The techniques of Human BioAcoustic Vocal Profiling & Sound Presentation have the ability to record the frequencies of the body via the voice and to return those frequencies using low-frequency ambient sound.

Brian Butterworth, and Keith J. Devlin have both attempted to prove that math is the one fundamental language of the human race. In 1623 Galileo Galilei is credited with writing, "The great book of nature can be read only by those who know the language in which it was written. And this language is mathematics".

These ideas seem sensible given that the basic concepts of mathematic - the model that one plus one equals two, for instance - is the same for every culture. In other words, if we want to "talk" to the body, we must speak the language of the brain; which is mathematics – expressed as frequencies. Without frequency expressed as energy, our bodies could not be animated.

Joseph Fourier demonstrated that the frequencies of the voice can be expressed as mathematical algorithms. Through the interpretation of these numeric representations, we can distinguish vocal sounds as more than mere oscillations of larynx. They can be used as biological MathWays™ to distinguish math-based biomarkers of stress and disease. Just as there are biochemical pathways of the body, so too there exists frequency-based MathWays that can be used to fill in the gaps that elemental and chemically-based medicine does not provide.

Through the entrainment of the vagus nerve and the vocal cords, a direct message pathway from the vocal cords and the brain seems apparent. The sounds of the voice, therefore, can be seen as representations of the parasympathetic nervous system. Together the sympathetic and parasympathetic nerve branches monitor and manage body functions.

Repeated experiments have been repeated to show that introducing a person to the frequency formula for niacin, a nutritive substance, can cause a niacin-like skin flushing; the same as if the person actually ingested the nutrient.

Frequency as Language

Our brain communicates using the language of math expressed as frequency. The brain receives and assigns frequency-based signals to specific areas for interpretation and possible reactions. Everything that happens to the body reaches the brain as a biofrequency that is then sorted, routed and assigned an interpretation designation. Our brain uses a network of frequencies to internally communicate. We use a network of vocal sounds (and gestures) to communicate externally. Both are ranges of frequency, nerve impulses and the voice respectively. When we speak, our vocal cavity vibrates setting up a resonance that can be felt in many structures of the body. These resonant frequencies have a dramatic influence on the body as we speak and listen. This dual incoming and outgoing frequency exchange of the voice and ears can be used to evaluate and interpret the frequency relationships within the body to represent who we are, our health and our well-being. This identifying frequency is called a Signature Sound. It is actually a combination of frequencies and could be more accurately described as a Signature Octave or Chord.

There is also an identifying sound that can be measured through the ear canal – the oto-acoustic emission. Much has been written about this phenomenon, particularly by Guy Berard, MD. He reported that the ear has a full range of frequencies, which can be monitored, recorded and retrained; with the effect being the reversal of diseases such as autism. According to research reports, the idea is simple and effective; change the frequency and the body responds by eliminating the disease.

James Cowan reports in Environmental Acoustics that the ear canal is, on average, a tube about 1.2 inches in length depending on age and physiology. The size of the ear canal, which is open on one end and closed by the eardrum on the other, actually resembles a pipe organ and can resonate between 2700 and 3500 Hz (that equates to the notes of F through A in westernized music). Since the tubular structure of the ear is only capable of creating a small portion of the entire musical scale, and oto-acoustic emissions have been found to contain a full measurement of musical notes and tones, it is obvious that oto-acoustic emissions are created outside of the ear canal itself.

This individually identifying frequency emission measured through the ear has been studied by Dorinne Davis, an audiologist, of the Davis Center located in Budd Lake, NJ. Although Edwards' BioAcoustic research has yet to scientifically substantiate the hypothesis, consideration should be given to the possibility that we learn to derive meaning from ambient sound by interruptions in the oto-acoustic emissions. Much like a pebble plopped into still water; Edwards believes that sound wave interruptions send a binary signal that is assigned meaning through past experience.

Davis has cross-referenced BioAcoustic Vocal Profiling with oto-acoustic emissions using a heterogeneous group of subjects. She found that 100% of the subjects had oto-acoustic emissions that specifically matched an identified point of the vocal print as being a stressed frequency. This is statistically relevant when you consider that a BioAcoustic Researcher chooses a maximum of 24 points from a possible 100,000 vocal frequencies. For every client evaluated as part of Davis' research, one of the 24 points chosen as a stressed vocal frequency matched the oto-acoustic emission measured from the ear!

A myriad of publications posted on PubMed indicate that disease states can be verified through evaluation of oto-acoustic emissions. If oto-acoustic emissions can be used to identify disease states and these oto-acoustic emissions can be identified through an evaluation of vocal frequencies, it is reasonable to conclude that vocal frequencies can also be used to identify disease states. The advantage of using vocal frequencies is obvious since the voice can be sampled and sent over long distance via electronic media. This would be an incredible advantage for mobile medicine and self prescription.

When the results of BioAcoustic research are combined with the on-going studies being carried out by Davis using oto-acoustic emissions, it is obvious that both the ears and the voice have the ability to identify frequencies of health stress. Davis' preliminary findings were published by the Acoustic Society of America in 2004.

Frequency Expressed as Vibration Influences the Body

James Oschman offers this explanation: "At an atomic scale, physical contact between two molecules has less meaning than the ways they interact energetically. As a hormone approaches a receptor, the electronic structures of both molecules begin to change. Bonds bend, twist and stretch; parts rotate and wiggle. The orientation and shape of the molecules change so that the active site of the hormone can approach the active site of the receptor. The recognition of a specific hormone by a receptor depends on resonant vibratory interactions, comparable to the interactions of tuning forks."

Oschman further states that "the rotation of a charged amino acid sets up an electromagnetic field that entrains rotations of the corresponding amino acid on a second protein. The second protein also emits an electromagnetic field that affects other proteins." Specifically cited was the Diapulse device which emits 27 MHz and has been extensively researched. Clinical trials show that the Diapulse can reduce swelling, accelerate wound healing, stimulate nerve regeneration and reduce pain.

This demonstrates that biochemicals communicate and that external frequencies have a healing influence. The quandary then becomes the identification of the avenue by which the body prompts these internal healing frequencies.

Oschman references the work of K.J. Pienta and D. D. Coffery from a 1991 paper entitled "Cellular Harmonic Information Transfer through a Tissue Tensigrity-Matrix System" to prove the point that the body dynamically communicates via a frequency based matrix.

"Cells and intracellular elements are capable of vibrating in a dynamic manner with complex harmonics, the frequency of which can now be measured and analyzed in a quantitative manner by Fourier analysis. ...These vibrations can be altered by growth factors and the process of carcinogenesis. It is important to understand the mechanism by which this vibrational information is transferred directly throughout the cell. ...The vibrational interactions occur through a tissue matrix system consisting of the nuclear matrix, the cytoskeleton, and the extra cellular matrix that is poised to couple the biological oscillations of the cell from the peripheral membrane to the DNA through a tensegrity-matrix system."

Valerie Hunt, Ed.D., U.C.L.A. Professor Emeritus, respected neurophysiologist and author of several books on the subject of bioenergy, is a pioneer in the field of human energy fields. She believes that all living systems are composed of vibrations, which organize themselves into fields as we interact with our environment, our emotions and other people. She has shown a direct correlation between healing and the vibrational rates of human energy fields.

William Tiller, Ph.D., Chairman of Stanford's Materials Science Department, has conducted extensive research based on the vibrational signals of the body. He writes, "Each atom and molecule, cell and gland in our body has a characteristic frequency at which it will both absorb and emit radiation". Each cell generates its own minute vibrational signals from within that must stay in resonance with every other cell for the body to remain healthy.

Two Cornell physics graduate students, Barry Stripe and Mohammad Rezaei, reported in the June 1998 issue of Science that each atom has an identifying "energy level" that can be used to identify individual molecules and unknown chemicals by measuring the vibrational signatures.

From many fields of study, both conceptual and established, the premise that the body is based on, responds to, and is influenced by frequency is increasingly becoming an accepted reality.

The Voice as Frequency

No matter what the nature of the input, information is received by the brain in the same form: frequency based nerve transmissions. We see frequencies of light that are transformed into electrochemical impulses and sent to the brain. We hear octaves of sound frequencies that are translated into electrochemical impulses and then provided to the brain for interpretation. No matter what we perceive, on what octave, it is all received by the brain via the same route of frequency impulses known as brainwaves.

If we are composed of frequency patterns, it seems reasonable to use the most readily available frequency source of the body—the voice—to obtain information about the body. The voice is a source of sound; the ear is the most obvious receiving unit of sound. The voice and the ear form a dynamic system that is extraordinary as an inherent evaluative system of the body.

Tomatis believed that during gestation the brain is developed from the pattern of the first organ to form: the ear. His techniques have been successful in showing that when hearing is corrected, many learning and emotional problems are eliminated. While the ear deals with innate issues that

create the foundation of the energy patterns, the voice is capable of displaying a kinetic account of the body in motion.

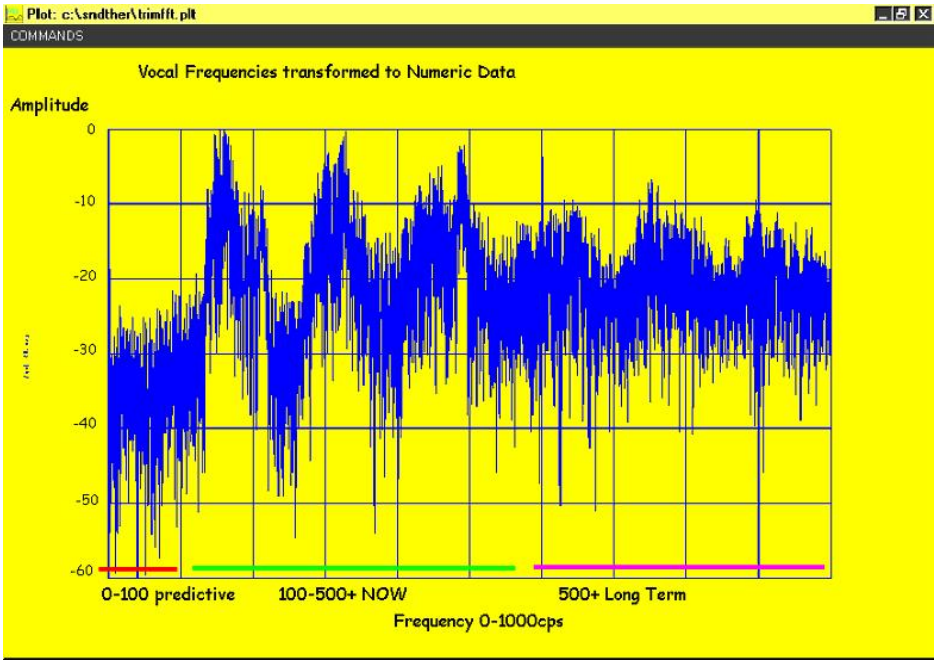
Human BioAcoustic Theory further proposes that there is a relationship between frequency and body structure and function, and between frequency and substance. It is the evaluation of these frequencies through proprietary databases that provides the unique form of Human BioAcoustic Vocal Profiling & Sound Presentation as taught by Sharry Edwards.

Vocal Profiling Sound Assessment

As the frequencies of the body become chaotic causing the manifestation of symptoms, pain and emotional stress, the vocal print begins to display disorganization.

Using a uni-directional condenser microphone that is linked to a computer equipped with a calibrated sound card, a short (less than a minute) sample of the voice is captured. A Fast Fourier Transform (FFT) converts the recorded vocal sounds into numeric data using the properties of frequency (Hertz or cycles per second) and amplitude (decibel). This information is transformed into a digital graph that represents the vocal patterns using a range of 0-1000 cycles per second and 0 to -60 decibels.

FFT's are computationally efficient algorithms commonly used to convert analog vocal data to digital numeric data for rapid spectral analysis. Such transformations from Time to Frequency domain use mathematical functions to depict the relative magnitudes and phase relationships of frequencies in a time varying signal.



Vocal Fast Fourier Transform (FFT) showing Predictive, NOW and Long Term frequency ranges.

Using a computer representation of the voice, decibel and frequency levels can be used to identify frequency based stress. The vertical axis is used to show decibel; the horizontal axis to show frequency. Points that are located high on the graph, i.e., “risers”, would proportionally represent sound frequencies that are loud and over abundant. Points that are low, i.e., “stringers”, would indicate sound frequencies that are deficient. The objective is to cause the voice to “collect” in a smaller, more unified pattern. Fewer risers and/or stringers would indicate a more coherent vocal presentation.

Each Vocal Profile can be used by trained personnel to provide predictive and immediate, non–invasive information pertinent to individual health and medical management in terms of FEs and brain wave entrainment.

The frequencies and architecture of the voice are individually analyzed and used to create a multiple page report that can be used to examine the Frequency Equivalents of the biochemical pathways and physical structures of individual biology. These patterns are evaluated in terms of coherence, architecture and numeric values. A technician assesses the graph, identifying the dissonant values that will be used to characterize the information.

Report options include but are not limited to: muscles, toxins, pathogens, biochemicals, nutrients, metabolic and hormonal issues, genomes, vaccination safety and other risk factors evaluated in terms of Frequency Equivalents.

At present there are options for predictive measurements which have been verified in an impressive number of case studies. These reports may be used for research purposes by wellness practitioners in the hope of providing substantiation and direction in support of optimal form and function.

The software used for BioAcoustic evaluation is not available commercially and is recurrently being modified to fit research requirements. Databases are upgraded continuously to include research results related to frequency correlates that associate biochemical functions and structural organization of the human body; including environmental threats from toxin and pathogen exposure. The information contained within the databases as well as the processes to interpret and construct frequency relationships that may be significant, are novel, distinctive and proprietary to the research functions of the Sound Health Research Institute.

Sound Formula Creation and Sound Presentation in Human BioAcoustic Theory

The objective of BioAcoustic Sound Presentation is to entrain innate body oscillations using the frequency based language of the brain. To do this, individualized ultra-low frequency formulation sets are presented in a closed environment using specialized equipment.

Sound therapy can be used as a pre-diagnostic tool with a great deal of accuracy. It is very different from music or light therapy since the sounds employed are not always within vocal or instrumental range.

BioAcoustic Sound Presentation should not be confused with Frequency Presentation which uses ranges that are not considered to be auditory. Such frequencies are delivered by way of transducers placed directly in contact with the body.

Sound Presentation, BioAcoustically Speaking, can be defined as the delivery of low frequency sequenced frequency sets, via headphones or a speaker, that are individually constructed for a client using information gleaned from a Vocal Profile by a trained BioAcoustic Research Associate/Assistant. The frequency range used for BioAcoustic Sound Presentation is 0-64 cycles per second; which is identical to the frequency measurements science assigns to brain wave oscillations. Individual vocal Sonostats are used to create specific sets of BioAcoustic Brain Wave Multiples™ (BWM) of sound which have evolved during the tenure of BioAcoustic research.

After a vocal sample is captured, several proprietary computer programs are used to determine the most appropriate frequencies. These frequencies are established using information supplied by the referring physician, reported issues from the client, data from the vocal samples, and comparisons against other client vocal prints who have similar issues. The presentation of sound and a client's responses are known as tone trials.

Clients are situated in a suitable position for testing – this could be standing, sitting or lying down. Tones are provided for a duration of 30-60 seconds. The client is then asked to evaluate the tones in terms of any reactions they may be experiencing. In the case of muscle involvement, the tones may be used for up to two minutes during the testing phase of sound presentation. Data is gathered as each sound is presented and concluded for biofeedback reactions. Unless otherwise indicated no more than 10-12 tones are tested in any one session. Often these clinical tone trials are video tapped and/or observed by a BioAcoustic trainee or assistant to be used for educational purposes. A client's privacy is always protected unless those rights have been specifically waived.

Once a BioAcoustic Research Associate has identified the frequencies to be tested, the next step is to determine the most suitable form of feedback that will assist in the determination of the appropriate tones to be used for long term sound presentation. Objective, as well as subjective, feedback is used to refine the formula sets. Positive as well as negative emotional and physiological responses are used to assist in the determination of the specific frequencies, assembled in the appropriate combinations, for the proper amount of time.

Feedback techniques used may include some, or all, of the following: 1. non-intrusive pulse, temperature and oxygenation monitoring via instruments that attach to the finger, toe or ear. 2. manual or computerized blood pressure monitoring. 3. brain wave and muscle response monitoring using attached electrodes. 4. manual, computerized or device muscle testing by training therapists 5. observation by the principal practitioner or referring health provider 6. resolution of symptoms or complaint 7. subjective feedback from the client.

BioAcoustic Sound Presentation is a trifold protocol using a specific frequency, a frequency animator and a timed influence of the interaction of each frequency set. Most of the present experimentation has been executed using frequencies designed to be incorporated by the skin. Early trials are now underway using frequency protocols that target particular structures and organs.

The actual results are accomplished through the harmonics of the sound formula formats. Unlike light, sound frequency can be presented over a range of eleven octaves (20 to 20,000 cycles per second), while the known spectrum of visual light contains only one octave. Shades of light can be extremely varied; shades of frequency can be very precise and, BioAcoustically, are required

to be. In some cases, clinical experience has shown that a difference of .02 Hertz can mean the difference between effect and no effect.

The goal of the tone trials is to determine the most appropriate combinations of tones that can be programmed into a small, personal computer-like analog frequency generator, called a Square 2™, that has been specific designed to provide programmed long term BioAcoustic sound presentation.

For research purposes, the Square 2 tone box is programmed using the resulting data from the tone trials. Tone boxes are generally loaned to a client for a short period of time (usually for one-to-two days) to provide an opportunity to evaluate continuing responses. If warranted, the client is offered the opportunity to purchase a tone box for self use.

Reassessment is essential – either by self- monitoring using the Provider Series of computer assessment programs or by a trained BioAcoustic practitioner. It is rarely the situation that one session is sufficient to support optimal long term form and function. Our interest is in the continuing data that is gleaned from the responses of sound presentation.

The ultimate goal of a BioAcoustic Sound Presentation process is for the client to ultimately dislike their sounds. When this happens, it indicates that the tones are being created internally, demonstrating that the client no longer needs the sound to be supplemented from an external source.

Vocal Profiling Applications

Vocal Profiling has had success with a wide variety of issues during research efforts but several specific areas of expertise have emerged: sports injuries and structural problems, pain management, nutritional evaluation and tissue regeneration being among the most successful. Of particular interest in using vocal assessment is the recent finding that implies that genetic faults relating to digestive enzymes can be responsible for allergic reactions.

The inventory of unsuccessful outcomes of vocal assessment is short. In the past, sound intervention did not do well against invading forces such as bacteria, viruses, fungi, yeast or parasites. In the last few years several pilot projects were undertaken to develop a protocol to study these potential bioterrorist agents. If the data can be extrapolated, it seems quite possible to eliminate invading pathogens in their genomic state before they become pathogenic. Further studies with biochemical proteins have been undertaken. Preliminary results look very promising for issues such as immune deficiencies, genetic syndromes, autism, mitochondrial disorders as well as multifaceted military and space travel applications.

Metabolic issues have been identified, supported by substantiating lab results. Several ongoing projects are being used to screen for allergies, heart disorders, arthritis and macular degeneration. Ongoing programs are examining weight management but attempts to alleviate such issues have not been entirely successful to date. Additional research is planned.

It is not recommended that sound therapy be used for emergency situations such as poisoning, traumatic bleeding, broken bones or life-threatening issues analogous to heart attack and appendicitis unless no other treatment is possible.

Several life threatening episodes using low frequencies to alleviate anaphylactic shock have been experienced with extraordinary results but these were emergency situations with a medical doctor in attendance. Vocal Profiling and BioAcoustic Sound presentation is more appropriate for evaluation, pre-diagnosis, prediction and the reversal of non-emergency symptomatic conditions. For instance, it would not be suggested that sound presentation be used to set a broken bone (although it has been done under traumatic conditions), but it could be used to accelerate healing, reduce pain and swelling and decrease the duration of recuperation.

Vocal Profiling has become a very useful tool for pain relief especially when the use of medication is contraindicated. Particularly when the issues are varied, obscure or non-discriminating, vocal profiling has been shown to be predictive before symptoms become apparent.

The vision for the future is to allow automated, on-line frequency templates to be used by an internet user to provide an immediate assessment report that could be used in the management of Self Health. This type of pre-diagnostic tool could be used by individuals, health related outlets, training institutions, wellness providers and researchers to supplement health care information.

Preventive, Predictive Value of BioAcoustic Sound Presentation

Nutritional assessment can be very expensive. However, vocal assessment can offer an inexpensive, time-saving, preventive assessment alternative.

A condition of seven years duration was solved recently when a nutritional analysis revealed that all components relating to the Krebs cycle were under stress. This shows that vocal profiling can provide indicators that would prompt medical attention.

Indications that fibromyalgia may be due to stored drug deposits (prescription or otherwise) in the muscle tissues are being evaluated using BioAcoustic nutritional vocal analysis. This experimental aspect of sound therapy shows promise as a diagnostic tool.

BioAcoustics is particularly helpful as a supplement to sports medicine and traumatic structural injury identification. As a complement to occupational, physical and chiropractic therapies, it shortens and facilitates the course of action. In several cases, muscular nerve regeneration has been observed and verified through Electromyograms (EMG's).

The condition known as TMJ (Tempromandibular Joint Disorder) has responded particularly well to BioAcoustic methods as a way to assist non-invasive pain relief.

Mobile evaluation during space travel, remote locations and for battle-field conditions that require evaluation and treatment will soon be a reality. The basic structures are already in place. Funding is the only obstacle to having these techniques available on-line and/or via satellite.

As the research continues to expand, studies with those persons who are non-verbal will be able to use a microtrobe (microphone and electrode combined) that will determine the body's frequencies without the need for a vocal sample.

Eventually the technique will be used with animals and, in the not-too-distant future, to assist in the elimination of environmental pollutants.

Although the foundational principles of Human BioAcoustic Vocal Profiling & Sound Presentation Theory are not yet completely established, the results are undeniable. From preliminary research it appears that BioAcoustic Sound Presentation can cause entrainment of brain-wave frequencies. In turn, these frequencies act as a support to the body until it can maintain balance independently, thereby achieving and maintaining a healthy status.

At present, the scope of practice of BioAcoustic Vocal Profiling is only limited by the number of practitioners and the acceptance by those in need of the service. Most current practitioners have a waiting list. Computerized equipment and evaluation has allowed for the inclusion of BioAcoustic assessment as a complementary tool to conventional wellness practices. These recent improvements in assessment time and presentation delivery will allow sound based therapies to become a standard pre-diagnostic tool.

BioAcoustic facilities are located in six countries, with many positioned around the US. At present, 3,000 persons have been trained, about 40 per cent of them being wellness providers, but not all of these individuals are practicing.

Research Disclosures to Advance Human BioAcoustic Theory

Most of the present-day research associated with sound based therapies using voice spectral analysis and Vocal Profiling has been done by a small, self-supported educational research facility, Sound Health, located in Southeastern Ohio.

The first publication concerning BioAcoustic Vocal Profiling was published as a graduating thesis in 1982 by Sharry Edwards. That initial paper revealed that Edwards had a very unusual ability. She could hear sounds emitted from people that were in a range not normally perceived by human ears. A hearing evaluation revealed that she could hear well above the normal range and, equally surprising, she could produce sine waves with her voice. The production of sine waves by anything other than a machine is quite extraordinary. Edwards was tested in three labs, including one located at Wright Patterson Air Force Base, to prove the point that her hearing and vocal qualities were unique.

Edwards was cautioned by her professors and colleagues to keep this information obscured. How could she be hearing sounds being emitted from a person's ear that others could not hear? At that time the literature failed to mention any structure in the ear that could create a sound. The mode of thinking at that time was that the ear was incapable of making sounds independently.

Several years after Edwards' first experimentation, Wendell Browne (retired) of Johns Hopkins University published several papers indicating that the ear is capable of emitting sounds that he assumed were being produced by the stapes muscles. The 1994 work by Cowan, previously referenced, stated that the actual formation of the ear canal only lends itself to creating sounds that range from the note of F through the note of A: F, F#, G, G# and A. Oto-acoustic emissions have been recorded through a full range of frequencies. How the ear is able to emit a full range of sound is yet to be understood. Edwards' speculates that the brain creates these frequencies which are then amplified through the brain fluids. (Liquid is a highly efficient sound-conductive source.) The tones that Edwards perceives have been shown to be the same frequency based sounds as those identified as oto-acoustic emissions.

From being able to measure the sounds being emitted, trial and error was used to associate sound with diseases and muscle frequencies. Being able to depend on the unique hearing ability of Edwards allowed easier access to the appropriate course of research needed to create the developmental field theories. Specific frequency relationships discovered have remained proprietary.

The seminal development of Human BioAcoustics Vocal Profiling has been made possible because of this unusual talent that was at first perceived as an esoteric manifestation but lab testing provided substantiation that these sounds are genuine. Sharry Edwards received the New Scientist of the Year Award from The International Association of New Science (IANS) in 2001 and is also a recipient of the prestigious 2002 O. Spurgeon English Humanitarian Award ar Temple University.

In 2004 a large pharmaceutical company followed Edwards' example by publishing a paper showing that Parkinson's disease could be predicted through the initial type of vocal profiling used by Edwards in the early 80's.

Toward a Human BioAcoustic Vocal Profiling Theory

Today, modern computers and electronics have made it possible for the ideas of BioAcoustics to be moved from the realm of conjecture to the domain of repeatable science and technology. A dynamically repeatable Theory of Human BioAcoustics is being developed by Sharry Edwards and her associates. Lab tests, such as EMG's, have been able to prove that nerve regeneration is a distinct outcome of Human BioAcoustic Sound Presentation. Biochemical lab evaluations also provide confirmation that vocal analysis can discern such issues as vitamin and mineral assessment of the body. Research along these lines is ongoing.

Throughout this research Edwards' goal has been to educate, because she believes that what people do not understand, they reject. It has been her mission to prove that what she is capable of doing can be duplicated through technology. Edwards reports that she feels very fortunate to have been able to contribute many of the clues that have brought this particular branch of future medicine to life.

With more trained personnel these promising techniques will certainly move medicine forward – quickly with the help and support of alternative minded visionaries who perceive its potential.

Currently, Human BioAcoustic Vocal Profiling & Sound Presentation is a research modality that does not claim to diagnose, prescribe for, prevent or cure any human medical condition. The scientific keystones have been developed, and are being clarified, through evidence-based research by certified BioAcoustic Research Associates.

Innovative studies, utilizing voice spectral analysis and low frequency analog sound presentation, have established that although there is, at present, no standardized protocol for advocating that biofrequencies be employed to diagnose and support the body's optimal form and function, the foundational work of Sound Health has provided, and will continue to advance, vital exploration toward that objective.

Future Prospects of Human BioAcoustic Theory

Human BioAcoustic sound based therapies were originally developed to consider the potential applications using the frequencies thought to emanate from living systems.

Now that the hypothesis and foundation work is gaining momentum and acceptance, the possibilities are far more expansive than previously imagined. Areas of development are being explored, for sound based protocols, to identify disease biomarkers through the voice.

A lack of funding and time constrictions are all that hamper the availability of this technique to researchers and the public. At the present time several unique computer programs are being offered on-line that will allow the public to compare themselves, in terms of frequency, with biomarkers found in the vocal prints of persons with issues such as macular degeneration, hormonal imbalances, heart issues, muscle stress, pathogenic and toxicity issues, vaccination risk factors, and metabolic disorders.

In the near future computer programs will be available on-line that will provide information concerning insulin levels, pregnancy testing, labor and delivery maturity, nutritional status, aging issues, environmental toxicity testing, mitochondrial and immune associated biomarkers, arthritis screenings, predictive muscle stress, blood typing, mobile health evaluations, cholesterol and blood sugar levels. The first two programs to go on-line will be the PreVac™ Vocal Profiler which will be used for computerized screening to identify pre and post vaccination risk factors and the Nutritional Consultant which has been offered on-line for several months as a free download.

Individual Sound Presentation devices have been developed to help the body eliminate back pain, gout, muscle cramping and snoring. Patents and FDA approval and/or consent to market are on-going.

The attempts to reverse sports injuries have led to the mapping of each muscle as it responds to low-frequency sound. Using brain wave entrainment, Human BioAcoustic Sound Presentation has been shown to strengthen weak muscles, calm over-stimulated or blocked muscles, alleviate considerable pain and reduce recovery time. In one case of presumed multiple sclerosis, complete regeneration of the muscular nerves, from the waist down, was observed. The individual in this case is himself an MD. His treating physician has acknowledged the benefit of this research modality.

It is expected that BioAcoustic blood chemical evaluation will show the relationship of chemical elements within the body. Using a non-intrusive vocal profile, the presence and usage of biochemicals can be determined. The technique provides nearly instant feedback, and is very inexpensive to administer and execute.

BioAcoustics has already demonstrated its potential to add to the present medical database regarding the interrelationships of body system and elements. It could be used by nutritional outlets, medical and hospital laboratories and individuals who use supplements. The elimination of drug related side-effects is also a potential outcome of this technique.

Sound based therapies have shown considerable promise to allow scientists to glimpse interconnected systems of the body; not just as closed systems that work together but the actual interactions between muscles and muscles, muscles and biochemistry, muscles and emotions, etc. Human BioAcoustic Theory has uniquely quantified the frequency based language of the brain to form a distinct Mathematical Matrix that has the ability to numerically calculate and graph the

discrete interrelationships of the structure and function of the body in terms of Frequency Equivalents.

Using the vocal prints of all individuals involved in a particular architectural or geographic location, can allow problem areas and compatibilities to be identified. This technique could work well in negotiation settings, work disputes, marriage and family counseling, etc.

BioAcoustic Sound Presentation has already demonstrated its worth in emergency situations to alleviate the symptoms of severe allergic reactions.

As for other applications, in one test using low-frequency sound, mosquitoes have been persuaded to leave an area. Studies have been conceived for repelling or attracting any pest species using low frequency sounds.

In food preservation and storage technology applications, only one pilot project has been completed but the results show that low frequencies can potentially retard spoilage.

BioAcoustic sound based therapies have proven their significance through evidence-based research and homogeneous case study correlations. To date this research has been supported exclusively by Edwards and a small group of courageous and dedicated visionaries who see BioAcoustic Vocal Profiling is the promising future for frequency based medicine. Munificent funding, with autonomy to move in directions not presently well-known to medical science, is now mandatory if these techniques are to be made available for research and to the general populace. BioAcoustic Vocal Profiling could be incredibly financially rewarding once the protocols and procedures have been standardized. Sound Health, as a research institute, is dedicated to Bringing BioAcoustics to Life.

“We anticipate that our efforts will continue to move medicine forward as we nudge wellness outcomes toward a more competent and compassionate future,” Edwards adds with one raised eyebrow and a meaningful smile.

Conclusion

It is the intention of this paper to present information to solidify a foundational theory which will explain the obvious influences of sound, voice, rhythm and song as a format to manage and support optimal human form and function through Human BioAcoustic evaluation and entrainment using low frequency sound presentation.

Merriam-Webster (www.m-w.com) defines “bioacoustics” as: “a branch of science concerned with the production of sound by, and its effects on, living systems.” This term, as applied to human Vocal Profiling, now refers specifically to the research concerning voice spectral analysis and the presentation of individualized sound frequency formulations to support inherent health and wellness.

Over the last 20 years, this innovative, ground-breaking field of study has utilized Vocal Profiling & Sound Presentation, to reveal an inherent Mathematical Matrix in support of the self-healing body. This novel approach has provided an accumulation of impressive evidence that is staggering in its implications for health and wellness.

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About Sharry Edwards, M.Ed.

Ms. Edwards is the recognized leader in the emerging field of Human BioAcoustic Vocal Profiling. Edwards pioneered and developed the theories that have been recognized and incorporated by many health care researchers as they attempt to improve our present health care system using frequency based modalities. As the dedicated and tenacious leader of the Sound Health Research Institute, Edwards strives to establish Self Health as a basic human right. She is, and will become known as, the Architect of the Mathematical Matrix for Sound Health. Her teaching site is www.vocalprofiling.com. Various terms used in this Journal, including Human BioAcoustics, Mathematical Matrix, Frequency Equivalent and Vocal Profiling are trademarks or service marks of Ms. Edwards. Sharry Edwards received the New Scientist of the Year Award from The International Association of New Science (IANS) in 2001 and is also a recipient of the prestigious 2002 O. Spurgeon English Humanitarian Award at Temple University.

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DAVIS ADDENDUM TO THE "TOMATIS EFFECT"

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The Tomatis Method is based on the principles established by Dr. Alfred Tomatis. The relationship of the ear and voice is defined in his three laws, the "Tomatis Effect". Recent research with BioAcoustics, a new science, has given rise to two new laws that can be applied to the ear/voice connection. Through BioAcoustics, a time domain frequency analysis of the voice becomes a predictive, diagnostic, and preventive tool for wellness. The spontaneous Otoacoustic emissions from the ear were evaluated and compared with a frequency analysis obtained through voice analysis. One hundred percent correlation between the stressed frequencies of the ear and voice was noted. From this research, an addendum of 2 new laws to the "Tomatis Effect" was suggested.

Over 50 years ago, Dr. Alfred Tomatis discovered the "Tomatis Effect", a set of 3 laws that identified a 'voice-ear-brain' connection. Specifically, these laws state:

> Law 1: The voice only contains the harmonics that the ear can hear.
>
> Law 2: If you give the possibility to the ear to correctly hear the distorted frequencies of sound that are not well heard, these are immediately and unconsciously restored into the voice.
>
> Law 3: The imposed audition sufficiently maintained over time results is permanently modifying the audition and phonation.

These laws were validated in 1957 at the French Academy of Sciences. The laws are the foundation for the Tomatis® Method, a method of sound presentation that impacts many developmental, emotional, and wellness issues.

This paper discusses relatively new information about sounds that the ear emits, called Otoacoustic emissions, and, based on a comparative research project, propose the addition of two new laws to the Tomatis Effect. This connection was identified with the emerging science of Human BioAcoustics Vocal Profiling, a science developed by Sharry Edwards, M.Ed that analyzes the distorted frequency patterns emitted by the voice and identifies specific wellness issues within each voice print.

Review of the Tomatis® Method

Dr. Tomatis used filtered and gated sounds to allow the ear to process sound differently.

The focus of the method is on the effects of high frequencies and their impact on the brain and body. Changes are evidenced in the overall functioning of the listener.

Otoacoustic Emissions

In 1978, Dr. David Kemp reported that the ear also emits sounds called Otoacoustic Emissions (OAE's**)**. The OAE's are sounds generated by the energy of the outer cochlear hair cells and can be detected when a microphone is placed within the external auditory canal. OAE's offer information about auditory functioning that would not be available from other sources.

There are three main types of OAE's: Distortion Product, Transient, and Spontaneous (Hall, and Mueller, 1997). The Distortion Product and Transient forms have clinical applications for audiologists and physicians.

The third type, called Spontaneous Otoacoustic Emissions (SOAE), is the most relevant to the two new [Tomatis] laws as it relates to BioAcoustics. The SOAE is recorded in the external ear canal and measures the sound output, or emissions of the ear. Very little research has been done with SOAE's because little is known as to what to do with the information.

Human BioAcoustic Vocal Profiling

Shortly before Dr. Kemp's publication on his cochlear reflection hypothesis, Edwards learned that the sounds she was investigating during her research were Spontaneous Otoacoustic Emissions being emitted by the people around her. Her unique hearing abilities allowed her to hear the sounds that only carefully placed microphones and special recording instruments were able to detect. These "life sounds" represent the basis for what has become the science devoted to the study of the frequencies emanating from all living systems.

Edwards developed the field of Human BioAcoustic Vocal Profiling. She found a way to capture the energy (frequency) patterns of people through a frequency domain voiceprint. This voiceprint becomes a unique representation of the person at the time it is generated. When the identified frequencies are reintroduced via ambient frequencies, the vocal print becomes more coherent.

Therapy Connections

Certain connections in the basic concepts of both methods were identified. The Tomatis® Method utilizes high frequency sound, bone conduction stimulation, and voice stabilization for success. BioAcoustics uses the voice to identify stressed issues and entrains the brain through low frequency analog sound presentation to help facilitate change. The Tomatis® Method cortically re-energizes the brain and uses the voice to

support change; while BioAcoustics uses the voice to identify the issues and then entrains the brain to influence change. The two methods support each other in a continuous cycle.

Research Study

A research study explored the connection between the voice-ear-brain. With the knowledge that the voice produces what the ear hears (looking at vocal output and reception of sound at the ear, or Tomatis®) and, that the ear emits a sound (looking at vocal output and emission of sound at the ear, or BioAcoustics, one could hypothesize that the connection between the ear and the voice would be the same whether it is in the reception or expression of sound.

Criteria for Exploratory Study

The following criterion was established for comparing voiceprint frequencies to SOAE's:

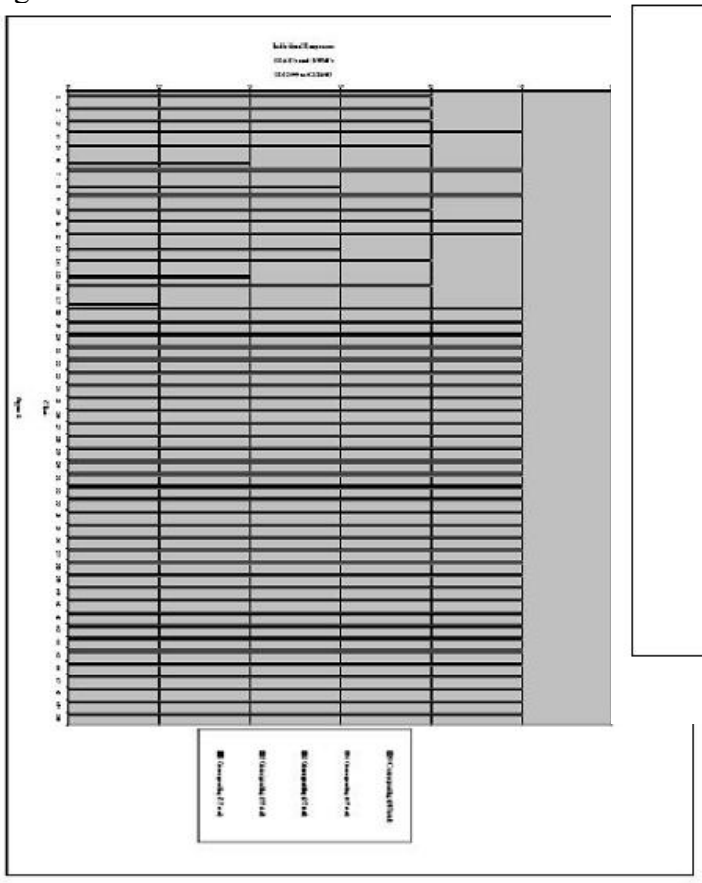
01. The Spontaneous Otoacoustic Emission must be measured on the same visit as the voiceprint is sampled and occur prior to the voiceprint.
02. Subjects will participate one time only.
03. All study subjects must be 18 or older.
04. Equipment used will be the Madsen Capella 0301 with the Madsen eartips from box 8-66-950.
05. Three forms of OAE's will be tested.
06. Only SOAE's will be compared to the voiceprints.
07. SOAE frequencies will be divided into 2 categories:
    a) those under 1000 Hz, and
    b) those over 1000 Hz up to 10,000 Hz.
08. Left and right ears will be recorded separately.
09. All frequencies recorded as automatic SOAE's will be used for comparison
10. All frequencies with noticeable peaks will be noted.
11. The first low "stringer", as BioAcoustically defined, will be recorded.
12. The first high "riser" or peak, as BioAcoustically defined, will be recorded.
13. The Audiologist will record the SOAE's as frequencies, specifically noting the BWM's (Brain Wave Multiples: "A term used to describe cycles per second of frequency that fall between .05 and 64 cycles per second; the range identified as brain waves" {Edwards, 1997}).
14. A BioAcoustic technician certified by Sound Health Alternatives International, Inc. will take record the subject's voice print (for spectral analysis) identifying and recording BWM's using standardized BioAcoustic equipment and technology.
15. Corresponding vocal print BWM's will be included with differences up to .05.

Study Results

The study ran from 11/13/99 through 2/26/03 and included 50 adult subjects randomly selected from parents and clientele at the Davis Center. Data was obtained and recorded noting corresponding SOAE and voiceprint BWM's and entered into the appropriate number of "hits" categories of 0, 1, 2, 3, 4, or 5+.
Results demonstrated that every subject (100%) demonstrated at least one corresponding SOAE as correlated with BWM. 76% of the subjects had 5+ corresponding frequencies.

12% had 4 corresponding frequencies. 6% had 3 corresponding frequencies. Only 2% of the comparisons contained only 2 matches.

Figure 1



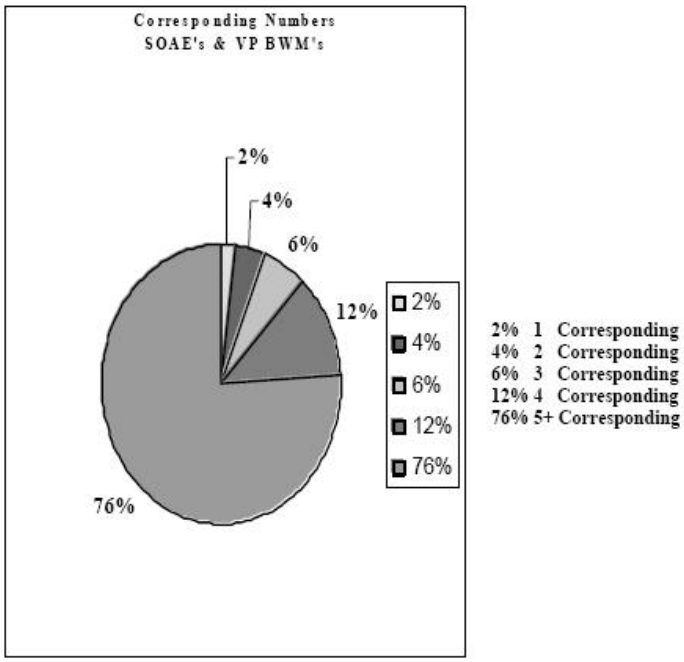


Figure 2

Although this data is drawn from two different sources (SOAE's, and vocal print recordings), each was broken down into comparable frequencies. Approximately 30 SOAE stressed frequencies out of 10,000 frequencies were identified for each subject. With the BioAcoustics vocal print, 24 stressed frequencies out of 100,000 were identified for each subject. The Brain Wave Multiples of the 30 frequencies from the SOAE's and the Brain Wave Multiples of the 24 frequencies from the BioAcoustics voiceprint were compared. The number of "hits" represented the matching Brain Wave Multiples.

Conclusion

Of all subjects tested, one hundred percent (100%) demonstrated at least one matching SOAE with a vocal print frequencies. The results allowed one to hypothesize that "The voice produces what the ear hears (Dr.Tomatis) and the ear emits the same stressed frequencies that are emitted by the voice. (Davis, 2002)"

Davis Addendum to the Tomatis Effect

With one hundred percent (100%) correlation, two new laws are suggested as an addition to Dr. Tomatis' laws:

> New Law 1: The ear emits the same stressed frequencies that are emitted by the voice.
>
> New Law 2: When appropriate complementary or supplementary patterns of stressed frequencies are introduced via sound vibration to the ear, vocal patterns regain coherence. This can be stated because using either the Otoacoustic emission from the ear or stressed identified stressed frequencies of the voice, sound can be presented which influence the coherence of the vocal patterns.

These new laws lend further support to the voice-ear-brain connection, and encourage further research in this interpretation. They also enhance the connection between the Tomatis® Method and BioAcoustics, further clarifying the cyclical pattern of how the body uses receptive and expressive sound.

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THE SIGNIFICANCE OF MATHEMATICAL VOCAL CODES

(A comparison of Human BioAcoustics and the Tomatis Method)

Sharry Edwards, MEd.

Mathematical Vocal Profiling outcomes can most aptly be described as a cross between music therapy and biofeedback. It is related to music inasmuch as specific combinations of sounds are used; but not necessarily sounds that would be considered musical by even the most lenient critic. Biofeedback comes into play as low-frequency sounds are presented to elicit specific biological and emotional responses.

Some similarities to light therapy are obvious since both utilize the concept of full-spectrum oscillation. Light as a healing modality seeks to use full-spectrum light, while sound therapy employs the idea of full-spectrum sound.

The process of BioAcoustic Vocal Profiling requires two distinct processes if maximum results are to be achieved. First, it is essential to determine the specific individualized vocal patterns for each person, prior to any actual sounds being provided. Just as important are the sound formula sets that must be specifically constructed and presented to each individual. Both steps must be comprehensively performed to ensure that each person be provided the most accurate and complete approach available.

Sound therapy seeks to influence the systems within the body that produce, interpret and use frequency. It was probably performed intuitively as a response to human interactions even before the ability to make and interpret sound consciously was realized. Using computer analysis, the sounds of spontaneous moaning, groaning, yawning, screaming, sighing, laughing, and 'filler' sounds such as "mmm" and "ah" have been found to contain the stressed frequencies that are required to elicit improvement.

The principles of sound based therapies originate with the idea that the brain perceives and generates impulse patterns that can be measured as brain-wave frequencies which, in turn, are delivered to the body by way of nerve pathways. The theory incorporates the assumption that these frequency impulses serve as directives that sustain structural integrity and emotional equilibrium. When these patterns are disrupted, the body seeks to reveal the imbalance by manifesting symptoms that are interpreted as disease and stress. Enquiries by modern as well as ancient researchers have attempted to develop a screening procedure that would accurately delineate the frequency measurements of the body.

In the case of Human BioAcoustic Vocal Profiling the idea is based on the idea that vocal sounds are made possible by the oscillations of the vocal cords located in the voice box or larynx. The muscles of the larynx are innervated by braches of the laryngeal nerve, which is a branch of the vagus nerve. Through the entrainment of the vagus nerve with the vocal cords, a direct message pathway from the vocal cords and the brain seems apparent. The sounds of the voice, therefore, can be seen as representations of the parasympathetic nervous system. Together the sympathetic and parasympathetic nerve branches monitor and manage body functions. These models of thought from ingenious minds down through the ages, show that both science and philosophy

have attempted to correlate the relationships between music and health, math and music and ultimately math and health.

The BioAcoustic approach uses voice spectral analysis as a tool to identify and interpret the constant, complicated frequency interactions within the body. The technique has given insight into the possibility that the frequencies contained in the vocal patterns provide a holographic representation of the human body. (In the animal kingdom, vocalization patterns are being studied as a representation of the biological environment. This is a separate branch of BioAcoustics.)

A second approach, known as the Tomatis Method, identifies stressed frequencies by auditory screening. It is based on the principle that the voice contains only what the ear can hear.

Each method is clearly distinct in approach and strategy but both evaluate the body for stressed frequencies. By introducing individualized sets of sound formulas, each approach seeks to establish continuity within the frequency systems of the body.

Although different in approach, evaluation, instrumentation and fields of research interest, both BioAcoustics, using vocal assessment, and the Tomatis auditory method are compatible considering that both have the same goals in mind: structural and emotional integrity.

Auditory assessment for the purposes of sound therapy was founded by Alfred A. Tomatis, a French physician, psychologist and educator. BioAcoustics, with emphasis on human voice spectral analysis, was originated by Sharry Edwards, M.Ed. The foundational work accomplished by these two pioneers will likely support many variations of sound therapy as the data and acceptance expand.

PRINCIPAL CONCEPTS

Sound therapy proposes the idea that the body requires the presence of a full range of harmonious frequencies working cooperatively. Consider the body as a musical instrument. When even one note is out of tune, the result is often discordance; a combination of unpleasant sounds. Tune the instrument and the sounds become harmonically pleasing. Even one “sour” note can spoil an entire musical rendition.

It has long been known that sounds reflected from a metal girder can predict the integrity of the structure. This parallel was used to develop the process of using sound to test the integrity of bone density and formation. Each structure and process within the body has a distinctive combination of frequencies that must be present for the body to maintain integrity. The body is capable of being self-diagnostic, but not so capable of self-generating the frequencies that are required for restoration.

The idea of using sound to facilitate change within the body is not a contemporary notion. Song and movement to create mood and provide physical dominion over the body was an intimate part of almost every culture on Earth, but those efforts were often surrounded with superstition and mysticism.

It wasn't until recent times that computerized technology and instrumentation was developed that allowed the advancement of procedures that could be used to help the body to predict and prescribe for itself. By correctly interpreting the data, appropriate patterns could be provided to help the body reverse it own disease.

SIGNATURE SOUND FREQUENCIES

According to the word of God and the mandates of science, everything is frequency-and frequency is everything. Science shares this thought by stating that the most common denominator of all structure, the atom, is energy - a form of frequency. An expression attributed to God states that "In the beginning was the Word", and, since sound is also frequency, God joins science in the observation that, at its foundation, frequency is the basis of our universe.

This thought gives credence to the idea that our bodies are frequency energy. This collection of energy patterns, called a Signature Sound, is a frequency representation of all that we are. If we were to learn the governing patterns of individual Signature Sounds we would be able to interpret and have dominion over all aspects of our mechanical and emotional substance.

Essentially, all forms of curative intervention influence the frequency systems of the body. Heat is a form of frequency; color is a form of frequency; sound, smell, vibration, homoeopathic remedies, herbs and even medications, at their structural base, are all forms of frequency.

Experiments have been repeated that show that introducing a person the frequency formula for niacin, a nutritive substance, can cause a niacin - like skin flushing, the same as if the person actually ingested the nutrient..

THE EAR AND THE VOICE

No matter what the nature of the input, information is received by the brain in like form. We see frequencies of light that are transformed into electrochemical impulses and sent to the brain. We hear octaves of sound frequencies that are translated into electrochemical impulses and then provided to the brain for interpretation. No matter what we perceive, on what octave, it is all received by the brain via the same route of frequency impulses: brainwaves.

If we are composed of frequency patterns, it seems reasonable to use the most readily available frequency source of the body--the voice--to obtain information about the body. The voice is a source of sound; the ear is the most obvious receiving unit of sound. The voice and the ear form a dynamic system that is extraordinary as inherent diagnostic systems of the body.

Tomatis believes that during gestation the brain is developed from the pattern of the first organ to form: the ear. His techniques have been successful in showing that when hearing is corrected, many learning and emotional problems are eliminated. While the ear deals with innate issues that create the foundation of the energy patterns, the voice is capable of displaying a kinetic account of the body in motion.

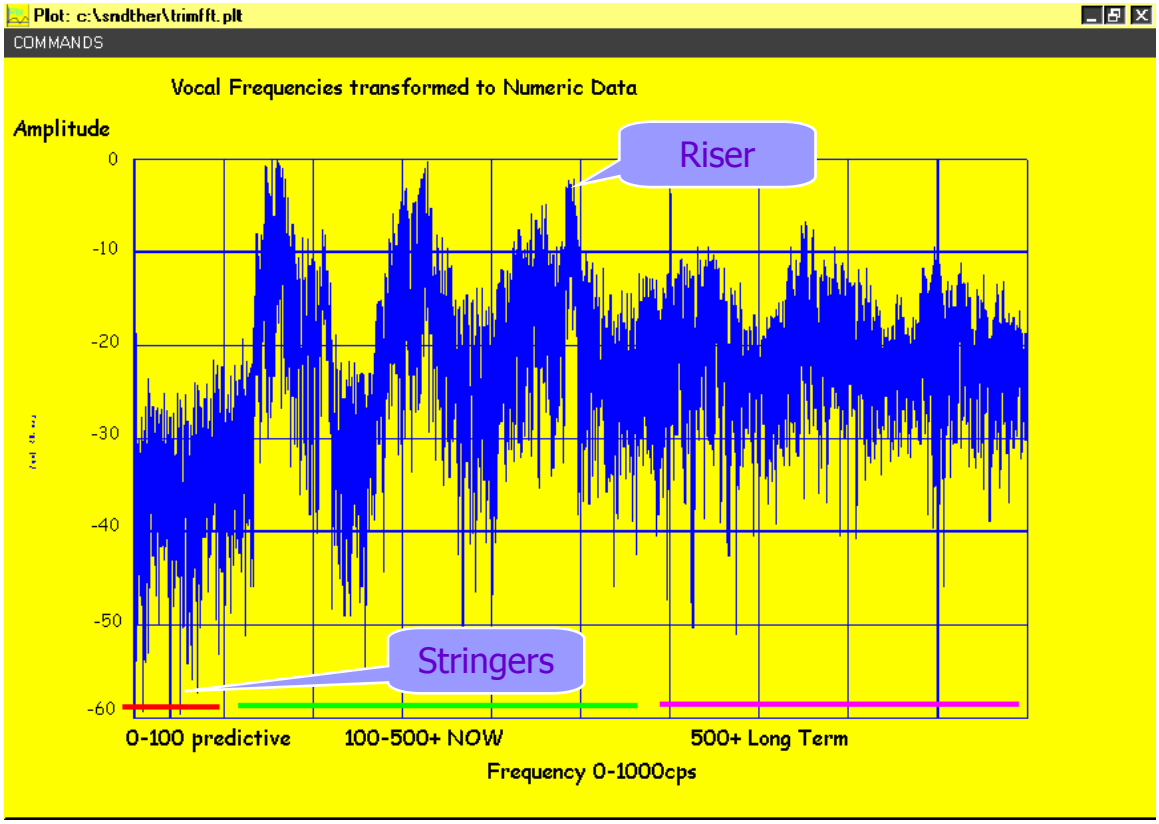
VOCAL SOUND ASSESSMENT

Computer transformation frequencies of the voice are used to create reports that detail the body in terms of frequencies relational to nutritional, hormonal, genetic, muscular, pathogenic, toxicity and metabolic issues.

As the frequencies of the body become chaotic and manifest symptoms, pain or emotional stress, the vocal print begins to display the same disorganization.

Using a computer representation of the voice, decibel and frequency levels can be used to identify the frequency based stress. The vertical axis is used to show decibel, the horizontal axis to display frequency. Points that are located high on the graph, i.e., "risers", would proportionally represent sound frequencies that are loud and over abundant. Points that are low, i.e., "stringer", would indicate sound frequencies that are not apparent.

BioAcoustic Vocal Print

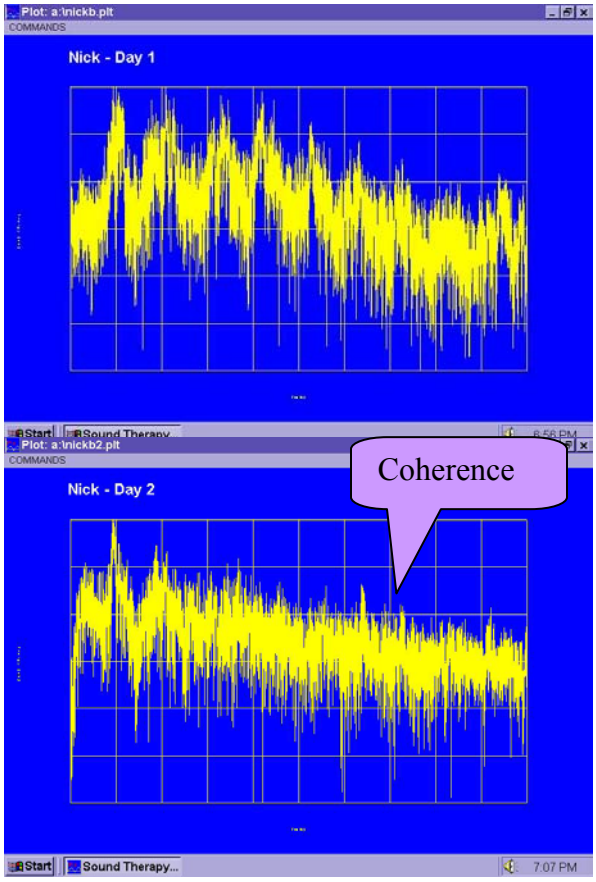


The voice print above is represented by blue jagged lines on a yellow background. The graph is divided into six vertical boxes and ten horizontal boxes. It is ideal that the voice gather into two horizontal boxes across the chart. The more chaotic the vocal frequencies, the more disorganized the frequency patterns of the body.

The objective is to cause the voice to "collect" in a smaller, more unified pattern. Fewer risers and/or stringers would indicate more coherence in a vocal presentation.

Before Sound Presentation

After Sound Presentation



The “after” vocal chart above shows coherence on the right side of the chart. The vocal frequencies (represented in yellow) collect inside two horizontal blocks.

AUDITORY SCREENING

The Tomatis Method addresses specific problems of listening. Using a listening test, it seeks to evaluate listening strengths and weaknesses. By introducing the ear to filtered and unfiltered sound stimulations through special headphones, the ear is forced to expand its range of perception. Using a patented instrument called the "Electronic Ear", the sounds are gated between two channels and given a precession delay "filtered music" increases the selective power of the ear.

The client is given the ability to perceive sound with less distortion and to analyze more precisely the fundamental frequencies and harmonics.

SOUND FORMULA CREATION AND PRESENTATION

Sound presentation should not be confused with frequency presentation which uses ranges that are not considered to be auditory and also delivers the frequencies by way of transducers placed directly in contact with the body. BioAcoustic sound presentation uses ambient sound and/or headphones. The Tomatis Method additionally employs the use of sound delivery through bone conduction.

Auditory sound therapy should be used as a first resort when any learning, hearing, language, speech or behavioral problems are suspected. Sound therapy can be used as a diagnostic tool with a great deal of accuracy.

Sound therapy is very different from music or light therapy because the sounds used are not always within the range of vocal or instrumental octaves. In the case of BioAcoustics, the objective is to entrain brain-waves. To do this, very low frequencies are created by frequency-generating specialized equipment. To involve the client more fully both methods encourage the use of the voice as a supplement to mechanical presentation. The actual results are accomplished by the harmonics of the sound formula formats. Unlike light, sound frequency can be presented over a range of eleven octaves (20 to 20,000 cycles per second), while the known spectrum of visual light is one octave. Shades of light can be extremely varied; shades of frequency can be very precise and are required to be. In some cases, a difference of .02 hertz can mean the difference between effect and no effect.

AUDITORY SOUND THERAPY APPLICATIONS

Specialties for Tomatis auditory sound therapy include learning disabilities, problems with speech, language acquisition and development, brain dominance, handedness, singing, hearing and behavioral problems. BioAcoustic Vocal sound therapy has had success with varying issues during research efforts but several specific areas of expertise have emerged: sports injuries and structural problems, pain management, nutritional evaluation and tissue regeneration being among the most successful. Of particular interest in using vocal assessment is the recent finding that implies that liver dysfunction and poor use of digestive enzymes may be responsible for the allergic reactions associated with autism and other pervasive behavioral disorders.

The inventory of unsuccessful outcomes of BioAcoustic sound therapy is short. In the past, sound therapy did not do well against invading forces such as bacteria, viruses, fungi, yeast or parasites. In the last few years several pilot project were undertaken to develop a protocol. If the data can be extrapolated, it seems quite possible to eliminate these invading pathogens in their genomic state before they become pathogenic. Further studies with biochemical proteins have been undertaken. The results look very promising for issues such as immune deficiencies, genetic syndromes, autism, mitochondrial disorders and multifaceted bioterrorist threats.

Metabolic issues have been distinguished, supported by substantiating lab results. Ongoing projects are being used to screen for allergies, heart disorders, arthritis and macular degeneration. Several BioAcoustic computer programs are being developed for on-line use so that this type of evaluation can be made easily available to the public.

It is not recommended that sound therapy be used for emergency situations such as poisoning, traumatic bleeding, broken bones or issues analogous to heart attack and appendicitis unless no other treatment is possible. Several life threatening episodes using low frequencies to stop anaphylactic shock have been experienced with extraordinary results but these were emergency situations under a doctor's supervision. As large-scale substantiating funding becomes available BioAcoustic techniques will be appropriate for diagnosis, prediction and the reversal of non-emergency symptomatic conditions. For instance, it would not be suggested that sound therapy be used to set a broken bone (although it has been done under traumatic conditions), but it could be used to accelerate healing, reduce pain and swelling and decrease the duration of recuperation. Vocal Profiling has become a very useful tool for pain relief especially when the use of medication is contraindicated.

Particularly when the symptoms are varied, obscure or non-discriminating, BioAcoustic Vocal Profiling can distinguish predictive issues before they become apparent.

PREVENTIVE VALUE OF BIOACOUSTIC SOUND ASSESSMENT

Nutritional assessment can be very expensive, but by using vocal assessment it becomes an inexpensive, time-saving, preventive measure.

The identification of a seven-year-long problem was solved recently when a nutritional analysis revealed that all components relating to the Kreb cycle were under stress. This shows that vocal profiling can provide indicators that would encourage medical attention.

Indications that fibromyalgia may be due to stored drug deposits (prescription or otherwise) in the muscle tissues, are being evaluated using BioAcoustic nutritional Vocal Profiling. This experimental aspect of sound therapy demonstrates promise as a diagnostic tool.

BioAcoustic Vocal Profiling is particularly helpful as a supplement to sports medicine and traumatic structural injury identification. As a complement to occupational, physical and chiropractic therapies, it shortens and facilitates the rehabilitation. In several cases, muscular nerve regeneration has been the result.

The condition known as TMJ (Tempromandibular Joint Disorder) has responded particularly well to BioAcoustic methods.

Mobile evaluation during space travel, remote locations and for battle-field conditions that require evaluation and management will soon be a reality. The basic structures are already in place. Funding is the only obstacle to having these techniques available on-line and/or via satellite.

As the research continues to expand, studies with those persons who are non-verbal will be able to use a microtrobe (microphone and electrode combined) that will determine the body's frequencies without the need for voice spectral analysis.

Eventually the technique with be used with animals and, in the not-too-distant future, to help our environment.

Although the foundational principles of BioAcoustics are not yet completely established, the results are undeniable. From the preliminary research it appears that the sound presentations can cause entrainment of brain-wave frequencies. In turn, these frequencies act as a support to the body until it can maintain independently.

At present, the scope of BioAcoustic practice is limited only by the number of practitioners and the acceptance by those in need of the service. Many practitioners have a waiting list. Computerized equipment and evaluation has allowed for the inclusion of BioAcoustic assessment as a complementary tool to conventional wellness practices. These recent improvements in assessment time and presentation delivery will allow BioAcoustic Vocal Profiling to become a standard diagnostic tool.

BioAcoustics facilities are located in six countries, with many positioned around the US. At present more than 3,000 persons have been trained, about 40 per cent of them being wellness providers, but not all of these individuals are practicing within the auspices of current BioAcoustic guidelines.

RESEARCH DISCLOSURES

Most of the present-day research of sound based therapies using voice spectral analysis and Vocal Profiling has been done by a small, self-supported educational research facility, Sound Health Alternatives International, located in Southeastern Ohio.

The first publication concerning BioAcoustic Vocal Profiling was published as a graduating thesis in 1982 by Sharry Edwards. That initial paper revealed that Sharry had a very unusual ability. She could hear sounds emitted from people that were in a range not normally perceived by human ears. A hearing test revealed that she could hear well above the normal range and, equally surprising, she could produce sine waves using her voice. The production of sine waves by anything other than a machine is quite unusual. Sharry was tested in three labs, including one located at Wright Patterson Air Force Base, to prove the point that her hearing and vocal qualities were unique.

Edwards was cautioned by her professors and colleagues to keep this information obscured. How could she be hearing sounds being emitted from a person's ear that others could not hear? At that time the literature failed to mention any structure of the ear that could create such a sound. The mode of thinking at that time was that the ear was incapable of making sounds independently.

Several years after Edwards' first experimentation, Wendell Browne (retired) of Johns Hopkins University published several papers indicating that the ear is capable of emitting a sound that he called an "oto-acoustic emission". He assumed that the stapes muscles of the ear were responsible. A 1994 work by James P. Cowan, titled Handbook of Environmental Acoustics, states that the actual formation of the ear canal only lends itself to creating sounds that range from F to A on the C, C#, D, D#, E, F, F#, G, G#, A, A#, B scale. Oto-acoustic emissions contain a full range of notes over several octaves.

It is assumed that the brain creates frequencies that are amplified through the brain fluids. (Liquid is a highly efficient sound-conductive source.) The sounds created by the brain are amplified by the ear, and these ultra sounds are what are being perceived as oto-acoustic emissions.

From being able to measure the sounds being emitted, trial and error was used to associate sound with diseases and muscle frequencies. Being able to depend on the unique hearing ability of Edwards allowed easier access to the appropriate course of research needed to create the developmental theory of BioAcoustics.

The seminal development of Human BioAcoustic Vocal Profiling has been made possible because of this unusual talent that was at first perceived as an esoteric manifestation but lab testing has provided substantiation that these unique hearing abilities are indisputable. On-going studies by the Davis Center of Budd Lake, NJ have proven that the frequency based vocal graph of a subject contains the independently measured oto-acoustic emission 100% of the time. Dorinne Davis has accumulated over 200 vocal samples for this continuing study that was published by the American Acoustic Society.

In March, 2004 a large pharmaceutical company followed Edwards' example by publishing an article showing that Parkinson's disease could be predicted through vocal profiling.

Today, modern computers and electronics have made it possible for the ideas of BioAcoustics to be moved from the realm of disbelief to the realm of repeatable science and technology. Lab tests, such as EMG's, have been able to substantiate that nerve regeneration is a distinguishing outcome of BioAcoustic sound presentation. Biochemical lab evaluations confirm that vocal analysis can discern such issues as vitamin, mineral assessment of the body. Research along these lines is ongoing.

Throughout this research Edwards' goal has been to educate the public about BioAcoustic research because she believes that what people don't understand, they reject. It has been her mission to prove that what she is capable of doing can be duplicated through technology. Edwards reports that she feels very fortunate to have been able to contribute many of the clues that have brought this particular branch of future medicine to life.

With more trained personnel these promising technique will certainly move medicine forward – quickly with the help and support of alternative minded visionaries who perceive its potential – slowly if the present health system is allowed to participate.

Innovative studies, utilizing voice spectral analysis and low frequency analog sound presentation, have established that although there is, at present, no standardized protocol for advocating that biofrequencies be employed to diagnose and support the body's optimal form and function, the foundational work of Sound Health has provided, and will continue to advance, vital exploration toward that objective.

FUTURE PROSPECTS

Sound based therapies were originally developed to consider the potential applications for the frequencies thought to emanate from living systems.

Now that the foundation work is completed, the possibilities are far more extensive than previously imagined. Areas of development for sound therapy are being explored. As both branches of sound therapy have different potential applications, these are listed separately.

Tomatis Method

- enhanced and accelerated learning
- reversal of problems of language and speech acquisition
- increased information integration
- efficiency of communication and self-expression
- improved vocal range and hearing discrimination
- problems with lateral dominance and handedness
- reversal of learning disabilities and problems with reading, writing, spelling and calculation

The reversal of language, speech, emotional behavior and learning disabilities that were previously thought to be irreversible is a very real proposition using the innovative patterns of delivery, gating, bone and ear conductive methods of the Tomatis Method.

Human BioAcoustics Vocal Profiling & Sound Presentation

- support for predictive, and reversals of sports injuries and trauma
- reversals of diseases previously thought incurable, e.g. multiple sclerosis
- non invasive, inexpensive, fast and efficient biochemical evaluation
- to monitor pregnancy and as a predictor of actual labor
- predictive biological system analysis for insurance and medical modeling
- finding root cause of issues such as mitochondrial disorders, allergies, diabetes, immune deficiencies, arthritis, heart disease, macular degeneration, hormonal disorders and genetic syndromes
- individualized medications that would reduce side-effects
- medical monitoring through voice spectral analysis via telephone, computer and satellite for mobile medicine in space or on the battlefield
- mobile medicine diagnostics and treatment
- drug and chemical screening for law enforcement agencies
- diagnosis of large structures through profiling of inhabitants
- evaluation of transmit systems via profiling of users
- large area pest control without creating environmental side-effects
- as an insect or shark repellent
- as a non-toxic fertilizer
- food preservation through low frequency presentation
- detection and reversal of environmental pollutions
- detection of environmental pathogens
- as future medicine by the development of predictive templates of disease and genetic traits
- the development of designated sound presentation devices that could be used individually to eliminate back pain, snoring, muscle cramps and gout

The attempts to reverse sports injuries have led to the mapping of each muscle as it responds to low-frequency sound. Using brain wave entrainment, Human BioAcoustic sound presentation has been shown under experimental conditions to be able to strengthen weak muscles, weaken over-stimulated or blocked muscles, alleviate considerable amount of pain and reduce recovery time. In one case of multiple sclerosis, complete regeneration of the muscular nerves, from the waist down, was the result of repeated sound presentation over several months.

BioAcoustic blood chemical evaluation is a developed program of information that will show the relationship of chemical elements within the body. Using a non-intrusive vocal print, the presence and usage of biochemical can be determined. The technique provides nearly instant feedback and, in addition, is very inexpensive to administer and execute. This technique has the potential to add to the present medical database regarding the interrelationships of body system and elements. It could be used by nutritional outlets, medical and hospital laboratories and individuals who take supplements. The elimination of drug related side-effects is also a potential outcome of this technique.

Sound based therapies has shown considerable promise to allow scientists to glimpse interconnected systems of the body; not just as closed systems that work together but the actual interaction between muscles and muscles, muscles and biochemistry, muscles and emotions, etc.

Using the vocal prints of all individuals involved in a particular architectural or geographic location, can allow problem areas and compatibilities to be identified. This technique could work well in negotiation settings, work disputes, marriage and family counseling, etc.

BioAcoustic sound presentation has already proven its worth in emergency situation to alleviate the symptoms of severe allergic reactions.

As for other applications, in one test using low-frequency sound, mosquitoes have been persuaded to leave an area. Studies have been conceived for repelling or attracting any pest species using low frequency sounds.

In food preservation and storage technology applications, only one pilot project has been completed but the results show that low frequencies can retard spoilage. BioAcoustic sound based therapies have proven their worth. Funding is the next step. To date BioAcoustic research has been supported exclusively by Edwards and a small group of courageous and dedicated visionaries. Sound Health, as a research institute, is dedicated to Bringing BioAcoustic to Life.

We anticipate that our efforts will continue to move medicine forward as we nudge conventional medicine toward a more competent and compassionate future.

Potentials – A Short List

Human BioAcoustics Vocal Profiling & Sound Presentation

Support for predictive, and reversals of sports injuries and trauma

Elimination of fibromyalgia pain

Elimination of muscle pain from overwork or exercise

Reversals of diseases previously thought incurable, e.g. multiple sclerosis

Non invasive, inexpensive, fast and efficient biochemical evaluation

Monitoring of pregnancy and as a predictor of actual labor readiness

Predictive biological system analysis for insurance and medical modeling

Finding root cause of issues such as mitochondrial disorders, allergies, diabetes, immune deficiencies, arthritis, heart disease, macular degeneration, hormonal disorders and genetic syndromes

Individualizations of medications and medical modeling to reduce side-effects

Medical monitoring through voice spectral analysis via telephone, computer and satellite for mobile medicine in space or on the battlefield

Mobile medicine diagnostics and treatment drug and chemical screening for law enforcement agencies

Diagnosis of large structures through profiling of inhabitants

Evaluation of transmit systems via profiling of users

Large area pest control without creating environmental side-effects - as an insect or shark repellent

As a non-toxic fertilizer

Food preservation through low frequency presentation

Detection and reversal of environmental pollutions

Detection of environmental pathogens as future medicine by the development of predictive templates of disease and genetic traits

The development of designated sound presentation devices that could be used individually to eliminate back pain, snoring, muscle cramps and gout

Miracles of Non-Medicine

Russ Rudy, MD
2000 – Numbness of hands/feet, loss of stamina
2001 – syrinx removed
2001 – Progressive Multiple Sclerosis
Compaints: Numbness of hands/feet, Spinal Syrinx

In 2000, Dr. Russ Rudy began to experience numbness of his feet and legs. In 2001 he had a syrinx (fluid filled cavity of the spinal cord) removed but his health continued to deteriorate.

After being treated by doctors at the Ohio State University Hospital, the Cleveland Clinic, being subjected to numerous CAT Scans, blood tests and 15 MRI's, Dr. Rudy was eventually diagnosed by the Mayo Clinic as having a progressive neurological disorder. "They didn't see much in the way of treatment or hope", reported Rudy. "I regressed to the point that I was using a motorized scooter to try to practice medicine," reported Rudy.

Since the medical community offered no encouragement, Dr. Rudy tried several alternative modalities including acupuncture, hypnosis and BioAcoustic Vocal Profiling. "The main therapy that has helped me the most has been BioAcoustics; a type of research that uses vocal profiling. In the last year and one-half the changes have been remarkable. I no longer require the scooter or wheeled walker or even a quad cane. I use a straight cane for balance. My mobility has increased. I can now drive like I used to without the special hand controls. The feeling has returned to my legs and I'm no longer experiencing the numbness except one small spot of my foot."

"In May, 2005, I had an EMG that showed that the nerves to my quadriceps had completely regenerated. The nerves of the tibialis anterior (front muscle of the leg below the knee) had completely regenerated and the nerves of the muscles in my calf were regenerating at a rate of 3:1. This is something that we don't expect yet mine are healing."

"When I first started BioAcoustic Sound Presentation, I was very weak; my stamina and tolerance for exercise was very low. I could lift 10 lbs when attempting knee extensions. I can now lift 115 lbs and I continue to show improvement. I'm stronger and less tired.

Multiple Sclerosis is a slowly progressive "chronic" disease of the central nervous system where myelin, the insulation on nerve fibers, is lost. MS is thought to be an autoimmune dysfunction in which the body turns on itself for some unknown reason.

Dr. Rudy states, "I had regressed to the point that I was using a motorized scooter to try to practice medicine. After using BioAcoustic techniques, my EMG showed that the nerves in my quadriceps had completely regenerated. When I first started BioAcoustic sound presentation, I was very weak; my stamina and tolerance for exercise was very low. I could lift 10 lbs when attempting knee extensions. I can now lift 115 lbs and I continue to show improvement. I'm stronger and less tired."

Dr. Rudy's miracle of non-medicine was accomplished after the Cleveland Clinic and several research hospitals had given him no hope for recovery.

Research Reports

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1. Bladder Weakness - Incontinence

Client: MaryLou
Practitioner: Liz Lonergan, RN, BARA

Condition Reported:
Urinary urgency and incontinence

History:
MaryLou is a very active senior. She teaches several Yoga and QiGong classes weekly and travels to a resort for two months every year to teach yoga as well. She enjoys her health and stamina and was troubled by this "inconvenience".

Previous treatments:
She did not want to take any medications so she always needed to be close to a bathroom or wear a pad, which was taxing on her confidence as a teacher.

BioAcoustic Evaluation:
Frequency Equivalents (FEs) for two perineal muscles that assist in bladder control were identified in her vocal print and the appropriate Frequencies tested positively for her. MaryLou's bladder problem was under control within a week.

Quote from MaryLou:
"All I can say is thank you. I have my confidence back, and that is priceless."

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2. Knee Injury

Client: James

Practitioner: Liz Lonergan, RN, BARA

Condition Reported:
James was a senior in college, and playing football when he took a nasty hit from the side and reports that resulted in: torn medial and lateral collateral ligaments, torn posterior cruciate ligament, torn medial meniscus, medial femoral condyle fracture of his left knee. He stated his left knee was swollen, he was in a lot of pain and unable to bear weight or bend his knee.

Previous Treatments:
His doctors told James that he would have to have two surgeries, and at least one full year of intensive rehab to regain the use of his knee. His football career was over and he would probably have to put his college career on hold for a year as well. His fiancé had heard of BioAcoustic analysis and suggested he try it before making any decision on surgery. He was two weeks post injury when he came for evaluation; he was in a locking full leg brace and on crutches.

BioAcoustic Evaluation:
Several vocal samples were taken over two days, which showed Frequency Equivalents (FEs) for inflammation in many of the muscles that have attachments on the medial side of the knee. During tone trials, James' brace was unlocked for his comfort. To our dismay and delight, James was able to move his knee on his own while listening to the sounds (he was unable to move the leg without assistance before the sounds). The muscles and bone frequencies that James responded to the best were put on a tone box and he returned home. James listened to the sounds faithfully 1.5-2hrs/day. At the end of 4 weeks he was pain-free, weight bearing, and had regained 50% of the range of motion. By the end of three months, James had regained 99% use of his knee. Within six months James had finished his studies without interruption, and had resumed his martial arts and yoga practices.

Quote from James:
"I was skeptical at first, but my doctors and I are positively startled by the speed and completeness of my recovery. I would definitely recommend this therapy for everyone."

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3. Thumb Pain combined with Thyroid imbalance

Client: Arianna
Practitioner: Liz Lonergan, RN, BARA

Condition Reported:
Thumb injury, depression

Client Reports:

- Loss of range of motion of thumb and 5th finger
- Severe depression
- Hair loss
- Low energy levels

Previous Treatments:

Self-massage for injury to thumb, refused anti-depressant treatment

BioAcoustic Evaluation:

Arianna is a massage therapist and full use of her hand was her main priority, however, Arianna's BioAcoustic evaluation indicated Frequency Equivalents (FEs) for the potential of thyroid issues, which included stress involved in the use thyroid hormone and iodine. The FEs suggested she might also have trouble utilizing serotonin, an important brain chemical that gives one a sense of well-being. Her voice test also showed FEs indicting a potential difficulty using collagen (necessary for tissue repair) and several thumb and hand muscle imbalances.

After the first night of listening to her tones Arrianna stated, "I felt as though a dark, heavy weight had been lifted" from my chest. I felt great!" She continued listening to her tones and took some suggested food supplements. Within two weeks she had regained full range of motion in her thumb, showed no further symptoms of depression or thyroid imbalance and her hair had stopped falling out.

Quote from Arianna:

"I am so glad that we are finally reaching the technological advancements to offer this kind of gentle, non-invasive healing therapy to people. Surely this will benefit humankind far more than I can even appreciate"

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4. Presumed Multiple Sclerosis

Client: Lisa
Practitioner: Liz Lonergan, RN, BARA

Condition Reported:

- Generalized muscle weakness, especially in the legs
- Low energy levels

Previous treatments:
Lisa's doctors had tried all the conventional MS drug protocols with her and she had been unresponsive to treatment.

BioAcoustic Evaluation:

Although Lisa had been thoroughly evaluated by her doctors and found to have all the clinical signs of MS, including lesions on the brain and spinal cord, she had been unresponsive to treatments. Her vocal analysis repeatedly showed Frequency Equivaltens (FEs) in infection architecture with an FE of Herpes Simplex Virus 6. During BioAcoustic tone trials, she responded positively to the FE of Acyclovir (a drug commonly used for treating viral infections). She was referred back to her MD and tested positive for the HSV6 virus. When Lisa returned to continue with the Bioacoustic testing, she was placed on tones for fighting the virus and supporting her body. After six months, she was re-evaluated by her doctors and was found to be free of the lesions found previously on her brain and spinal cord, and had no more symptoms of MS. Today Lisa enjoys an active life and has resumed her career in teaching.

Quote from Lisa:

"This is the most amazing thing I have ever experienced. If it weren't for Bioacoustics, I would still be suffering and being treated for the wrong illness. You have given me back my life!"

Human BioAcoustics, as originated by Sharry Edwards, M.Ed., does not diagnose or prescribe for medical or psychological conditions nor does it claim to prevent, treat, mitigate or cure such conditions. HBA researchers do not provide diagnosis, care, treatment or rehabilitation of individuals, nor apply medical, mental health or human development principles.

The Little Back Box™

For one example of the application of HBA Theory, see: **http://www.little-back-box.org**

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Addendum to the Issue: BioInformatics™

The following article is a bonus addition to the First Issue, posted on July 9, 2006

BioInformatics
The study of Anomalous Vocal Patterns used to Detect Biometric Expressions Relating to Structural Integrity and States of Health

A system of numeric vocal references, that has shown the potential to accurately reflect the biometric expressions and structural integrity of the body, is being examined as a basis to compile and test definitive frequency-based biomarkers relating to states of wellness and disease. Known as *BioAcoustic Biology* and *Human BioAcoustic Vocal Profiling*, this novel research modality has the potential to significantly advance current health care standards.

Computerized analysis of anomalous vocal patterns has provided the opportunity to mathematically model the frequencies and architecture of the acoustic parameters contained within the human voice. Embracing the idea that the voice has the potential to contain and reveal frequency-based biometric templates of human biology, these non-invasive techniques are being advanced to the extent that a computerized vocal profile, using a matrix of frequency-based equivalents, can provide information for predictive, pre-diagnostic and efficient management of individual biological form and function.

Sound-based therapies have shown considerable promise by permitting science to view the interconnected systems of the body; not merely as closed systems working independently, but as organized frequency-based relationships among structural as well as biochemical interactions.

To date, biometrically distinct vocal data have been used to create individual frequency-based profiles that have demonstrated outcomes that would be considered improbable using contemporary medical protocols. For instance, independent EMG conclusions have confirmed the regeneration of nerve tissue from the waist down for a Multiple Sclerosis patient who used biometrically defined computations and directed sound presentation as his primary therapy. Another example, involving induced childbirth, indicated Human BioAcoustics' ability to trace the amount of synthetic labor/delivery related hormones present, in terms of frequency, as genuine labor initiated. False labor costs amount to millions of dollars each year in insurance and hospital resources. Using non-invasive vocal profiling, such costs could be ameliorated.

Anomalous vocal acoustics are being investigated by health professionals in private clinics and in many health related organizations such as Pfizer Pharmaceuticals and the Institute of Automatic Control Engineering in Taiwan. Complementary research relating to molecular frequencies of both healthy and unhealthy cellular chemistry is being studied by James Gimjewski of the UCLA's Department of Chemistry and Biochemistry.

The originating theoretical and clinical research of using anomalous frequency-domain vocal patterns as a basis to define disease biomarkers has been pioneered significantly by an Albany, Ohio organization, the Sound Health Research Institute.

Logically, the establishment of a reliable model of BioAcoustic Biology, based on the quantitative study of human vocal frequencies and patterns, will follow as a result of this innovative biometric approach to biological function, disease processes and metabolism.

Professional organizations such as the Acoustical Society of America are considering the standards for technical definitions for Human Bioacoustics. This paper suggests specific language for such definition, arising from the considerations presented herein.

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Anomalous Vocal Patterns used to Detect Biometric Expressions Relating to Structural Integrity and States of Health

BioAcoustic Biology is an emerging science capable of providing biometric information through a mathematically-based evaluation of anomalous vocal acoustics. Published reports indicate that vocal analysis has been used to determine levels of hormones and biological reactions during drug trials. Stephen Williams, Pfizer's executive Director of Clinical Technology, states that Pfizer has been able to detect otherwise invisible efficacy reaction biomarkers using voice spectral analysis.

Defining disease and staging biometrics is still novel but "diagnostic biomarker" is not yet a defined biomarker category (Boguslavsky, 2004). In fact most biometric information is being used only in clinical trial selection and evaluation with the exception of the exploration being done at the Sound Health Research Institute in Ohio. Their investigative work, spread over the last three decades, includes evaluations of biochemical cascades, structural configurations, nutritional assessments, heart and eye disease templates and genetic make-up plus toxicity and pathogenic exposure information. The Institute, in addition to the Acoustical Society of America, has taken a leading role in defining this field.

Vocal pattern assessment incorporates mathematical analysis of anomalous vocal acoustics, coupled with the evaluation of amplitude decay among low-order harmonics. The results are being used in an attempt to model the frequencies and architecture of coherent acoustic parameters contained within the human voice. This emerging system of articulation of sample analysis is being uniquely investigated for its potential to develop reliable frequency-based protocols that can define innate, mathematically derived templates of human biology and definitive disease with health biomarkers.

Embracing the idea that the voice is a biometric representation of health and wellness, through the recurrent laryngeal and direct vagus nerve associations with the brain, Vocal Assessment has the potential to provide significant bioinformation.

BioAcoustic Biology research has established and is testing predictive biometric templates for nutritional needs, heart and eye health through biomarkers gained from acoustic vocal samples. Additional research includes anti-aging potential, Alzheimer's biomarkers, Fibromyalgia, autism and stroke recovery.

The brain communicates using the language of frequency that can be expressed mathematically. The brain receives and assigns signals to ranges and areas of the brain for interpretation and possible reactions. Events experienced by the body reach the brain as biofrequencies that are then sorted, routed and assigned an interpretation designation. The brain uses a network of frequencies to communicate internally. When we speak, the vibrations of the vocal cords create resonances that reverberate throughout the body. These resonant frequencies have an entrainment influence on the brain and nervous system.

Like music, the voice is a measurable arrangement of sounds. The voice as spoken language is a complex, often mathematically discordant, cacophony of sounds. Each word contains individual sound units called phonemes. Vocal analysis mathematically examines the chaos, the dissonance, of these phonemes. Language barriers do not play a part in this type of evaluation. Any sound, including moaning, crying, laughing or nonsense syllables may be used to reveal biometric information.

The foundational principle on which BioAcoustic Biology has been established is the concept that the voice is a comprehensive representation of the body that can be mapped through uniquely devised algorithms to provide a glimpse into the individual biological, chemical, and structural make-up of the body.

Through distinguishing mathematical calculations, termed in the field of Human BioAcoustics, as “Mathways”, (as in Pathways when referring to chemical cascades of reference), BioAcoustic Biology related studies have shown considerable promise in allowing science to observe the interconnected systems of the body; not merely as closed systems working independently, but as actual frequency-based structural as well as biochemical interactions of the body.

As an example, a recent evaluation of a pregnant volunteer showed that hormones responsible for labor and delivery could be monitored by studying the changes in vocal acoustics during pre-labor and the labor initiating process. The Frequency Equivalent (FE) of a labor inducing medication, Pitocin, is indicated in Chart 1 using a frequency domain vocal print; and reported in terms of time intervals in Chart 2.

Most labor and delivery hormones can be monitored in the same way. This technique would allow a quick assessment to discriminate between false and actual labor thereby saving considerable resources for insurance companies, medical personnel and clinical resources.

Like chemistry, which draws conclusions using elements and compounds, BioAcoustic Biology uses sound to explain our frequency-based biological systems. Vocal Profiling, Human BioAcoustics and BioAcoustic Sound Presentation are clinical aspects under the master heading of “Sonistry”, which is being defined as the study and application of sound and sound frequencies as a universal measurement of biologically related events.

The opportunity to create precedent-setting protocols has the potential to significantly expand understanding of the human body as a collection of predictable math-base compilations.

The need for advanced biometric diagnostic templates is apparent in light of Secretary Michael Leavitt’s (Health & Human Services) commitment to “transform the healthcare system”. Among his plans is the initiative that wellness and prevention should be sought as rigorously as treatment, and that health care should be available and affordable.

Routine vocal assessment could be used to monitor medications; the overall health of a person with limited mobility; suspected toxin or pathogenic exposures; and the status of persons in remote locations. Sites such as airports, airplanes, land based transit systems, buildings or other geographically sensitive locations could be monitored. Since the vocal samples are digital in format, they can be sent and received via satellite or the internet to a central location with no loss of integrity.

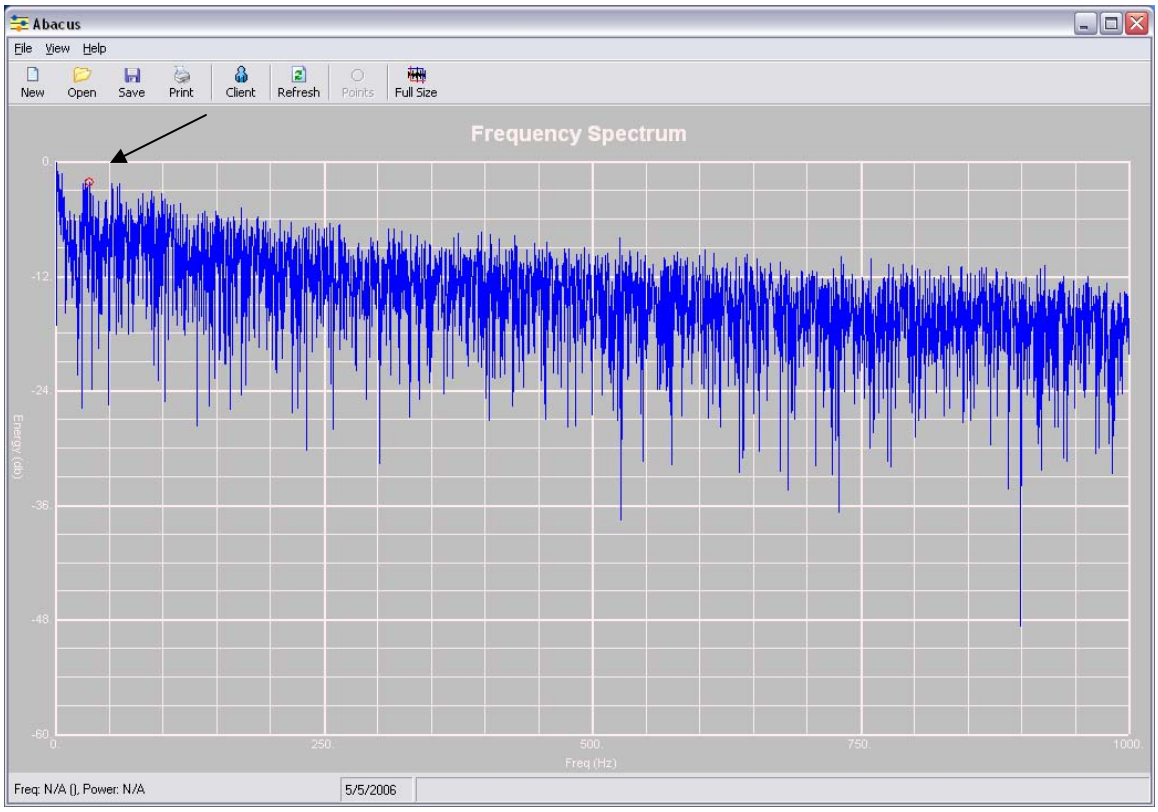


Chart-1 Frequency Domain Vocal Sample - The circle indicated by the arrow represents the Frequency Equivalent(FE) of Pitocin. In the example monitoring Pitocin during induced labor, the FE of Pitocin began to ascend beyond the coherence range of the vocal architecture as the dosage increased.

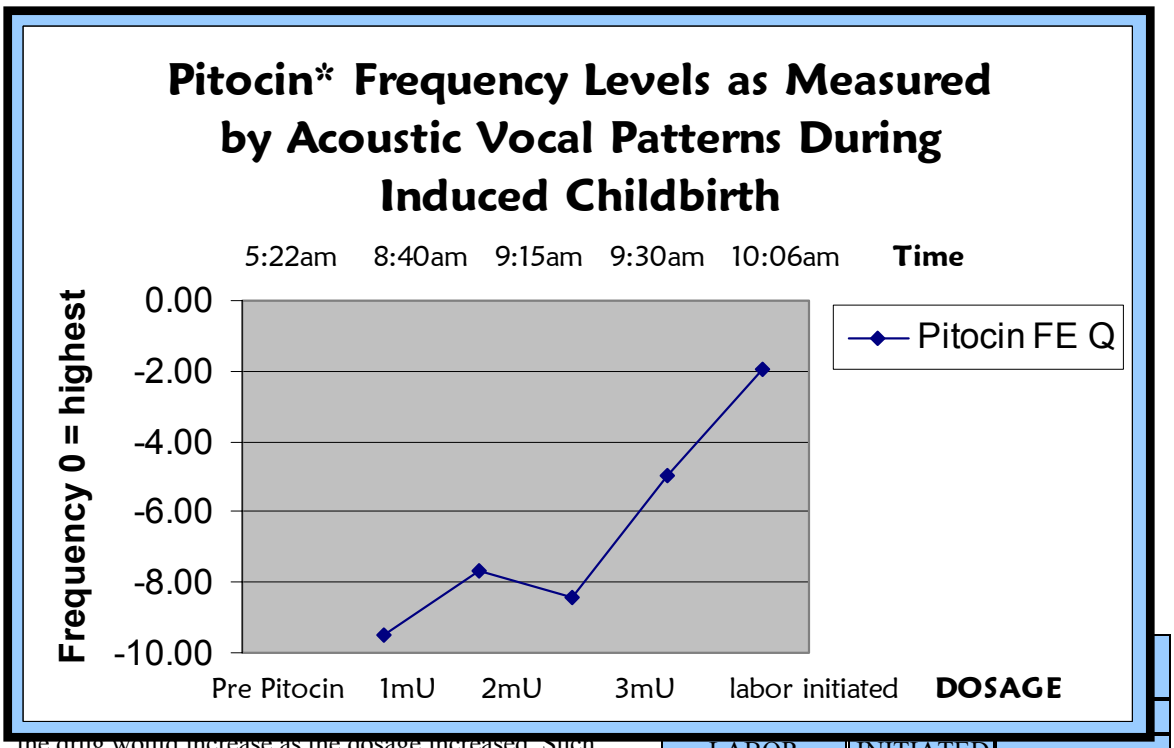
Frequency Equivalent(FE) Monitoring of Pitocin* using FFT of Vocal Acoustics

Date	Time	Pitocin FE Q	Dosage
5/1/2006	5:22am	-9.50	none
5/1/2006	8:40am	-7.65	1mU
5/1/2006	9:15am	-8.46	2mU
5/1/2006	9:30am	-4.98	3mU
5/1/2006	10:06am	-1.97	labor contractions initiated

*Pitocin=synthetic form of natural labor inducing hormone, Oxytocin
0 = highest FE representation -60 = lowest FE representation
the higher the presentation FE, the more likely the substance is active

Chart-2 – Time table key of Pitocin FE vocal acoustic evaluations for an induced labor due to previous C-section; labor was induced nine days prior to the due date.

Charts 3 and 4 represent Frequency Equivalent (FE) levels of Pitocin and a CONTROL comparison.
It was expected that the Frequency Equivalent (FE-Q) of the drug would increase as the dosage increased. Such was the case.



the drug would increase as the dosage increased. Such was the case. 0 = highest frequency

LABOR	INITIATED	
9:30am	-4.98	3 mU
9:15 am	-5.09	2 mU
8:40am	-7.65	1 mU
5:22am	-9.50	none

During the observation sequence additional hormone FE's were sampled and could likely have been used to predict the emergency (3:30am) C-section that was the end result of this induced labor.

As early as 10:30am, the vocal print indicated that the body was producing biochemicals known to act as blocking agents to the onset of labor contractions.

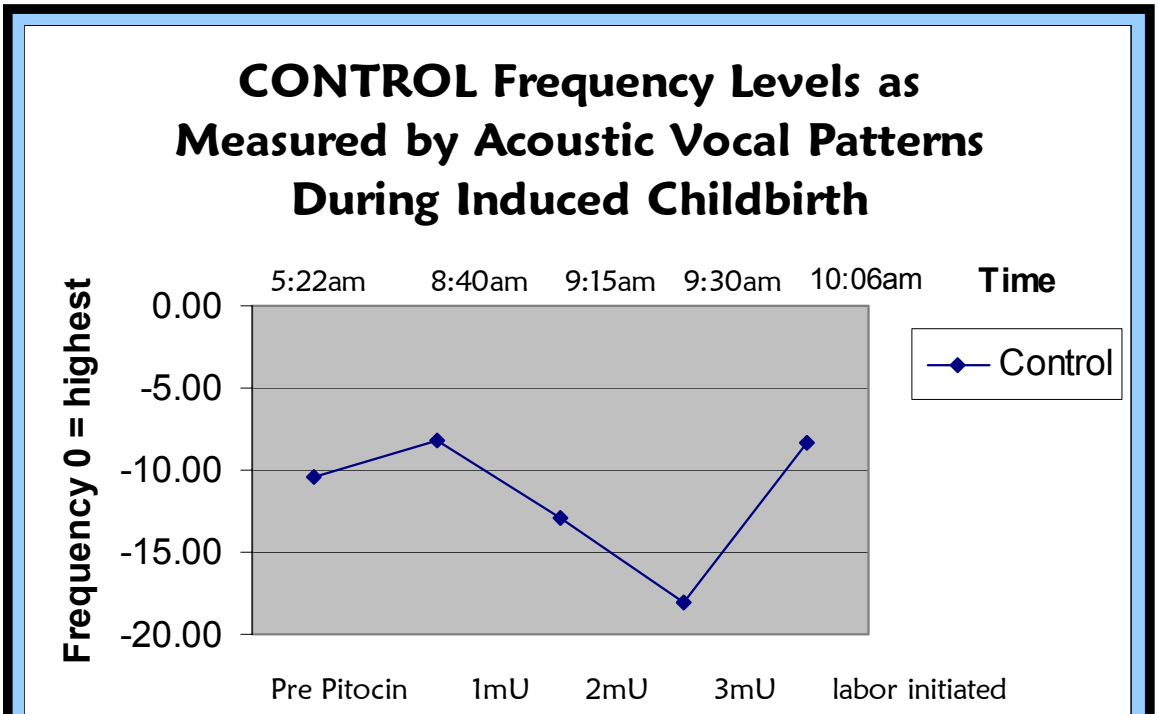


Chart-4 - During childbirth/labor, a CONTROL frequency was used for comparison with the labor inducing drug, Pitocin.

As expected the CONTROL showed erratic frequency fluctuations.

Time	Control
5:22am	-10.39
8:44am	-8.26
9:15am	-12.87
9:30am	-18.08
10:06am	-8.39

Vocal Profiling is an innovative methodology that has the potential to answer the demand for efficient, non-invasive and mobile methods of monitoring health status.

A review of blood analysis laboratories indicated that it can take as long as two weeks to return an evaluation of nutritional status. On-line Vocal Profiling would make the assessment nearly instantaneously.

The system once funded and in place, could provide the ability to evaluate health in a timely and cost-effective manner, making it possible that inequities in our present health system could be abated.

The theoretical basis of such use of sound has progressed to the stage that preliminary technical definitions can be advanced[9].

The therapeutic potential of using the evaluation of anomalous vocal acoustics for the identification of pre-diagnostic biometrics could enhance or render inert, disease-based biomarkers depending on the desired outcome. The results promise to add significant confirmation to the idea that our bodies constitute a predictable system of mathematical computations.

Vocal algorithms give us an unprecedented window into individual BioAcoustic Biology. To further advance the field of Human BioAcoustics, based on the clinical and research experiences of the Institute, the author proposes the following draft definition for consideration by the Acoustical Society of America: "Human BioAcoustic vocal pattern assessment incorporates the mathematical analysis of anomalous vocal acoustics, coupled with the evaluation of amplitude decay among low-order harmonics. The results may be used to preliminarily model the frequencies and architecture of coherent acoustic bioinformation contained within the human voice. This emerging system of Vocal Profiling has the potential to develop reliable frequency-based protocols that can define intrinsic, mathematically derived templates of human biology and definitive disease and health biomarkers."

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