

Invited Address

ACUPUNCTURE AND MEDICINE IN THE NEW MILLENNIUM

Joseph M. Helms, M.D.

ABSTRACT

This is a transcript of the presentation given by Dr. Helms at the June 2000 ISSSEEM conference. He addresses the classical wisdom of acupuncture and the contemporary science of this medical discipline. The topics cover proposed mechanisms of action and clinical applications.

KEYWORDS: Acupuncture, energetic medicine, Qi, self-regulatory mechanisms

It is said that sages treated those who were not yet sick. This does not mean that if anybody were sick they would not treat him, and it does not mean that if anybody were sick they would not be able to treat him. When it is stated that they treated those who were not yet sick, this treatment consisted in paying great attention to an illness's very beginning and in applying protective measures when it was still very weak. Consequently, they achieved many successes and seldom suffered from any harm. Now, if one treats an illness at the moment of its onset and when it is still very weak then, it will never happen that one has to treat it after it has already become manifest. And, of course, one will not have to treat anybody who is already sick.

Hence, one should start one's search and become aware of who is a brilliant physician while one is healthy. If a minor illness happens to occur then he should call for that physician whom he has selected before. The physician will apply his needles and drugs and within a short time will have conducted a successful treatment. In obvious contrast to this, the physicians of today treat those who are sick. They do not treat those who are not yet sick. That is to say, as long as an illness has not yet become physically manifest they do not pay attention to protective measures, they simply wait until an illness has become manifest with full vigor and only then do they attempt to treat it. Hence, it is obvious that they pay no attention to an illness while it is still weak and before it has become manifest. In getting up and in going to rest, as well as in all their daily activities in between, the sages always followed specific directives in order to support and nourish their health. When they encountered some very minor and hardly perceivable illness, they took great care to prevent its further spread and they employed needles and drugs to treat it.

This quotation is taken from one of the great medical texts written in the middle of the Ming Dynasty in the 15th Century. I find that there are remarkable parallels to our situation today. We as patients do not honor the obvious directives to maintain good health, and we as physicians cannot see anything that is not yet physically manifest in order to treat it early.

I have been asked to talk with you today about acupuncture and its role in contemporary medicine. It is fitting that the forum for this talk is the society that examines energy medicine, because, in my opinion, acupuncture is one of the most sophisticated time-tested energy medicine disciplines. It integrates successfully into our conventional medical mentality and practice.

I consider the acupuncture needle pattern, the acupuncture therapeutic input, to be an electro-energetic input, albeit subtle, that has an impact on the subtle and gross physical body. This input acts to enhance the body's self-regulatory mechanism—from subtle to gross—where regulation is necessary for homeostasis. Acupuncture is an energetic input into a material, physical form. It is an energetic input into a material form, that influences first and foremost the subtle physical form—call it the etheric body if you will—and then progressively cascades and manifests in denser and denser structures and bodily activities.

The finest input that we have been able to recognize from a speculative basis are intra-cellular microtubules and actin/fibers that facilitate quantum wave communications, both intracellularly and extracellularly. Likewise, we've shown that acupuncture can influence cell membrane transport. Certainly a major mechanism of action for acupuncture's input on the body is the electrical semiconduction that permeates the electron-rich surface of the fascia that invests every cell and organ of the body. There is a stronger electrical neuraxonal stimulation, and a charged ionic fluid that circulates among the muscle fibers. There are certainly neurohumoral effects, such as the beta-endorphin cascade, as well as other neurotransmitters. There are VIP-type peptides that act inside and outside the central nervous system. On the grosser infrastructure of the body's communication networks, there are the central and peripheral nervous systems, the sympathetic nervous system, the endocrine and immune regulatory systems, and, on the grossest level, the myofascial and musculoskeletal regulation mechanisms. Acupuncture thus works on multiple levels simultaneously. It has its strengths. It has its clinical applications. It also has its limitations. Acupuncture is one division of energetic medicine and has a range of appropriate application. It certainly can't touch every malady the human condition can create.

I considered the electro-energetic input of acupuncture to act on the subtle and progressively grosser, progressively denser physical body in an attempt to regulate, to improve the body's homeostasis. Acupuncture in its energetic input, however, is neither adequately subtle nor potent to directly influence the emotional body or the mental body, the astral or the mental bodies of the patient. There can be a reflection in the subtle emotional and intellectual field from a successful acupuncture treatment that regulates the subtle physical body,

but acupuncture itself is not so rarefied that it can directly change a problem whose core driver is a psycho-emotional problem. Adjust, regulate, give a transient vacation from the intensity of the symptomatology, Yes. But change at its core, No. For such things you need a stronger and more subtle energetic input, such as high-potency constitutional homeopathic remedies or, in the other direction, pharmaceutical agents that rearrange the neurochemical transmission of the mind-body interaction.

On the denser end of the spectrum, acupuncture can be of great value for many biomechanical and organic or functional problems. There is a certain point in the evolution of a problem that interferes with the functioning and operation of the physical organ. Here acupuncture can only assist in creating a change. It is not strong enough to reverse and return the organ to full order. For denser organ problems one needs to appeal to denser energetic input such as herbal preparations, be they from the Chinese tradition of herbal formulae, or the naturopathic tradition, or the European approach to using herbal products to assist the body's organs and systems to do more of what they are supposed to do. The herbs serve as a material substrate to assist the resonance of the acupuncture electro-energetic input.

There's nothing mysterious or magical about herbal medications. They work as pharmaceutical agents. They are dense, material. They are absorbed, they influence organs, they influence cell transport, they influence the autonomic nervous system, they influence the functions of the organs, just as do pharmaceutical agents.

In this country acupuncture has had a brief but interesting history and has meant many different things to different people. The word acupuncture did not enter the nonoriental consciousness in this country until 1971 when *New York Times* journalist James Reston accompanied an advanced press corps visit to China in anticipation of President Nixon's 1972 visit. He underwent an emergency appendectomy in Peking. His postoperative pain and ileus was handled with two acupuncture needles, one in his elbow and one in his knee. This astonished him, and he wrote an article that has influenced American medicine in the latter part of the 20th Century.

Reston's article stimulated American enthusiasm for things Chinese, for oriental medicine. More importantly, acupuncture was embraced as part of the

emerging movement called Holistic Medicine. This movement has gone through many incarnations, many iterations, many names, but it is the process of integrating spirit and energy into the perception and practice of medicine. Acupuncture was thus embraced thirty years ago to fill some of the vacancies in the American perception and practice of medicine.

With the progressive identification of the endogenous opioid peptide system and its linkage in the late 1970's to acupuncture stimulation, acupuncture became somewhat more respected in the conventional scientific community. Several discreet neurochemical pathways could be activated by stimulating acupuncture needles placed in the periphery of the body.

Through the 1980's acupuncture was progressively linked with responsible clinical research and practice. Training programs grew both for physicians and nonphysicians, and acupuncture has been uniformly favorably embraced by the media.

In 1992 the National Institutes of Health was created under the Office of the Director, the Division of Unconventional Medical Practices. In a year the name was changed to Office of Alternative Medicine and again recently to the National Center for Complementary and Alternative Medicine. The funding increased from its initial one million dollars to an eighty million dollar budget. Acupuncture was one of the first and most successful approaches to be studied and continues to be well-funded, principally for its application in pain management.

In 1997, the Office of Medical Applications of Research of the NIH, in collaboration with the Office of Alternative Medicine, created a consensus document that spoke favorably of acupuncture applied to a list of clinical conditions. More importantly, it encouraged further investigation of acupuncture's application in clinical medicine. This was a great boon to the respect and recognition of acupuncture in the medical field. Since that meeting, participation in the UCLA program that I chair has doubled in its applications. We expect that this increase will continue over the next decade.

The research that the NIH evaluated was restricted to about 100 controlled prospective clinical efficacy studies. In the United States acupuncture's application to pain management has been most thoroughly studied. Lumbosacral

pain, headache pain, perioperative pain, osteoarthritic pain, cervical pain, tennis elbow, musculoskeletal pain, pain of organic lesions and of malignancy were endorsed. Of organic problems, asthma, nausea of chemotherapy and surgery, some gynecologic and obstetric problems, and post stroke problems were endorsed. Urinary tract disorders, angina, tinnitus, bowel function and depression all had one article whose design was adequate to be included in the list of also to be considered.

Shifting from the clinical science, it's interesting to look at what's known in the basic science. What we understand best about acupuncture is the neurohumoral cascade that's provoked in controlled experimentally induced pain studies where acupuncture needles are placed with electrical stimulation. Two distinct pathways of pain control are produced by electrical acupuncture stimulation. When we use a low-frequency—two or four hertz—at a high intensity that might even make your muscles jerk without causing pain, we create an analgesia that starts slowly but that is general in its effect. The analgesia will continue even after the electrical stimulation stops. It is cumulative; each time you do it you will get a better and more enduring response. And, it is dependent upon the system of neurotransmitters that are derivatives from a large molecule called beta endorphin that is produced in the hypothalamus.

A second kind of pain control is created by high-frequency electrical stimulation done at much lower intensity that is felt as a buzz or that almost feels like a cramp. The pain control that this induces is rapid and works only for the nerve segment that is being stimulated. It is only active during the stimulation and it isn't cumulative in its effect. It is not linked to the beta-endorphin system, rather, to a different system of neuro-transmitters in the brain and peripheral nervous system. The body of literature demonstrates an understanding of the internal mechanisms of acupuncture-produced analgesia that is far more sophisticated and complete than what we have for any of the conventional anesthetic gasses that are used daily.

We use this information in how we connect our electrical stimulation to the needles that we place around the spine and around painful areas of the body. We connect some of them to low-frequency, some of them to mid-range frequency, and some of them to high-frequency. In so doing we recruit

different families of neurotransmitters until we simulate the harmonic of peptides in the central and peripheral nervous system that match what is needed to achieve a plateau of lessened discomfort in the patient.

The sympathetic and parasympathetic systems are also involved in the expression of acupuncture information. The French have done a number of interesting studies injecting Technesium 99, a radioactive isotope, into acupuncture points and studying the diffusion pattern. When injected into acupuncture points the diffusion pattern follows the classically described acupuncture pathways. Injecting it into a non-acupuncture point triggers a diffusion pattern that is simply circular, a centrifugal distribution. The French have also introduced a bolus of electrical current between two known acupuncture points and have traced the transit of that current from one point to another. The current does not travel at the speed of electricity. Nor does it travel at the speed of nerve electrical transmission. Rather, it goes fairly slowly—1.7 centimeters per second—between acupuncture points, and continues as a bolus of charged electro-ionic fluid along the pathways of the acupuncture circulation, even after the electrical stimulation is taken off.

A phenomenon described in China as “propagated sensation along the acupuncture channels” is similar in its rate of propagation to the injection of the Technesium 99 or the electrical bolus. This is where one takes the needle, puts it in an acupuncture point, gets that needle grab that feels like a dull ache and then works the needle to propagate the sensation along the channel. It reproduces the pathways as they are described in the classical literature.

The French have done a responsible job of evaluating bioelectrical properties of acupuncture points showing that for a diameter of five millimeters the skin over the acupuncture points is an easier conductor of electrical stimulation than at non-acupuncture points. The French have assembled a typical acupuncture point morphology. There’s nothing unusual about the histological elements contained at the acupuncture point, rather what’s unique is the concentration in which they occur. In contrast to the usual thick, dense connective tissue below the surface of the skin, at an acupuncture point there is a chimney of very loose connective tissue that contains a rich concentration of nerve endings, of capillaries and of lymph channels that emerge from the superficial fascia.

This structure creates communication between the surface of the body and the fascial network of the body. Electrical semiconduction of the fascia, the electrical conduction of the large nerves, the blood chemistry changes and the lymph changes are uniform properties triggered by needling acupuncture points.

That's all we can speak of with confidence about the physical reality of acupuncture points and actions. From here we move into the world of models and speculations. Biological communication networks include everything from internal neuro-peptides that are communicating between the brain and the outside of the brain, to neurological and endocrine and immunologic communications systems. The electrical semi-conduction network is the one I like best as a global translator of acupuncture electrical energy because the fascia is so rich in its electron surface organization. There's a matrix of electrons organized on this glistening surface of the fascia, much like the matrix in the liquid crystal display on your portable computer, where instead of an entire ion migrating there is a single electron migrating from one acupuncture point to the next. Fascia is clearly the best tissue to provide this network since it invests every cell of the body.

The sheaths that surround the big nerves of the body likewise have this semi-conduction phenomenon linked to them. There is also a collection of vasoactive intestinal peptides that are central and peripheral. They seem to create and translate emotions from the brain and central nervous system to the physical systems.

The model that gives me greatest comfort is based on our known physiology that every organ in the body creates a positive electrical field around it. That field is projected to the surface of the body so that with a dozen organs, each with its positive electrical field, some of the fields mingle. They translate on the surface of the body as the channels of the classically described acupuncture points, and move from the trunk to the periphery as a percolation of charged ionic fluid, lymph fluid that travels between the major muscle groups.

When a needle is inserted into the acupuncture point, its tip is positive because the difference between body and room temperature creates a gradient and thus an electrical gradient. When the handle of the needle is heated or manipulated, it changes the polarity of the tip of the needle to negative. Thus one can create

a needle pattern along these channels of preferential flow that introduces a flow of electrons from the stimulated needle to the non-stimulated needle. These patterns can address a region, an axis, or a body function that needs to have its electro-energetic activity enhanced, changed, opened up, or moved.

So we define a multi-system physiological model involving electrical transmission, neurological transmission, blood transmission, neurohumoral transmission and lymphatic transmission, all taking place at the same time leading to enhancing a self-regulatory mechanism that acts on many levels through many vectors simultaneously.

I find expert panels to be the most reliable sources of appropriate clinical applications of acupuncture. In this country musculoskeletal pain is the category of problem most commonly treated by acupuncture. This includes acute musculoskeletal pain (such as soft tissue contusion, muscle spasm, sprains and strains and radicular pain) and chronic pain (such as repetitive strain disorders, carpal tunnel, tennis elbow, myofascial pain patterns, muscle tension headaches, fibromyalgia pain, temporomandibular joint, arthritis, degenerative disc disease and radicular pain) as well as neurological problems (post-herpetic neuralgia, neuropathic pain and visceral pain following surgery or adhesions).

Acupuncture is also useful in substance abuse and prescription narcotic analgesia with analgesic withdrawal. Also in general medical conditions of the respiratory, gastrointestinal, gynecological regions, covering a large sphere of organic and functional physical problems.

The area that I find most receptive to acupuncture is when a problem is just becoming manifest, before it becomes locked into tissue pathology. I divide this terrain into aesthenic states (such as ill-defined fatigue, mild depression, early psychosomatic problems, and functional problems); problems that are manifested through the dysregulation of the autonomic nervous system (anxiety, sleep disturbances, bowel dysfunction); and problems that are manifested through immune dysregulation (such as recurrent inflammatory infectious problems, sinusitis, pharyngitis, bronchitis, gastroenteritis and viral problems). Those are the areas that are certainly gaining most attention and greatest respect for acupuncture's energetic application.

It is critical that we respect and understand the tradition of acupuncture and embrace its value to the fullest extent, rather than limiting it to the half dozen clinical applications endorsed by the National Institutes of Health. The major difference in the theoretical comprehension of Western medicine and acupuncture is the notion of a life vitality. Acupuncture energy is called Qi. The flow of Qi is organized according to regular patterns in the body; on the front the energy flows up, on the back the energy flows down. This is energy flow through the muscular shell of the body. The upgoing and downgoing flow creates a collection of territories of influence of internal organs and surface trajectories.

On the front of the body the channels are called Yin, on the back of the body they are called Yang. They create an elaborate system of acupuncture super-highways that we refer to as the principle meridian system. We have three bilaterally symmetrical subcircuits of circulation—each one of these linked with four organs, each one of them covering its own surface territory of influence. One can address musculoskeletal pain problems as well as problems that are linked to the organs.

This is the hardwiring, the pathways where acupuncture energy circulates. It links us as physicians and us as patients to our life vitality. When we understand how the networks work and what points to needle and what patterns to insert, we can use acupuncture to regulate disturbances, either as primary treatment or as treatment ancillary to conventional or other unconventional approaches.

The delight of acupuncture is that it presents a model of health and illness, but more importantly, it presents a model of order and organization. It assumes an intrinsic logic and a universal order.

The needles work on their own, you simply need to know how to put in the patterns. Acupuncture, as a form of energy medicine, can become a vehicle for your own healing energy to connect with that of the patient, whether you call this spirit, whether you call it prayer, whether you call it Qi or Qigong, or whether you simply see yourself as a conduit for the transmission of universal vitality and healing.

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CORRESPONDENCE: Joseph W. Helms, M.D. • 2520 Milvia Street •
Berkeley, CA 94704

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