Electro Acuscope and Myopulse Explanation Provides Valuable Information About These Two Amazing Pain Relief and Healing Instruments

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This is an explanation of the Electro-Acuscope and Myopulse created by Ralph Zuranski years ago when I trained doctors and nurses world-wide on Biomedical Instruments like the Acuscope, Myopulse, Myoscope, Synchrodyne 520, Electro-Acuscope, and Facial Myopulse. My job was to conduct original research and then write the training manuals so operating the instruments was easy for the technicians and doctors.

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Electro Acuscope and Myopulse Explanation

Relief from pain and the restoration of correct muscle function are two of the most important areas of research in medicine today. For centuries various forms of analgesic drugs were the only means by which pain could be controlled.

Recent decades have witnessed a dramatic progress in pain research. Advanced insights into the neurophysiological basis of pain has led to new conceptual aspects of pain perception. Even more important, these discoveries have paved the way for the development of new techniques and pain alleviation methods.

Biomedical Design, the manufacturer of the **Electro-Acuscope and Electro-Myopulse**, started in 1974 to develop a wide variety, non-invasive, high quality, innovative neuro and muscle stimulating devices. This equipment includes EEG and EMG instruments that monitor bio-conductance of the tissue.

Continuous research and development has resulted in amazing breakthroughs in design and effectiveness. New models are offering patients relief from pain and muscle dysfunction beyond what was previously possible because of the advances in microprocessor speeds and inexpensive RAM.

Biomedical Design is a leader in this field and continues to improve the effectiveness of their technology through new probes and conductive electrolyte creams. Muscle reeducation, wound healing and facial tissue regeneration are made possible by advances in software programming and biochemistry.

Electro-Myopulse Explanation

The Electro-Myopulse 75 was specifically designed to provide today's clinician with an expedient method for treatment of a wide variety of muscle and connective tissue problems. The applications include:

Prevention or retardation of tissue atrophy

Relaxation of muscle spasm

Increasing local blood circulation

Muscle reeducation

Immediate post-surgical stimulation to prevent venous thrombosis

Maintaining or increasing range of motion

To accomplish this, the micro-current output waveforms were optimized to reflect changes in neuron muscle activity. This means the clinician has a expanded capability to assist the healing of the patient in a greater range of acute injury and chronic problems.

The **Electro-Myopulse 75** is an intelligent micro-current muscle stimulator. It comes with a complete accessory package for muscle stimulation. The specifications are:

Complex Wave Form at AC Setting,

DC pulse train at Positive or Negative setting

Pulse Width at AC setting: Modulating envelope - 4 second period full envelope

Raise and Fall times of 300 mSec.

Carrier wave - 50% duty cycle

Voltage - Variable 1 to 60 Volt peak to peak

Pulse width at DC Setting: Pulse train - 50% duty cycle square wave.

Raise and Fall times 300 mSec.

2 second period envelope

Frequency Selections- 0.3, 5, 10, 20, 30, 40Hz.

Intensity Selections- 50, 100, 200, 300, 400 & 600 uA RMS

Timer Selections- 6, 8, 12, 16, 30 sec. & Continuous.

Electrode Outputs- two sets of output
(1 control and 1 remote pair)

Manual Cycle Start Switch - activated from main panel or trigger electrode

LED Bar Meter- 9 level current stimulation level indicator

Power Source: 32 VDC fully rechargeable lead acid batteries

Power cord for wall plug-in

Dimensions: 13" deep x 5" high x 19" wide
Net Weight: 25 pounds

Standard Accessories include a Trigger probe, Non-trigger probe, Interface cylinder, Hand-held bar, Large footplate, Standard set of ball tips, Coil Cords, Conductive cream, Power Cord, Manual.

Overview of Healing with micro-current

Pain, inflammation and muscle spasms often result when muscles, ligaments or tendons are injured. The circulation in the injured areas is effected adversely. There is an accumulation of lactic acid and other waste products in the tissues. This slows the healing process.

The Acuscope and Myopulse simultaneously measure and balance the abnormal electrical resistance in injured tissue. The electrical conductance of the injured tissue is examined and compared to a preprogrammed parameters for healthy tissue. When electrical conductance is outside the normal, healthy range, the instruments change the wave form, frequency, intensity and polarity to restore the tissue integrity to promote healing.

There is little or no sensation because micro-current energy is similar to the energy inside the body. Micro-currents are one-millionth the strength of household current. They are

compatible with the body's bioelectrical communication system and support the self-healing feedback mechanism already present at the cellular level. The effects of micro-currents on the healing process has been documented in the scientific literature for many years.

When this energy is introduced into the cells, circulation, lymphatic drainage, waste product removal, cellular metabolism improve. The flow of other forms of biological energy similar to chi or vital force is accelerated. Acidic waste products are flushed from the tissues and the body’s healing powers are accentuated. This results in an accelerated healing response at the cellular level, leading to reduction of pain and improved function.

Since its success in treating injuries at the 1984 Olympic games in Los Angeles, the Acuscope and Myopulse have been used extensively to treat Olympic, collegiate and professional athletes, as well as thousands of patients in the arena of pain and rehabilitative medicine. Acuscope and Myopulse treatment is completely safe and may be the only treatment necessary for a relatively recent injury. In older conditions, additional procedures are usually helpful in achieving the best overall recovery.

The Electro-Acuscope is designed to scan and treat many types of pain. It is an FDA classified TENS (Transcutaneous Electrical Nerve Stimulation) instrument. The central and autonomic nervous systems of your body are balanced by this technology without needles or discomfort.

The Acuscope is currently being used by professional athletic teams, sports medicine practices, hospitals, and by thousands of private physicians and therapists in every field of medicine. The Acuscope is very effective with animals and is being used extensively in veterinary as well as human medicine. According to widespread publicity, many outstanding athletes have been significantly helped by Electro-Acuscope treatment; several who received Acuscope treatments for pain and injury won gold medals during various Olympic Games.

Each treatment will lasts approximately fifteen to twenty minutes. The relief is cumulative; in other words, the relief will last longer and longer with each additional treatment. The goal, of course, is permanent relief. After the initial series of treatments, many people have permanent pain relief and never need another Electro-Acuscope treatment for the same condition. For some, the relief is more temporary and booster treatments may be needed as often as weekly, monthly, or as seldom as once or twice a year. Frequency and duration of treatment is tailored to meet individual needs, which is dependent on numerous variables.

Acuscope treatments are usually painless. A small percentage of patients feel a tiny pulse, or just a slight stinging like tiny needles lightly pricking the skin. Have no fear, if there is any discomfort whatsoever, simply mention it during treatment and your doctor or

therapist will adjust the settings to your comfort. It is not best for you to just "grin and bear it." During treatment, most patients feel nothing except relief and report only the sensations of general relaxation, warmth or a comfortable tingling in the area being treated.

The probes or electrodes are generally moistened with a specially formulated transmission gel or electrolyte and the electrodes are then applied to the surface of the skin. Some patients with swelling and extreme sensitivity to touch may experience some discomfort from the pressure of the probes. Most patients, however, feel only a gently or firm pressure at the points of contact, or the massaging effect of some of the larger, rounded brass electrodes. Contact pads may be taped in place to provide extended stimulation to a specific area in need of prolonged treatment. Your hands, feet or other surfaces may be placed in contact with the large brass plates; or you may be treated with as headband or ear clip set to produce overall body relief or relaxation. Whichever attachment is used with the Electro-Acuscope, the experience of treatment is generally quite comfortable, most often even enjoyable.

There are no true side-effects; that is, there are no long-term side-effects. Some temporary discomfort may be experienced after the treatment. The possibilities include headache, nausea, and increased pain. Fortunately, these side-effects are rare and usually occur, if at all, following the first one to three treatments only.

Good News! Any change, including temporary increased discomfort, is a good sign. It shows change (and you must admit, you could use a change) is going on in your body. Almost anyone who feels some increase in pain immediately or soon after the first treatment has a very good long-term pain relief response.

Often you will feel the results during or within several hours after the first or second treatment. A single, thirty-minute treatment is often followed by hours or even days of relief. Occasionally the relief from a single treatment is permanent. Be Patient. Sometimes three or four treatments are necessary before changes begin to take place. In some cases it may take more.

Questions About the Instruments

If I have tried many other forms of therapy with little lasting relief, can Electro-Acuscope and Myopulse treatments help me?

Possibly. The Acuscope and Myopulse deliver a different type of treatment than any other form of pain management. It is very often effective where nothing else has been able to help in the past.

My pain seems to be stress-related. Can Electro-Acuscope and Myopulse therapy still help me?

Yes. The therapy is also used for stress management. It can relax the muscles, the nerves, and improve circulation. If you are under excessive stress or your pain is stress-related, your doctor or therapist may apply the relaxation mode in addition to treating directly on the site of pain.

Does this program work for everyone?

No, however most doctors and therapists experienced in its use report that it helps a very high percentage of their patients.

Is there anyone who should not be treated?

Under FDA regulations there are two contraindications for use of electrical stimulation. Patients wearing demand-type pacemakers should not be treated. Pregnant patients should not be treated.

Is the treatment very expensive?

No. Compared to the cost of other pain management programs such as drugs taken over a long period of time and / or surgery, it is quite reasonable.

Will my insurance cover these treatments?

This varies with the type of policy you have. Most private insurance companies cover electrical stimulation. Check with your agent. Ask specifically about the payment policy regarding treatment under the general category of TENS or Electrical Stimulation. Your doctor or therapist may be able to advise you regarding your coverage as well.

Electro-Acuscope and Myopulse Treatment Detailed Explanation

You have just received the first of a series of Electro-Acuscope and Myopulse treatments. You may have additional questions regarding the instrument, the treatment procedure, and what results to expect. This section is intended to provide a more detailed explanation of this unique electromagnetic instrument and to offer you, and perhaps your family and friends, additional understanding of the type of therapy you are receiving.

How do the Electro-Acuscope and Myopulse reduce pain?

The human body is made up of a vast number of cells. In many ways, the cells of the human body act like tiny batteries, storing and releasing energy. Each cell has a measurable electrical charge and therefore there is a constant energy flow maintained between cells throughout the electrical circuitry of the body. When damage or trauma occurs, there is a disruption in the production of electricity and a measurable decrease in the flow of energy through the tissues involved.

This condition is generally accompanied by a sensation of pain in the area and usually results in the body's inability to readily repair itself. During treatment, the Electro-Acuscope and Myopulse introduce mild electrical currents into the cells of your body in order to return the tissue to a normal level of electrical activity. This process may be likened to a "jump start" and "putting a charge" on the battery of a car. In this way, the instrument assists the body in accelerating the natural self-healing process.

What do the sound and numbers mean?

Incorporating the most advanced electronic technology, the Electro-Acuscope and Myopulse are capable of detecting subtle electrical blockages and imbalances in the areas of the body. This may be heard as a low- pitched tone from the instrument's biofeedback sound mechanism, and seen as a digital reading which ranges from 1 to 100. When the tissues of the painful area being treated have returned to a highly conductive electrical state, the instrument gives a clear, high pitched tone and the lighted numbers on the instrument face give a read-out consistently over 100.

How much electricity does the Acuscope and Myopulse produce?

The amount of electricity produced by the Acuscope and Myopulse is measured in micro-amps (millionths of an amp), an extremely tiny amount of current in comparison to the amount of electricity flowing from a wall socket. It has been scientifically proven that this level of current produces the most beneficial effect on the body's cells. An Acuscope treatment introduces a gentle, battery generated electrical stimulation in patterns similar to and compatible with that which is constantly flowing through every living person and animal.

Why are the results from an Acuscope and Myopulse treatment are cumulative.

By definition, the cumulative effect means that each treatment of a given area will take a shorter amount of time and the pain relief which follows will last longer and longer. Unlike other forms of pain relief, such as therapy with certain drugs, the body does not build up a tolerance to Acuscope treatments. In fact, just the opposite effect occurs. Mild electrical stimulation has been proven (Cheng, 1982) to stimulate the cells of the body to produce chemicals which are responsible for cellular energy production and may be thought of as the fuel which allows the cells to begin to repair themselves. As these chemical reactions build up, the body's response to each treatment becomes stronger and stronger and the pain relief lasts longer. With each treatment the tissues are able to repair themselves more completely. In most cases, a series of treatments leads to permanent relief or to a greatly diminished level of pain.

Are there any harmful side-effects? Why is it that it may

hurt more later?

There are various theories as to why an initial increase in discomfort within 24 hours following the treatment may be experienced. One explanation is that the increased range of motion (sometimes barely noticeable) which often results from an Acuscope and Myopulse treatment will allow you to use muscles, which have been unused for some time. The pain, which can result, is similar to the effect of over-exercising normal muscles and feeling sore afterwards.

Therefore, what you may feel is the return of your pain with an additional temporary muscle soreness. Other theories have been postulated as to why it may hurt more initially. If this happens to you, and you are curious, do not be concerned. Ask the doctor or therapist for his or her opinion as to why this has occurred. And remember the effect is temporary. Relief will follow.

What should I do if the pain increases after treatment?

Should you have the experience of "hurting worse" than before the treatment, be tolerant and patient. Pay attention to how long this effect lasts and report it to your doctor or therapist. Remember: change, however temporary, is a good sign. After a few treatments this therapy reaction will not occur again.

What should I do to help get the best results?

Do not overuse the area immediately after treatment; allow for the treatment to "absorb" and take effect. In other words, if your damaged knee has just been treated and it feels great, don't go right out jogging. Be sure to follow whatever program of rest or exercise your doctor or therapist recommends.

How many times should I try the treatments if it does not seem to have any effect?

That is between you and your doctor or therapist. Most patients experience obvious improvement by the forth treatment. There are cases on record where the improvement did not start until the eight or tenth treatment. If you have exhausted all other safe methods for pain relief, it is probably wise not to give up before the tenth treatment. If immediate pain relief is experienced, however temporary, or if there is any noticeable change, of any sort, to any extent, you may be totally pain free long before your tenth treatment with the Electro-Acuscope.

Theoretical & Historical Considerations of Healing with Electricity

The current practice of medicine is based upon the Newtonian model of reality. This model is primarily a viewpoint which sees the world as a intricate mechanism. Doctors conceptualize the body as a type of grand machine which is controlled by the brain and

peripheral nervous system.

A new viewpoint of healing sees matter as an expression of energy which has its base in the Einsteinian Paradigm. It can be called Vibrational Medicine. The Einsteinian model of reality as applied to Vibrational Medicine sees human beings as networks of complex energy fields that interface with cellular systems.

Vibrational medicine uses specialized forms of energy, such as electrical energy, to positively affect those energetic systems that are out of balance secondary to disease with the goal: restore homeostasis and cellular equilibrium by rebalancing the energy fields and energetic dynamics of the organism. The recognition that all matter is energy, forms the foundation for understanding how humans can be considered dynamic energetic systems. Through his famous equation, E=mc(, Albert Einstein proved that energy and matter are dual expressions of the same universal substance.

In 1942, Charge transfer; a process of transference of electrons from the occupied orbital of one molecule or atom to an empty orbital of another was discovered. Proteins also have strongly linked to them a great amount of electron donors and according to the extensive research of D.D. Eley, behave as semiconductors. It was in the 1950's that further evidence was demonstrated in support of charge transfer. In 1941, Albert Szent-Gyorgyi published an article entitled, "Towards a New Biochemistry," Which suggested that energy, in living systems, may be transmitted by conduction bands. In 1947 it was suggested that energy move through proteins. In 1953, the existence of such conductance bands was experimentally demonstrated.

Semi-conduction was a laboratory curiosity in the 1930's. In our present time, modern computers, satellites and all the rest of our solid-state electronics would be impossible without semiconductors. Semi-conduction normally occurs only in materials having an orderly molecular structure, such as crystals, in which electrons can move easily from the electron cloud around one atomic nucleus to the cloud around another.

Within the structure of the living cell membrane, the bimolecular leaflet of phospholipids and sterols with a hydrocarbon interior and polar groups at the surface is well established. Although the structure is not certain, it seems likely to be that of liquid crystals. Szent-Gyorgyi pointed out that the molecular structure of many parts of the cell was regular enough to support semi-conduction. His ideas were almost completely ignored at the time. In the 1960's he conjectured that protein molecules, each having a sort of slot or way-station for mobile electrons, might be joined together in long chains so that electrons could flow in a semi-conducting current over long distances without losing energy.

Gyorgyi suggested that the electron flow would be similar to photosynthesis, in which a kind of waterfall of electrons cascaded step by step down a staircase of molecules, losing energy with each

bounce. The main difference was that in protein semi-conduction, the electrons' energy would be conserved and passed along as information instead of being absorbed and stored. In 1972, Kenneth S. Cole, in his "Membranes Ions and Impulses," discussed the structure of living membranes. He suggested that the bio-molecular leaflet of phospholipids in the cell membrane assumed a structure that resembled that of liquid crystals.

In "Bioelectronics: A study in cellular regulation, defense, and cancer," Albert Szent-Gyorgi postulated that the cell is a machine driven by energy. He stated that the living system may be permeated by an "invisible fluid," the particles of which the electrons, are more mobile than molecules and carry energy, charge and information, and act as the fuel of life. These electrons may help to connect molecules to meaningful structures and may also be responsible for the subtlety of biological reactions.

Gyorgyi, also the discoverer of Vitamin C, feels that the problem with cancer is not that cells are replicating themselves, since replication is natural. The abnormality may be within faulty bio-electronic switching mechanisms, which cannot turn off the replicating process. His studies of electrical effects, on implanted tumors in mice at the Mount Sinai School of medicine have suggested that electrical currents may enhance cancer-killing effects of conventional chemotherapy.

Mice with melanoma that were exposed to special electrical currents and chemotherapy survived nearly twice as long than cancer-riden mice given chemotherapy alone. His mouse melanoma experiments suggests that electronic currents and electromagnetic fields may be able to manipulate these abnormal electronic switching mechanisms.

Other Internal structures, including mitochondria with their electron transport chains, can be viewed as tiny batteries or electrical power sources. The implication is that there may be electronic switching and transmission systems within and between cells.

Arthur C. Guyton, M.D. in his classic, "Textbook of Medical Physiology,' discusses the cell membrane as a capacitor. Guyton states that the alignment of electrical charges on the two sides of the cell membrane is exactly the same process that takes place when an electrical capacitor becomes charged with electricity. "In the cell membrane, the lipid matrix of the membrane is the dielectric, much as mica, paper, and mylar are frequently used as dielectrics in electrical capacitors."

With Gyorgyi's idea in mind, Becker postulated an analog-coded information system that was closely related to the nerves by not necessarily located in the nerve fibers themselves. Becker theorized that this system used semi-conductive direct currents and that, either alone or in concert with the nerve impulse system, regulated growth, healing, and other basic processes essential in maintaining health.

Becker, an orthopedic surgeon, and twice nominated for the Nobel Prize, pioneered the application of electrotherapy to stimulate the body's innate capacity for tissue repair and regeneration. Becker developed the methods, which are used today for treating non-union fractures with electricity. Becker theorized that a naturally occurring "current of injury" is measurable in the body and hypothesized that this current was conducted by the nerve sheaths (myelin) surrounding neurons (nerves) to an area of injury, thus triggering tissue repair and regeneration.

Becker's work has also uncovered new mechanisms of information transmission within the nervous system that may be part of a healing feedback loop. This system seems to involve the Glial and Schwann cell network that surrounds most of the nerves throughout the body. Glial and Schwann cells were originally thought to be strictly nutritive to the nearby nerves. But Becker's work suggests that both types of cells may be information transmitters. Becker's studies also indicate that the information is transmitted along the Glial and Schwann cells, via slow analog changes in direct current rather than via rapid changes in the digital pulse code of action potentials as traditionally observed in nerve transmission.

Becker also looked at cellular mechanisms from the perspective of electronics and cybernetic systems. He found that at the level of the single cell, micro-crystalline and other cellular sub-elements may be involved in the modulation of intracellular electrical currents in a way similar to semiconductor circuitry. Certain cellular elements, such as membranes, can be seen to act as capacitors.

An understanding of the digital and analog systems of the body can be used to explain the differing effects of; milliamp and microamp therapy. The more primitive system, the analog system, consists of subtle direct currents, which exist in the brain and perineural (conductive) system of the body.

The digital system consists of alternating currents produced by activity of nerves and muscle. According to Dr. Becker, Salamanders, lizards, and other simple creatures, easily regenerate whole limbs and organs due to the analog system, which controls healing. This system also allows birds and other migratory animals to guide themselves by direct contact with the magnetic fields of the earth. Humans have limited powers of regeneration because our bodies favor a highly developed digital nervous system, which allows greater abilities in complex motor skills and conscious thought.

A salamander can regenerate a third of its total body mass including brain, heart and spinal cord. Becker learned that if the same electrical parameters (which he had measured) were applied to other animals, a significant amount of regeneration could take place. Dr. Becker has been able to experimentally cause frogs and rats to regenerate amputated limbs through DC electro-stimulation, a feat they are unable to do in nature. The rat regrew half of its

amputated front leg from shoulder to elbow, and a frog regrew its entire front leg right down to the individual digits of its webbed feet.

With current in the nano-ampere range (billionths of an ampere), Becker was able to clear up grossly infected wounds; osteomyelitis in just seven days, where antibiotics had failed completely.

Becker's most astonishing discovery was that, under the influence of an appropriately applied direct current, in the micro-ampere range, certain cells are capable of dedifferentiation. He found that, in frogs, mature, fully differentiated cells are able to retrogress to an embryonic form, then re-differentiate into whatever cell types are needed for complete regeneration.

The discrete pulses of milliamp stimulation resemble the digital activity of the nervous system and therefore can interact with it to temporarily suppress pain. Micro-currents, on the other hand, more closely match the analog systems of the body. If indeed it is the primitive DC systems of the body that modulate healing, this may offer an explanation for the documented healing acceleration effects of micro-current treatment.

In "Biologically Closed Electric Circuits" (1983) a 358 page book covering more than 20 years of research, Dr. Bjorn Nordenstrom, head of diagnostic Radiology at Stolkholm's Karolinska Institute and Nobel prize winner for his x-ray guided needle biopsies explored the use of electric currents to treat cancer.

Utilizing specially applied electric currents, Dr. Nordenstrom was successful in producing complete remission from various types of cancers metastatic to the lung in a significant number of cases considered untreatable buy other cancer therapies. Nordenstrom proposed that bioelectricity is conducted through the micro-capillary circulatory system in the body. When injury occurs, a positive charge builds up in the area and sets up the voltage potentials difference, which serves as a "bio-electric battery" waiting for the switch to be turned on.

This bioelectricity is then switched on by a change in the electrical insulation properties of the capillary membranes. As the membranes become less permeable to the flow of ions and more electrically insulated, the flow of intrinsic bioelectricity is forced to take the path of least resistance, which is through the bloodstream.

Dr. Nordenstrom feels that bioelectrical circuits are part of an undiscovered circulatory system in the body; these natural electrical circuits become switched on by injury, infections, tumors and even by the normal activity of the body's organs. Nordenstrom, like other bio-energetic researches, agrees that disturbances in the bioelectrical network of the body may be involved in the development of cancer and other diseases. This electrical system, says Nordenstrom, represents the very foundation of the healing process.

The Cellular Physiology of Healing with micro-current

Electrical resistance of tissue with pathology is higher than that of the immediately surrounding area, which is either normal or less pathological. Regeneration is a series of endothermic, electrochemical reactions. This means that electricity, in miniscule quantities, is needed by the cells to provide energy to fuel the regenerative process.

The tissue in the area of pathological involvement needs energy in the form of electricity. The patients' body contains more than a sufficient quantity of energy to produce the desired effect. Unfortunately, the electrical resistance in the area of involvement is so high that the body's energy flow will not enter the area because the primary laws of physics require that energy travel only via the path of least resistance.

As a result, the electrical energy traveling in the body will circumvent the area of pathology. It will always take the path of least resistance, which is around, rather than through, the area of involvement. We must enable the energy to pass into the area of pathology while still obeying these laws. We can do this by increasing the body's ability to actually produce and store energy in the area of involvement.

This is done, by charging the tissue in a manner similar to a battery. Tissue cells, just like battery cells, have the ability to hold an electrical charge. The greater the charge on the cell, the less resistant it is to the flow of electrical energy. As the cell charge increases, the molecular kinetic energy in the cell increases. The electro-vibratory rate (EVR) of the cell's molecular structure must increase with the increased kinetic energy (energy of movement).

An increased EVR will be coupled in direct proportion with an increased electro-conductivity (decreased electrical resistance). While functioning as a battery, the charged cell provides some of the energy which is involved in the energy flow equation. In other words, the addition of electrical energy to an area of pathology increases the electrical conductivity of the area and hence allows the body's own energy to enter the area and affect the tissue.

The term for the quantity of charge that a cell can maintain is "capacitance." As the general health of the cell improves, the capacitance increases. Biologically, the capacitance of the cell is directly proportional to the concentration of ATP in the cell and ranges from about .1 to 3 microfarads. ATP is at least partially responsible for binding electrons, which cumulatively represent the electrical charge and usable energy of the cell. Areas of the body, which manifest pain, are often deficient in ATP. It follows then, that the electrical energy of these areas must be below standard because the body's electrical flow cannot penetrate the resistance.

ATP concentration serves a direct vital function in the active transport mechanism known as the Sodium pump. Active transport

means that this system, which is directly responsible for the transmembrane movement of sodium, potassium, calcium, metabolic waste and metabolytes, requires large amounts of energy to move vital ions in and out of the cell. Metabolic waste builds up in toxic concentrations when a cell is not respirating properly. The energy which is released when ATP breaks down to ADP fuels the reactions which establish balanced membrane potential gradients and which bring vital metabolytes into the cell in exchange for metabolic wastes which are dumped into the general circulation to be detoxified and excreted. What we have when the sodium pump is not functioning is a hypo-polarized, toxic, starving cell.

Re-establishment of the sodium pump occurs when the increase in intracellular current increases mitochondrial function. The increased EVR of the mitochondria enhances the production of ATP in the cytoplasm. The ATP provides the fuel for the transmigration of metabolyte and metabolic waste across the cell membrane as well as the reestablishment of cellular bio-electronic ionic concentration gradients.

What this means is that cell membrane potential, normally .85mv in healthy tissue, is reestablished, levels of intracellular metabolic waste (ie; lactic acid) are reduced and fresh concentrations of usable cellular metabolytes are introduced into the exhausted cell. At this point the cell can enter its regenerative phase, pain levels are noticeably reduced and tissue regeneration functions are reestablished.

The investigations of living cells based on electrical concepts and using electrical techniques have been amazingly successful. For over a half-century, the membranes of cells have been discovered and described. The electrical parameters of cellular metabolism are well known facts and include: resting potential, capacitance, resistance, conductance, impedance, polarization capacity, current density, inductive reactance and electrical phase angle, to name a few.

According to Biophysicist Mark Biedebach, Ph.D.; if the integrity of the epidermal tissue is broken by a wound, there will be a net flow of ionic current through the low resistance pathway of the injured cells and the fluid exudate which lines the wound. Therefore, it is tempting to hypothesize that the ionic current flow pattern between normal and insulted tissue plays an important role in stimulating plasma membrane repair processes, essential to the restoration of that tissue to a normal functional state. It follows logically that the rates at which these processes occur may be accelerated by judicious imposition of an electric current from an outside source.

Cellular physiologists are now recognizing that stimuli which activate most energy-requiring processes within cells, do so via an increase in intracellular calcium. An increase in intracellular calcium following membrane depolarization occurs because: (1) voltage sensitive Ca channels allow extra-cellular Ca to enter (2) current

entering the cell can cause Ca release from cellular organelles.

Biedebach suggests that the best way to alleviate pain and inflammation would be to accelerate the rate of repair of the damaged tissue cell membranes that are responsible for releasing pain-producing substances. Damaged plasma membranes release arachidonic acid, a component of the phospholipid structure of the membrane itself. From this, prostaglandins are synthesized, triggering a cascade of reactions resulting in the release of histamine and bradykinins - which can stimulate pain endings as well as partake in the inflammatory response.

Current that does eventually enter a cell alters the cell membranes voltage in such a way that it allows influx of ions, which can turn on and accelerate biochemical processes, essential to cellular repair. If we used only DC current, the intracellular current would flow only through discrete pores or ion-channels, through a low resistance pathway called tight junctions. If we use pulsed current, there will be an additional pathway for current to enter a cell through membrane capacitance. Current flow through this additional pathway increases the ratio of intracellular to extra-cellular current flow, making the current more effective.

Pulsed current with a rapid voltage rise-time is more effective because: (1) pulsed voltage must rise to its maximum value before membrane capacitance has had time to "Charge up." The time it takes for membrane capacitance to charge up is a fraction of a millisecond. Therefore, it is desirable for the loaded stimulus pulse voltage to rise to its maximum in 50 microseconds or less. (2) Voltage sensitive Na and Ca channels stay open only (0.5) milliseconds after they have been opened, and they don't re-open for a brief time following closure. The stimulus pulse needs to stay on long enough so that cell membrane capacitance can charge to its maximum value before the pulse turns off. Therefore, duration should last several milliseconds to meet known cellular time constraints. These parameters are appropriately addressed by the Electro-Acuscope and Myopulse.

The Discovery, Research and Role of micro-currents

In the 1830's, Carlos Matteucci, proved that an electrical current was generated by injured tissue. Existence of wound currents was first experimentally observed by Dubois-Reymond in 1843, where approximately 1 microampere of current was measured from a wound in human skin. Illingsworth and Barker, (1980) some 120 years later measured the current generated by the amputated stump of a child's finger tip. These stump currents were found to be within the range of 10-30 microamps per square centimeter. Their findings were repeated by several researchers (Borgens et al 1980; Barker, Jaffe, and Vanable 1982;) although only recently have we been able to understand the implications of these findings and to therapeutically apply these micro-currents.

micro-current first gained popularity in treatment of wounds,

nonunion fractures and bone implants, where it has become an accepted procedure with orthopedic surgeons. Most of the published research on the effects of micro-currents on soft-tissue injury have described the accelerated healing of skin ulcers and associated suppression of bacterial growth.

One of the first studies documenting the positive effects of micro-current stimulation on wound healing and bone fractures was the team of Wolcott, et al, in 1969. These researchers applied stimulation in the range of 200 - 800 microamps to a wide variety of wounds.

A control group was treated with ordinary wound care methods. The treated group showed 200 - 350% faster healing rates than controls, with stronger tensile strength of scar tissue and antibacterial effects in infected wounds. Gault and Gatens used a similar procedure in 1975 - 1976 on patients with diagnosis including quadriplegia, CVA, brain tumor, peripheral vascular disease, burns, diabetes, TB, fracture and amputation. Their results demonstrated healing times in the treated group about half that of the controls. Many other researchers followed variations of these models and published similar results.

Microamp stimulation has also been called "bio-stimulation" or "bio-electric therapy" because of its ability to stimulate cellular physiology and growth. In a study with important implications for micro-current electrotherapy, Cheng et al (1982) studied the effects of electric currents of various intensities on three variables critical to the healing process:

At 500 microamps, ATP generation (or cellular energy production) increased about 500% and amino acid transport was increased by 30 to 40 percent above control levels using 100 to 500 microamps. When currents were increased to the milliampere range, ATP generation was depleted, amino acid uptake was reduced by 20-73 percent and protein synthesis was inhibited by as much as 50%. These findings suggest that the higher milliamp currents inhibit healing whereas the lower microampere currents promote healing.

Additional studies with isolated tissue or cultured cells provide compelling evidence that the intracellular rates of ATP re-synthesis, protein synthesis and DNA replication are increased as a result of direct electrical stimulation of human fibroblasts.

"Weak stimuli increase physiologic activity and very strong stimuli inhibit or abolish activity." Arnold-Shulz Law (Dorland 1985)

Other studies have demonstrated the effects of micro-current in accelerating healing of bone, tendon repairs, and collagen remodeling. A Nobel prize went to two German scientists in 1991 for their work in detecting subtle electrical currents in all types of cell membranes throughout the body. This study opened the way for greater understanding of the mechanisms through which externally applied currents can affect organic functions.

William Stanish, M.D., physician for the Canadian Olympic team, found that implanted electrodes delivering 10-20 microamps of electrical current hastened recovery from ruptured ligaments and tendons. Using micro-current stimulation, Stanish shortened the normal 18-month recovery period to only 6 months. (Stanish 1984).

The first commercial device outputting micro-current stimulation was the Dermatron, developed in the 1960's by Dr. Reinhold Voll of Germany. Although this device was primarily used for electro-diagnostic testing, it was also used to apply therapeutic micro-current stimulation to the body.

Through the research of Dr. Voll and his colleagues, the following effects of micro-current on the body were documented: 1) Spasmolysis of smooth muscles of the circulatory, lymphatic and hollow organ systems. 2) Tonification of elastic fibers, for example, increasing lung capacity in emphysema patients. 3) Reduction of inflammatory processes through reducing infiltrative, proliferative, and exudative processes. 4) Reduction of degenerative process by restoring diffusion-osmotic equilibrium. 5) Restoration of polarization to the nerves. 6) Stimulus of ATP function in freshly injured striated muscle.

To obtain these effects, micro-currents in the 0.5 - 1.0 Hz range were applied to whole limbs or selected acupuncture points. Voll and his colleagues were able to chart specific frequencies in that range that had pronounced effects on different tissue systems. This very low frequency range, which is resonant with the normal electrical activity of the human body and the frequency of the earth, is the main domain of modern micro-current therapy.

Another explanation of the efficacy of micro-current is through comparison to acupuncture. Many of the effects of acupuncture have been documented in the Journal of the American Medical Association. A "meridian", or energy communication system connecting all parts of the body, has been described by traditional Chinese and Japanese acupuncture. The work of Becker and Nordenstrom in particular recognize the action of subtle electrical currents, via the perineural cells and circulatory system, respectively, in explaining at least part of the meridian phenomenon.

Needle acupuncture is the original micro-current therapy, as traditional acupuncture needles generate measurable electrical charges when twirled in the skin by a doctor's fingers, and needles left "in situ" tend to drain of excess electric charge from tense or inflamed tissue. Modern micro-current therapy offers a simplified and non-hazardous method for practitioners to offer the benefits of acupuncture stimulation to their patients.

Micro-current Therapy with the Acuscope and Myopulse

It was in the early 1980's that brought the development of the

Electro-Acuscope and Myopulse system; the first in a line of intelligent neural micro-amperage technology. It is a multidimensional analytical microprocessor, constructed electronically to evaluate the transient electrical behavior of the living cell membrane.

By application of advanced bio-processor technology, the Acuscope and Myopulse system has the capability of providing instantaneous, moment by moment, feedback-assisted computer-modulated electronic pulse trains of infinite variation to induce bio-electronic harmony in disrupted tissue.

The heart of the system is an analog to digital conversion processing unit assisted by P.A.L. (programmable-array-logic-gates) technology. The input-output loop is the key feature that sets it apart from all other electro-therapeutic instrumentation. This feature utilizes space-age technology to integrate electronics with feedback, allowing for two-way communication between tissue and machine. In other words, biofeedback mechanisms combined with solid state circuitry (computer microprocessors with preprogrammed memory of tissue equilibrium values) enables the body to automatically control the necessary treatment parameters required for healing by regulating output voltage levels from the instrument based on amplified and filtered input of biological events.

All biological events observed within the input-output loop is defined in accordance with the master program--a neural network thermodynamic model which performs high-speed formulations. This technology communicates with the body by monitoring and transmitting corrective treatments based on existing conductivity and other electromagnetic events.

This is accomplished by the design of equilibrium principles, stored in a unique circuit microchip and other discrete components. These complex units acquire the actual value of the treatment area through the input electrodes and then compare them to the desired value. If there is any difference between the actual tissue value and the preset equilibrium principles, a digital signal is sent out to another component to process and initiate appropriate responses to achieve a steady state and promote normal cell membrane resting tension. By normalizing cell membrane resting tension, other cellular dependent electrical characteristics such as capacitance, polarity, resistance and ph can be normalized.

Using a computerized procedure such as fast Fourier Transform Analysis, it is possible to determine numerous parameters from current and voltage waveforms. The Acuscope and Myopulse samples a series of data values from the waveforms of the stimulus current as well as the voltage between the electrodes.

Analog-to-digital conversion circuitry continuously computes magnitude and phase angle of the impedance characteristics over the range of frequencies that they vary. If these characteristics are

different than those found in normal tissue, or if changes occur during stimulation, the digital program then adjusts the delivery of pulses and current to deliver optimal intracellular current to stimulate intracellular repair processes in a most effective way.

If adjustments are not made in magnitude and waveform, there is no assurance that the current, which flows intra-cellularly, is maintained at optimal value during treatment. This makes monitoring of the impedance values (or tissue conductance) highly desirable and necessary in order to promote cellular repair and the advantage of using computer-assisted circuitry (such as that found in the Electro-Acuscope and Myopulse) to regulate and continually adjust the magnitude and / or wave-shape of the stimulus pulses.

Bradshaw Gets New Hope From The 'Scope

The Miracle Machine recharged the arm of Terry Bradshaw, who juiced up the Steelers' playoff prospects. By JILL LIEBER

Art Rooney, the 82-year-old owner of the Pittsburgh Steelers, toddled into the training room at Three Rivers Stadium recently to see for himself what all the commotion was about. At one end of the room sat an 18X12X4-inch metal box with a pencillike device dangling from it on a cord. The box was blinking and beeping, doing all sorts of space-age stuff.

What do we have here?" Rooney said, poking his way through a crowd of players. "Somebody from the circus?"

"No, Boss," replied Terry Bradshaw, the Steeler quarterback who missed Pittsburgh's first 14 games this season with an ailing throwing arm, "it's the Miracle Machine."

"Hmmm. Miracle Machine?" Rooney said with a laugh. "Let me try." He held out his arthritic right hand. Terry Eberhardt, a physical therapist from Shreveport, La., ran the "pencil" over Rooney's hand. The pain vanished. Rooney stared at his hand. And stared. And stared. He jumped up and bounced down the hall, stopping everybody he saw. "Look at this!" he exclaimed, making a fist for the first time in almost two years.

"Isn't it amazing?" Bradshaw said. "I just love this thing!"

And no wonder. The Miracle Machine, a.k.a. Acuscope, has given the 35 year-old Bradshaw new life, and in the process it has given a big boost to the Steelers' playoff prospects.

A month ago Bradshaw's right arm was so sore from off-season elbow surgery and a strained triceps that it was virtually useless. After having used that arm to throw for 27,912 yards and 210 touchdowns in his 14-year NFL career, Bradshaw had become almost completely a lefthander. "Just squeezing something brought him to his knees in pain," Eberhardt says. But on Nov. 19,

Bradshaw began to undergoing daily treatments on the Miracle Machine and, well… Do you believe in miracles?

Last Saturday at Shea Stadium, Bionic Bradshaw took the field with his Miracle Machine Arm and picked apart the New York Jets. He hadn't taken a snap from center in an NFL game since Jan.9, but on the Steelers' second series, with Jet Defensive End Mark Gastineau dancing in his face, Bradshaw tossed a 17-yard touchdown pass to Greg Garrity. He came back early in the second quarter to hit Calvin Sweeney over the middle with a 10-yard scoring throw for a 14-0 lead. "I was nervous," Bradshaw said afterward, "but once I got on the field it was like a duck taking to water."

After his second touchdown pass, Bradshaw had to leave the game. He'd bruised his right elbow, having hit it on a Jet's helmet on one play and fallen on it on another. He'd completed five of eight passes for 77 yards, and later, in the locker room, he vowed he'd be back for the playoffs.

Going into the game against New York, Pittsburgh badly needed to be energized. It had lost three straight after a 9-2 start, and in those three defeats, Bradshaw's backup, Cliff Stoudt, had been inept, completing only 30 of 74 passes (40.5%) for 339 yards, with six interceptions and just two TDs.

"Terry sent waves of confidence through the entire team," Steeler Coacch Chuck Noll said. Indeed, Pittsburgh beat the Jets easily, 34-7, and that win, coupled with Cleveland's 34-27 loss to Houston on Sunday, gave the Steelers the AFC Central title. All of which meant Pittsburg could rest Bradshaw until its first playoff game, on New Year's Eve or New Year's Day.

There were times during the last eight months when Bradshaw didn't know what the next week - or even the next day - would bring. He'd strained his elbow severely in the '82 training camp and got through last season on weekly cortisone shots. Even before last season, a Shreveport orthopedic surgeon, Dr. Bill Bundrick, had diagnosed the ailment as "reverse tennis elbow" - microtears of the flexor pronator muscle, which is located over the inside of the elbow - and on March 3 of this year he removed the damaged tissue and reattached the muscle to the humerus near the elbow. Bradshaw was told not to throw until July. But by Pittsburgh's May minicamp Bradshaw was feeling like his old self. He began throwing and tore more tissue in his elbow, which ballooned to the size of a softball. Bundrick told Bradshaw not to even think of playing before September. "I felt like scolding him," the doctor says. "But he can't help it. He's Terry Bradshaw."

By September the swelling and pain hadn't subsided, so the Steelers sent Bradshaw to physical therapists in Pittsburgh. He subsequently made a trip to Shreveport to see Bundrick and while there tested a new gadget the doctor had just bought - the Acuscope, which simulates the effects of acupuncture by increasing

the electrical activity of cells, thereby promoting healing. Bradshaw used it just once and was a changed man. He began lobbing balls 30 to 40 yards. By late October he was itching to play. He threw and he threw and he threw - up to three hours and 1,500 balls a day. Soon he had a strained triceps. "It was a totally different injury," Bundrick says. "One from sheer overuse."

Out of frustration, Bradshaw and Noll began exchanging words in the newspapers. Bradshaw charged that Noll didn't care about him; Noll suggested that perhaps Bradshaw was ready for his "lifes's work," that maybe he ought to retire.

Bradshaw fled to Shreveport and the Acuscope. After one treatment he had 60% relief from the pain and swelling of the strained triceps; the next day, he had 80% relief. Ten days later, on the Monday following Thanksgiving, Bradshaw went back to Pittsburgh, this time with the Acuscope following close behind. He promised that a miracle had been performed. Noll was skeptical. But after seeing Bradshaw work out, Noll realized he had his old quarterback back. "I believe in miracles," he says now.

In the meantime half the Steelers have started using the Acuscope, and Rooney is ready to shell out $6,000 for the team's very own machine.

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Electrosleep Mode of the Electro-Acuscope

Attention should also be directed on the Acuscope's capacity to manage stress-related imbalances. By placing special electrodes on the ear lobes or the frontal bone of the head, the instrument, when set at the appropriate frequencies, will induce a relaxed concentration in the client within 20 to 30 minutes. This procedure, also known as "Electro-Sleep" or "cranial electric stimulation" or CES has been applied successfully by medical specialists ranging from dentists to psychiatrists.

This procedure is recommended to reduce mental fatigue, enhance autonomic stability, improve concentration, and, as a general procedure, to prepare the patient for treatment, including surgery. This procedure can also be helpful with hyperactive children, depression/manic depression, insomnia, anxiety, headache, migraines, visual disturbances and head trauma. Other research investigations demonstrate the promise of electro-sleep in other lifestyle stress-related areas such as obesity, addiction, compulsion, alcohol and drug detox, mood/food, etc. Unlike drug therapy, there is no dependency, adverse side effects, and benefits are sustained for progressively longer periods of time permitting increased conditioning to behavior modification methods.

The electro-sleep phenomenon occurs when a relaxed state is induced by the transcranial application of low intensity current such as is produced by the Electro-Acuscope. Actually, the word

"electro-sleep" is misleading in that patients are not forced into sleep; but rather guided into a relaxed, conscious state.

Most of the research and scientific investigations on electro-sleep have been conducted in the Soviet Union for the past few decades. There has been very limited research conducted here in the United States. A great deal of this hesitancy is probably due to the traditional mistrust of the use of electrical devices in clinical psychiatry. A few studies conducted at certain universities have produced interesting results.

Groups of patients with chronic anxiety, depression, and nocturnal insomnia were selected on the basis that they have had little or no positive response to orthodox methods of treatment. These patients had all utilized various types of sleeping medications for long periods of time with poor results. The use of electro-sleep with these same patients, however, showed significant improvements in their conditions. The most marked result was an increase in sleep.

More on Brainwaves

Brainwaves, as they are received by an electrode on the surface of the scalp, are the sum of electro-chemical language passing through a very large group of nerves (hundreds of millions) situated below the electrode. This sum generates two primary characteristics: Amplitude and Frequency. Amplitude is an extremely weak signal and is measured in microvolts - frequency is measured in Hertz (Hz) or cycles per second. These basic characteristics are believed to be determined by the degree of synchronized activity inherent in the group of brain cells being monitored. When this activity is synchronized, the amplitude is higher and the frequency is lower.

Brainwaves have been categorized into four basic levels on the basis of frequency: DELTA: 0.1 to 3.5 Hz, THETA: 3.5 to 7.5 Hz, ALPHA: 7.5 to 14 Hz, and BETA: 14 to 30 Hz. The BETA spectrum represents relatively unsynchronized activity. This activity appears to be chaotic, rapidly changing in frequency and amplitude. It is associated with normal, outward awareness, for example; taking in, evaluation, and filing away of various forms of information received through the senses. It is usually the state when an individual experiences anger, hunger, anxiety, tension and surprise.

The DELTA (0.1 to 3.5 Hz) is opposite to BETA and would be the result of high synchronization. Its slow rate of change is associated with relatively unconscious states such as deep, dreamless sleep. The ALPHA (7.5 to 14 Hz) spectrum is usually produced as rhythms of steady frequency and amplitude. It is associated primarily with pleasant inward awareness, a non-drowsy but relaxed state, a tranquil state of mind. Outside stimulation usually interrupts this alpha rhythm.

The THETA (3.5 to 7.5 Hz) level is associated with an access to

unconscious material, drowsiness, fantasy, imagery, dreaming recall, problem solving, inspiration, and creativity. Advanced students of Yoga, Zen and other forms of meditation or inner awareness appropriately display an ability to produce enhanced (high amplitude, low frequency) states such as ALPHA and THETA act ivity.

It is the ALPHA and THETA areas that are increased with the use of the Electro-Acusope. In most cases, after 10 to 30 minutes of treatment, the patient will enter the THETA state. There are a great many benefits to anyone that uses the Electro-Acuscope for this purpose. One 10 to 30 minute treatment with the instrument can replace many hours of rest. It is common for people to need much less rest per night.

Even if you wanted to continue getting as much rest per night as before, patients report that the quality of rest improves. In cases where the sleep cycle is completely disturbed such as trans-continental flight, you can eliminate any jet lag effects with a short session on the Electro-Acuscope, either during flight or upon arrival.

People that work nights and sleep days or have to sleep in a noisy environment, find that they obtain better quality of rest and do not suffer any detrimental effects because of the poor sleeping environment. Executive, students or anyone that works in a high-stress environment obtain great results from the treatments. Many people find that during the day when they feel stressed, they simply find a comfortable reclining chair or bed and take a 10 to 30 minute Electro-Sleep break, which simulates a long nap.

Thermography and Electrical Stimulation in the Diagnosis and Treatment of Pain

By Harold Bess, A.B., D.O., F.A.P.M., Levittown, Pennsylvania

A study of 2,440 liquid crystal thermograms was performed on 206 patients over a period of 26 weeks. Treatment involved the use of the Electro-Acuscope 80 which provides low frequency, galvanic, alternating current to areas demarcated by both the thermograms and the Electro-Acuscope. In myofascial pathology, electrical resistance is increased which delays the healing process and prolongs pain.

Regeneration by the Electro-Acuscope is a succession of endothermal and electrochemical biologic reactions. Microscopic amperes of electricity are directed to areas of pain involving tissue pathology to catalyze the regenerative process. The correlation of objective clinical examination findings and liquid crystal thermography was 93%. The correlation between thermography and subjective complaints was 90%. A high correlation of results in identifying areas of injury was noted between thermograms and the Electro-Acuscope. Serial thermograms showed a high correlation with electro-conductivity in response to treatment.

Conclusion: Thermography in conjunction with the Electro-Acuscope 80 offers an effective means of diagnosing and treating acute myofascial injuries.

Abstract of the 9th International Congress of Physical Medicine and Rehabilitation Jerusalem; May 13-18, 1984

Electro-Dermal Therapy

The concept of viewing and treating the body from an energetic perspective has evolved as a result of recent discoveries in quantum physics, even though Eastern traditions have included these concepts in their medical system for thousands of years. The meridian system of energy flow is a basic principle within these ancient traditions.

The meridians are a network of energy tracks which extend over the length of the entire body and are considered by some scientists to be the biophysical manifestation of the body's internal organs and the pattern along which the body's bio-energy moves. It is along these meridians where numerous acupuncture points are found.

Modern energetic medicine was strongly influenced by Reinhold Voll, a German physician who, in the 1950's, engineered one of the first devices that measured the electrical charges at acupuncture points. Voll discovered that the electrical parameters of these points were different in healthy and sick people and documented the changes that occurred at those points after medical intervention.

Dr. Voll treated thousands of patients with his electro-diagnostic techniques and discovered additional acupuncture points previously unknown in classical Chinese medicine. Voll correlated many of these points to organ systems and proved that the electrical nature of those points did indeed reflect the health of the organ system to which those points referred.

Dr. Voll also discovered that changes would occur in the readings of points when medicinal substances, particularly homeopathic solutions, were given to the patient. This discovery allowed Voll a way to determine the compatibility of those substances when introduced into the patient's energy field. This approach later became known as *Electro-acupuncture According to Voll* or EAV.

The emergence of EAV has resulted in a progressive method that provides information related to the vital state of an individual, and at a sensitivity that allows disturbances to be observed long before the onset of clinical pathology.

By detecting energetic imbalances of the body's organs at early stages of dysfunction, EAV can warn the patient of potential future health hazards long before they appear, thus decreasing the possibility of late discovery of a medical condition. Consequently,

the results obtained with EAV cannot always be confirmed through clinical methods of examination or laboratory tests since the energetic changes observed with EAV precede the changes in the cells or organs for which evidence can be supported by traditional medical means.

Numerous research articles in professional journals attest to the clinical usefulness of EAV; however, more persuasive documentation is provided by university-based controlled experiments. In 1985, researchers at USC and UCLA demonstrated, in a double-blind study, an 87 percent correlation between EAV measurements of the lung meridian and X-ray diagnosis of patients with lung cancer.

Similarly, researchers at the University of Hawaii compared a diabetic population with a control group and demonstrated a 95 to 97.5 percent correlation between EAV and the conventionally confirmed diabetic group.

EAV will not only prove to be of value alongside the diagnostic methods used in conventional medicine, but will likely acquire further recognition as our knowledge increases and as we learn more about the phenomena associated with the energetic information transfer methods by which the human system is regulated.

The ability to detect and interpret signals from internal organs at acupuncture points offers exciting medical possibilities. With a greater scientific understanding of the meridian system, this concept could conceivably apply to Western medicine for early detection and identification of health problems and help prevent the progress of many degenerative diseases.

If you have any questions about the Acuscope, Myopulse, Synchrodyne 520, Myoscope, and Electro-Myoscope feel free to call me at 619-866-4764.

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