

# AN OVERVIEW OF MEDICAL ACUPUNCTURE

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*This article defines the theoretical matrix and clinical value of the emerging complementary discipline of medical acupuncture, the acupuncture approach most commonly integrated by physicians into conventional medical practice. Medical acupuncture respects our contemporary understanding of neuromuscular anatomy and pain physiology while embracing the classical Chinese perception of a subtle circulation network of a vivifying force called qi. This hybrid acupuncture approach expresses the best of both worlds by describing a context in which to organize patient symptoms that usually escape attention in the standard medical evaluation. Musculoskeletal problems have been shown to be the most frequently and successfully treated disorders; however, medical acupuncture is adaptable to most clinical practices and can be used either as the primary or a complementary treatment. The physician acupuncturist can creatively intervene in a spectrum of medical disorders from early premorbid manifestations to chronic organic or musculoskeletal lesions by activating the appropriate subunit of qi circulation. (Altern Ther Health Med. 1998;4(3):35-45)*

**M**edical acupuncture is acupuncture that has been successfully incorporated into medical or allied health practices in Western countries. It is derived from Asian and European sources, and is practiced in both pure and hybrid forms. Therapeutic insertion of solid needles in various combinations and patterns is the foundation of medical acupuncture. The choice of needle patterns can be based on traditional principles such as encouraging the flow of qi (pronounced *chee*), a subtle vivifying energy, through classically described acupuncture

channels, modern concepts such as recruiting neuroanatomical activities in segmental distributions, or a combination of these two principles. The adaptability of classical and hybrid acupuncture approaches in Western medical environments is the key to their clinical success and popular appeal.

## HISTORY AND DEVELOPMENT

In the United States, acupuncture has been increasingly embraced by practitioners and patients since the appearance of James Reston's landmark article describing his experience with successful postappendectomy pain management using acupuncture needles (*The New York Times*. July 26, 1971:1,6). Before that time, acupuncture had been practiced only in urban Asian communities, discreetly and primarily by and for Asians. In the early 1970s, widespread enthusiasm for acupuncture was fueled by reports from physician visitors to China, who witnessed surgical analgesia using only acupuncture needles. Respect for the technique grew in the medical and scientific communities in the late 1970s, when it was shown that acupuncture analgesia was linked to the central nervous system activities of endogenous opioid peptides and biogenic amines. Since the 1970s, guidelines for education, practice, and regulation in acupuncture have been established and implemented. State, regional, national, and international societies have evolved to represent the interests of affinity groups of practitioners.

Acupuncture is one discipline extracted from a complex heritage of Chinese medicine—a tradition that also includes massage and manipulation, stretching and breathing exercises, and herbal formulae, as well as exorcism of demons and magical correspondences. The earliest major source of acupuncture's theory is the *Huang Di Nei Jing* (*Yellow Emperor's Inner Classic*), whose oldest portions date from the Han dynasty in the 2nd century BC. The *Nei Jing* authors regarded the human body as a microcosmic reflection of the universe and considered the physician's role that of maintaining the body's harmonious balance, both internally and in relation to the external environment.

The *Nan Jing* (*Classic of Difficult Issues*) was written in the 1st and 2nd centuries AD, also during the Han dynasty. This text presented a unified and comprehensive system that advanced the theories of points and channels and addressed the etiology of illness, diagnosis, and therapeutic needling. The *Zhen Jiu Jia Yi Jing* (*Comprehensive Manual of Acupuncture and Moxibustion*),

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attributed to Huang-Fu Mi in 282 AD and based on the previous texts, is the oldest existing classical text devoted entirely to acupuncture and moxibustion (heating the acupuncture points and needles with smoldering mugwort, a dried herb).

Between the Han dynasty (206 BC–200 AD) and the Ming Dynasty (1368–1644 AD), acupuncture practice was refined and its literature underwent continual exegesis. Research, education, clinical refinement, and collation and commentary on previous classics flourished in the Ming dynasty. The *Zhen Jiu Da Cheng* (*Great Compendium of Acupuncture and Moxibustion*) of Yang Ji-Zhou, published in 1601, synthesized many classical texts as well as unwritten traditions of practice, and became the most influential medical text for later generations in Asia and Europe. The *Da Cheng* was the source of acupuncture information transmitted to Europe in the 17th through the 19th centuries via Latin translations by Portuguese, French, Dutch, and Danish missionaries, traders, and physicians traveling and working in China and Japan. It was also the primary source translated into French in the 20th century.

There was a flurry of primitive acupuncture experimentation by physicians in France, England, Germany, Italy, Sweden, and the United States in the first three decades of the 19th century, which did not renew itself in Europe until a century later and in the United States until the 1970s. The most influential impact on the development of 20th-century European acupuncture was the work of George Soulié de Morant, a scholar-diplomat engaged in the French diplomatic service in China between 1901 and 1917. Soulié de Morant published articles and French translations of Chinese and Japanese medical texts, and on his return to France taught clinical applications of acupuncture to French physicians. He systematically introduced acupuncture theory from the classical texts to the French and European medical community. The commonly used terms “meridian” and “energy” both originated in his texts as translations for the two fundamental tenets of acupuncture: anatomy and physiology. In 20th-century France and throughout much of Europe since the 1950s, clinical acupuncture has codeveloped with biomedical science. Europe has thus served as another influence for acupuncture approaches that integrate into the practice of conventional Western medicine.<sup>1</sup>

### PRINCIPAL CLASSICAL CONCEPTS

Acupuncture has evolved over 2 millennia, both through refinements based on treatment responses and through adaptations to changing social situations. The language in classical Chinese medicine texts reflects nature and agrarian village metaphors and describes a philosophy of man functioning harmoniously within an orderly universe. The models of health, disease, and treatment are presented in terms of patients' harmony or disharmony within this larger order, and involve their responses to external extremes of wind, heat, damp, dryness, and cold, as well as to internal extremes of anger, excitement, worry, sadness, and fear. Illnesses likewise are described and defined poetically, by divisions of the yin and yang polar oppo-

sites (interior or exterior, cold or hot, deficient or excessive), by descriptors attached to elemental qualities (wood, fire, earth, metal, and water), and by the functional influences traditionally associated with each of the internal organs.

The classical anatomy of acupuncture consists of energy channels traversing the body. The principal energy pathways are named for organs whose realms of influence are expanded from their conventional biomedical physiology to include functional, energetic, and metaphorical qualities (eg, Kidney supervises bones, marrow, joints, hearing, head hair, will, and motivation; Spleen oversees digestion, blood production, blood-related functions such as menstruation, and nurturing and introspection). Acupuncture anatomy is a multilayered, interconnecting network of channels that establishes an interface between an individual's internal and external environments, permitting energy to move through the muscles and the various organs.

The most superficial of these pathways are the tendinomuscular meridians, which serve as an interface between the organism and its external environment. They provide the first defense for the body's response to climatic conditions and external traumas. The principal meridians travel through the muscles and provide nourishment to all tissues and vitality for animation and physical activity. The distinct meridians go directly from the surface of the body deep to the organs, and allow the nourishment and the energy produced by the organs to circulate throughout the body. Finally, a system of pathways called the curious meridians create connections among the principal acupuncture channels and serve as energy reservoirs for extreme conditions of emptiness or fullness. The network of energy circulation is organized into three bilaterally symmetrical plates that divide the body into six sagittal territories of influence. Each plate manifests the energy derived from four organs as it circulates in their anatomical territory of influence.

Figure 1 represents the schematic organization of one plate in the acupuncture energy circulation. The core rectangle is the principal meridian subcircuit, from which the subdivisions of energy circulation are derived: tendinomuscular meridians on the surface, distinct meridians going to the organs, and curious meridians creating connections among several principal meridian subcircuits. Figure 2 shows the bilateral surface tracing of one principal meridian subcircuit. Figure 3 provides the organ associations, and thus the names, for these energy channels: Kidney–Heart (shao yin) and Small Intestine–Bladder (tai yang). Figure 4 shows the surface location of the Kidney and Bladder tendinomuscular meridians, associated with two of the four organs involved in the shao yin–tai yang principal meridian subcircuit. Figure 5 shows the deep pathways of the distinct meridians for the same two organs. Each of the three bilaterally symmetrical subcircuits has a similar schematic organization. The anatomical territory of influence shifts with the location of its sagittal plate and the organs involved in its energy circulation.

The classical physiology of acupuncture involves a dozen internal organs that interact to produce basic energy and blood from ingested solid and liquid nourishment, then mix in the

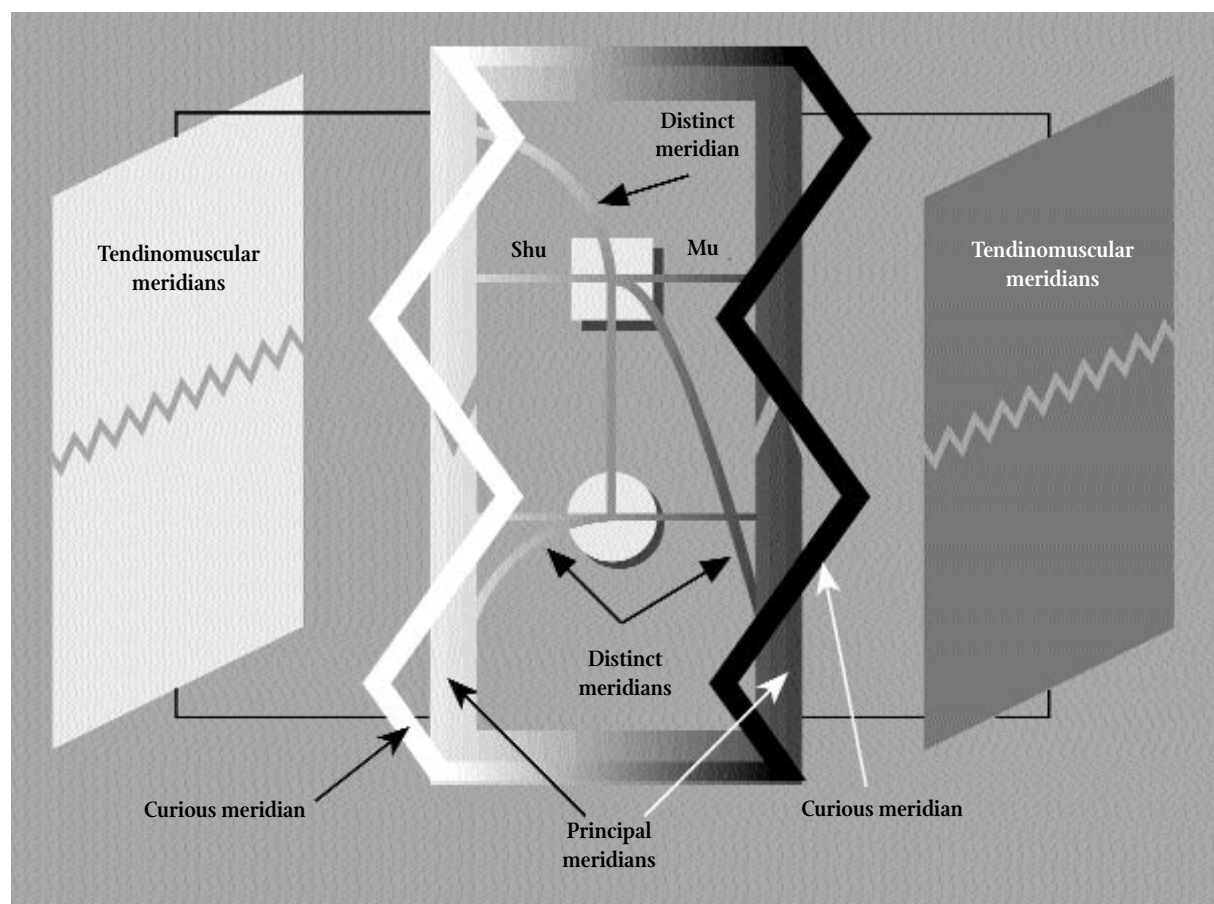


FIGURE 1 Schematic anatomy of acupuncture energy circulation

energy from inspired air and propel the transformed energy and blood through all the body's organs and tissues. The organs are divided into six parenchymal, energy-producing organs (solid, yin), and six visceral, substance-transporting organs (hollow, yang). These organs are coupled into groups (one yin and one yang) to make up the three symmetrical energy circulation plates. Pathology in acupuncture involves an early manifestation of disharmony associated with the subtle influences of an organ, a disruption of the qi flow in one of the subdivisions of the circulation network associated with an organ, or a frank disturbance in an organ's metabolic or transport function.

Diagnosis in acupuncture involves recognizing the level of manifestation of a disturbance. Premorbid symptomatology is organized according to the organs' subtle spheres of influence, where early energetic and functional symptoms are linked to the organ that supervises the disturbed anatomical region or physiological function (eg, Kidney energy supervises head hair; premature graying or balding reflects a deficient Kidney vitality). Obstruction of the flow of energy or blood through the principal meridians manifests as musculoskeletal pain in the territory of the channel (eg, the Bladder principal meridian passes through

the lower back; lumbar pain reflects an obstruction of qi and blood flow through that channel). Organ pathology is identified either in conventional biomedical terms or as a disturbance in the organ's physiological activities according to acupuncture terms (eg, nephrolithiasis is a disturbance in both Kidney and Bladder organs and spheres of influence). Treatment in acupuncture involves the insertion of needles along the channels of the involved organs to stimulate energy circulation that can influence the problem at its level of manifestation, thus restoring energetic balance and organ function in the organism.

#### PRINCIPAL MODERN CONCEPTS

Since the late 1970s, acupuncture analgesia has been demonstrated to activate the endogenous opioid peptide system and thereby influence the body's pain regulatory system by changing the processing and perception of noxious information at various levels of the central nervous system. Two model systems of acupuncture analgesia have been advanced: an endorphin-dependent system involving low-frequency, high-intensity electrical stimulation of acupuncture needles (2–4 Hz) that is slow in onset, generalized through the body, and cumulative on

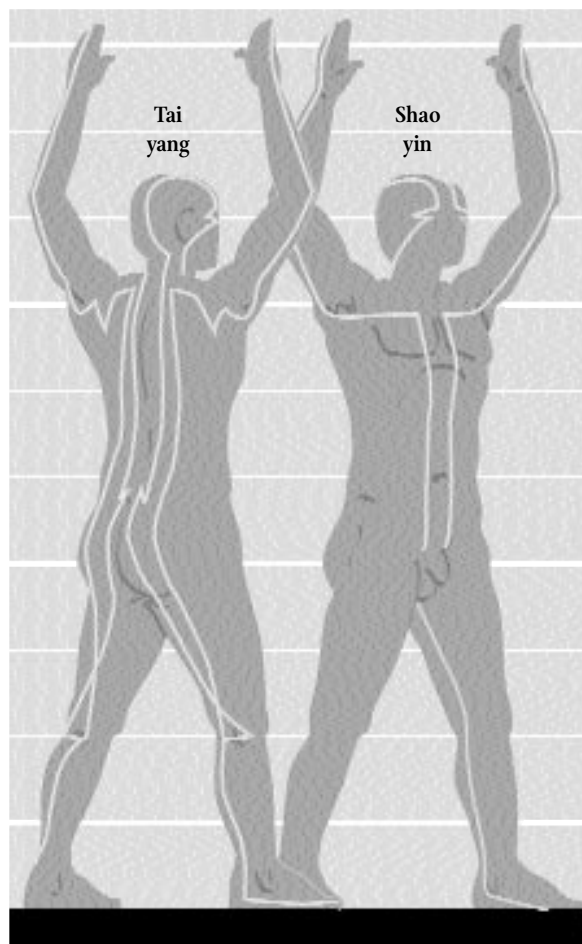


FIGURE 2 Shao yin–tai yang principal meridian subcircuit



FIGURE 4 Kidney and Bladder tendinomuscular meridians

subsequent stimulation; and a monoamine-dependent system involving high-frequency, low-intensity electrical stimulation of acupuncture needles (70 Hz or greater) that is rapid in onset, segmental, and not cumulative.<sup>2</sup>

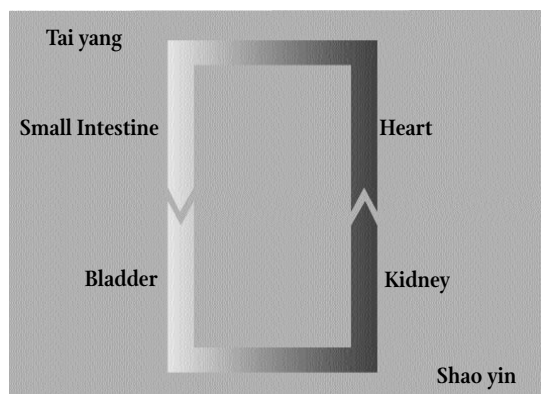


FIGURE 3 Shao yin–tai yang organs

By combining the neurohumoral models with other observations and speculations about the mechanism of acupuncture's impact, a model is created of an acupuncture needle simultaneously activating multiple systems in the body's physiology:

- the nervous system, which includes peripheral afferent transmission, perivascular sympathetic fiber conduction, and the central neurohumoral and neuropeptide mechanisms
- the blood circulation system, which transmits the biomolecular elements locally and centrally, along with the biochemical and cellular changes stimulated by acupuncture
- the lymphatic system, which serves as a medium for ionic flow along fascial planes and perivascular interstitial fluid circulation
- the electromagnetic bio-information system, which consists of static electricity on the surface, ionic migration in the interstitial fluid between the needles and as currents of injury at the needled site, and fascial and perineural semiconduction throughout the body<sup>1</sup>

The above hybrid assemblage of descriptions creates a contemporary working model of a multisystem information network

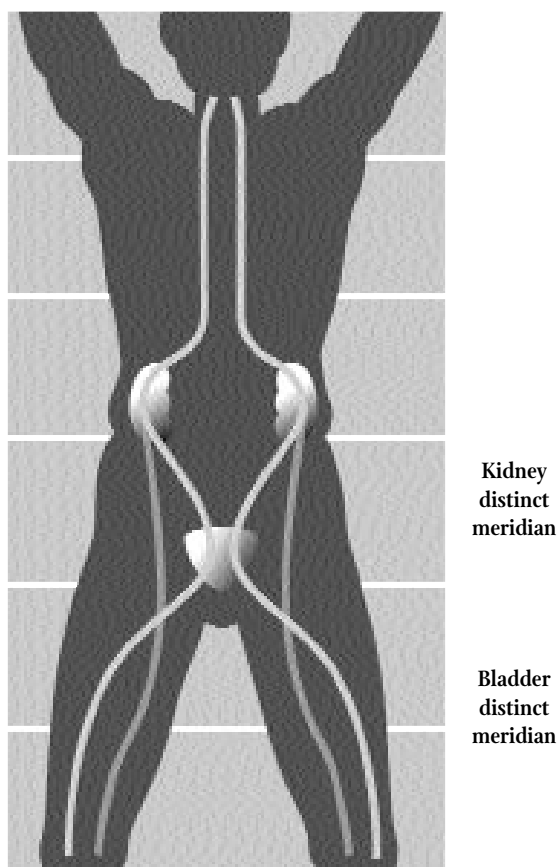


FIGURE 5 Kidney and Bladder distinct meridians

that obliges the medical acupuncture practitioner to consider not only classical paradigms to arrive at diagnostic and therapeutic decisions, but also to take into account neuroanatomical and neurophysiological parameters. These considerations are of special importance in acupuncture's application in pain management, where knowledge of dermatomal, myotomal, sclerotomal, and autonomic innervation patterns is indispensable.

## PROVIDER-PATIENT INTERACTIONS

### History and Physical Examination

In an acupuncture evaluation, the initial encounter with the patient is similar to that of a conventional allopathic medical interview and examination. The patient is encouraged to speak candidly and thoroughly about the presenting problems and their background. In addition to a conventional assessment and differential diagnosis, the practitioner explores the characteristics and behaviors of the problems in an effort to link them with the gross or subtle spheres of influence of one or several of the internal organs. In the case of musculoskeletal pain problems, the location of the pain is identified neuroanatomically and according to the acupuncture channel in whose territory it lies. The goal of the interview is to identify the organs and energy circulation divisions involved in the patient's disorder, whether the

association be with the subtle symptoms linked to the traditional sphere of influence of the organs, with the trajectory of a meridian through a painful region, with a dense organ lesion, or with a combination of these factors.

The patient's past medical history, childhood illnesses, family history, and review of systems are elicited during the interview, and all information is tagged with the organ or meridian under whose supervision it falls. During this period the acupuncturist poses questions of particular importance: possible cyclicality in the appearance of the symptoms, seasonal exacerbations, general seasonal preferences or dislikes, positive or negative flavor affinities and color affinities, response of symptoms to external climatic environments, and the lesion's response to pressure, movement, heat, or cold.

A standard physical examination appropriate for the patient and the problem is undertaken, with several additional acupuncture inspections included. The musculoskeletal evaluation includes identification of painful muscle knots and trigger points as well as subcutaneous nodules and bands overlying contracted muscles. Specific reflex points on the front and back of the trunk (mu points and shu points) correspond to the organs associated with them. If any mu or shu points are sensitive to palpation during the physical examination, those findings also are recorded.

In acupuncture, several diagnostic somatotopic systems that microcosmically reflect the internal organs are routinely used to evaluate the balance of relative strengths and weaknesses within the organs. Those most commonly employed are the reflex systems of the tongue, the radial pulse, and the external ear, inspections of which are undertaken as part of the routine physical evaluation.

The tongue reflects the basic condition and underlying problem of the patient at the time of examination by way of its color, body, coating, and surface irregularities. Changes in tongue qualities are easily noted from week to week and often day to day. The tongue serves as an indicator of change in the patients as they evolve through illness and respond to medical interventions.

The diagnostic microsystem of the radial pulse provides another means of evaluating the patient's overall condition, and of comparing the relative strengths of energetic activity in the organs and their meridians. The pulse changes from minute to minute and therefore can be used to verify whether an input has had its intended effect before one continues or concludes the treatment. The pulses also serve as a subjective measurement from visit to visit, revealing the stability of the changes made through the acupuncture treatments.

Evaluation of the external ear confirms findings from the physical exam or other reflex systems, and may indicate new directions for exploration during the interview and examination. The diagnostic examination includes visual inspection, palpation with a probe, or scanning with a battery-powered electrical resistance detector. The external ear also can be used as a treatment system in isolation or as an adjunct to body acupuncture points.

## **Medical Acupuncture Differential Diagnosis and Treatment Planning**

Before concluding the diagnostic process, a review of past medical records, radiographs, and laboratory studies is undertaken, and appropriate new studies are requested to confirm and specify mechanical and organic disorders. From all available information, subtle and gross symptoms and characteristics are organized into affinity clusters, and patterns of disharmony are identified. The organ or organ's influence that is most disturbed is then defined, as is the level of manifestation of this greatest disturbance. The energy-functional level of disturbance involves the balance of energetic and metabolic activities of the organs and their spheres of influence, including, especially, their psycho-emotional expressions; the channel-structural level involves skin, fascia, muscles, and bones; and the organ level involves the metabolic or transport functions of the organs themselves. A decision is then made as to which division of the energy circulation network gives best access to the level of greatest disturbance.

The initial interview affords an understanding of the manifestations and course of the disorder as well as the patient's constitutional strengths and weaknesses. The ideal diagnostic conclusion is a clear perception of the patient's health course: the presenting problems and their origins as well as the likely future health events. An algorithm of treatment approaches should be constructed. The goal of the overall treatment strategy must be kept in mind while working with the various tactics at each session. For example, the immediate treatment plan may address only relief of the most urgent symptoms, and long-standing problems can be addressed after change in the presenting symptoms.

### **Treatment Design**

The first steps in treatment design involve identifying the levels of manifestation of the patient's complaints and establishing an order of treating the problems. Treatment strategy involves activating the appropriate layers of the energy circulation network to address each problem on its own level of manifestation. A simple strain or sprain may need nothing more than dispersion with needles surrounding the local lesion and an activation of the appropriate tendinotomuscular meridian. Musculoskeletal pain of long-standing duration will need placement of needles around one of the principal meridian subcircuits to encourage energy flow, in addition to local needles to focus on the site of the problem. Such a treatment may involve electrical stimulation of the points needled to move the energy through the subcircuit as well as the local points. Psychosomatic or premorbid problems may respond to the needling of several front or back mu or shu points, to a rarefied equilibration treatment based on more arcane models of organ and energy interactions, or perhaps to an activation of energy flow through the disturbed principal meridian subcircuit.

It is important to aim treatment at the level of manifestation of the problem being addressed. The circulation levels

being activated may be changed during a series of treatments to better address the presenting problem or to introduce treatment for secondary problems. It is better to proceed slowly than with vigor, so that the patient's response to the treatment can be properly evaluated. As with any other medical intervention, factors influencing the outcome of a treatment include the patient's age; the duration and complexity of the presenting problem; the presence of concurrent acute or chronic illness, medications, history of surgical interventions, lifestyle, and personal health factors; and the patient's emotional state and basic vitality. The patient's attitude toward acupuncture usually does not affect the result, as it is not necessary to believe in acupuncture for it to be effective.

## **THERAPY AND OUTCOMES**

### **Treatment Options**

Along with the majority of physician acupuncturists in the United States, the author uses the hybrid model of combining energy movement through the channels with local or focusing treatment. This model, known as "acupuncture energetics," is derived from European interpretations of the Chinese classics and blended with neuromuscular anatomy of trigger points and segmental innervation for pain treatments. Traditional Japanese meridian acupuncture is akin to the linear energy movement programs represented in the following section, although Japanese practitioners commonly needle more superficially than do Europeans or Americans.

Of the acupuncture systems currently practiced in the United States, the traditional Chinese medicine that is taught at the training colleges in China is the most widespread. This approach to acupuncture is linked with traditional herbal prescribing as the core of the discipline, which can be an effective approach for internal medicine problems. The acupuncture points are selected for their traditional functions to reinforce the goals of herbal therapy, rather than to move energy through the circulation network.

Five elements acupuncture is another widely practiced discipline. Imported from England, five elements acupuncture reflects French and other European interpretations of classical information. The greatest value of this approach lies in its potential to assist in the repair of problems that originate in the psycho-emotional sphere.

Three somatotopic systems have established themselves as valuable disciplines, used either as exclusive approaches to acupuncture or as adjuncts to body acupuncture. Auricular acupuncture, developed in France, offers a homuncular reflex organization of all body parts on the external ear. Korean hand acupuncture identifies a microsystem on the hand of the complete meridian circulation. Scalp acupuncture is another recent development, several systems of which divide cranial territories into neurological regions corresponding to cerebrocortical influences on the body structures. These somatotopic systems appear to be effective for modifying neurological problems that can be elusive to body acupuncture.

## Description of Treatment

The acupuncture treatment consists of inserting fine needles into the body in patterns designed to influence the flow of qi in one of the subdivisions of the energy circulation network. Usually only one energy subdivision is selected to stimulate energy movement, along with a collection of local points to focus the attention of the energy movement. Each subdivision of the circulation has a unique therapeutic point combination necessary for activation. The combinations involve the insertion of at least three needles—the energy moving needles—that are usually in the extremities and usually inserted bilaterally. The focusing needles are inserted at trunk points that influence the organs being stimulated, or at muscular points tender to palpation in the region of the pain.

Needles are inserted to the depth necessary to elicit the patient's sensation of de qi, or needle grab, a dull ache that radiates from the point. This can be 0.5 cm to 8 cm, depending on the location. The patient is positioned comfortably, usually lying supine or prone. The acupuncture needles are left in place for 5 to 20 minutes. It is crucial to protect the patient from energy depletion during an acupuncture treatment. The older or more fatigued the patient, the shorter the duration of treatment must be. The energy-moving needles may be stimulated when an additional activation of the acupuncture system is desired, such as when the problem is one of deficiency according to acupuncture principles or when the patient has low vitality. This additional activation is accomplished through manual manipulation, by heating the needle with burning mugwort (moxibustion), or by connecting the needles to an electrical stimulating device.

Focusing needles can likewise be stimulated through manual, thermal, or electrical means. It is common to treat the patient using front, back, and extremity points during the course of a single treatment session. This means that the treatment is typically divided into two sections: the energy movement section using extremity points to activate flow through the meridians, and the section to focus the energy on one or several organs or to influence a pain problem.

An example of preventive intervention that makes use of the traditional influences of the organs would be that of a 33-year-old man who complains of a general diminution of energy, including decreased sexual interest, increased sensitivity to cold weather, mild generalized joint aches, and a new affinity for salt. He is wearing a black T-shirt and black underpants and has significant graying in his temples (such symptoms and presentation are features of Kidney influence). This man's medical evaluation and laboratory tests are negative. His case is a premorbid manifestation of weakness in the Kidney sphere of influence. An appropriate treatment would be to activate Kidney energy with needles and moxibustion at the shu points for Kidney on the back, bilaterally, as the first section of the treatment. The second section could consist of creating an energy flow through the shao yin (Kidney–Heart) and tai yang (Small Intestine–Bladder) principal meridian subcircuit by placing one needle in the Kidney meridian, one in the Heart meridian, and one in the Bladder meridian, bilaterally in the extremities, and manually stimulat-

ing them in addition to moxibustion. Each section would last 5 to 10 minutes, and would take place in one session.

The local treatments for pain problems can be quite complex because, in addition to honoring the classical directive of encouraging the flow of qi and blood through the channels that traverse the painful area, neuromuscular anatomy must be considered. Deliberately searching for and deactivating intramuscular trigger points in the region of pain and along the myotomal distribution of the spinal segments involved in the pain is a necessary component of the local treatment. Likewise, recruiting the neurological activity of the spinal origins of the dermatomal, myotomal, sclerotomal, and sympathetic innervation of the pain problem is a common local treatment for chronic pain. In these cases, electrical stimulation is commonly used, with the frequencies ranging between 2 Hz and 150 Hz.

If the above 33-year-old man also has chronic lumbar pain with an occasional L-5 radicular component, the acupuncture treatment will consist of an initial energy moving section involving two needles bilaterally in the extremities on the Kidney meridian, one in the Heart meridian, one in Small Intestine, and one in Bladder. The two needles in the Kidney meridian to enhance the energetic activity in the subcircuit as well as moxa can be applied to the other points. This section of the treatment lasts approximately 10 minutes. The second section is the local treatment for the lumbar pain, and involves needles placed on the Bladder meridian, for example, at the L-2 level (somatic sympathetics for lower extremities), L-4 and L-5 levels (myotomal and dermatomal levels of pain), and at the S-2 level (parasympathetics for lower extremities) to recruit the spinal segments involved in his pain. Electrical stimulation at 4 Hz or 15 Hz can be connected among these needles. This second section lasts for 20 minutes.

## Schedules and Results

Patient visits are usually scheduled once weekly, although two or three visits each week are not uncommon, especially during the initial stages of an acute problem. When a favorable response lasts for the full week between visits, the interval is opened to 2 weeks. As the response stabilizes for a 2-week period, the interval is opened again to 3 weeks, then 4 weeks. When the symptoms are stable for 4 weeks, a decision is made as to whether the patient should return for a maintenance treatment in another month or 6 weeks or call for an appointment only if the condition returns. Chronic pain problems typically require maintenance treatments at 1-month, 6-week, or 2-month intervals. Medical problems of lesser severity and chronicity can often be resolved adequately and do not require maintenance treatments, although chronic medical problems—even when they respond well to acupuncture—typically call for quarterly maintenance treatments.

## Treatment Evaluation

During initial treatments, any change, even a transient exacerbation of symptoms, is considered a favorable response.

No response to the initial treatment can mean that the therapeutic input was not strong enough, that the problem is deep seated and requires several treatments to influence, that the treatment design is inappropriate, or that the problem is not accessible to acupuncture intervention. An exacerbation of symptoms after the initial treatment usually means that the treatment decision is accurate, but that the manipulation or the duration of the needles was too extensive. An examination of diagnostic microsystems such as the radial pulse and the tongue gives another means for the practitioner to subjectively evaluate change in the patient's condition from visit to visit, and thereby decide whether a change in treatment is indicated.

With the cumulative effect of the treatments, enduring improvement is the desired goal. Enduring improvement may mean a thorough resolution of the presenting problem, or it may mean enabling the patient to function on a plateau of discomfort that is less incapacitating or requires less medication than at the time of initial presentation. Ideally, a dozen visits are scheduled to follow the course of the disorder and its response to acupuncture. Usually, the extent of response can be approximated by six or eight visits, but an enduring response often requires the full schedule of visits. After the first dozen treatments, the problem and its response to acupuncture are reevaluated and the acupuncturist and patient decide whether to continue intensive treatments, maintain treatments, or abandon the acupuncture intervention.

Acupuncture treatments are as individual as the patients and their responses to acupuncture. It is common to stay with an initial treatment approach for at least three or four visits before modifying the approach. It is common for the patient to report changes in general well-being and vitality, or a reduction in medication, before a clear change in the presenting symptoms occurs. If no progress has been made by the sixth visit, it is reasonable to consider including additional modalities to complement the acupuncture. It is best not to abandon a case that shows reasonable hope for response to acupuncture before a full trial of 12 visits has been completed.

## **TREATMENT USES OF MEDICAL ACUPUNCTURE**

### **Most Useful as Primary Therapy: Musculoskeletal Pain**

In the United States, acupuncture has found its greatest acceptance and success in the management of musculoskeletal pain. Acute musculoskeletal lesions such as soft tissue contusions, acute muscle spasms, musculotendinous sprains and strains, and the pain of acute nerve entrapments are among the problems most frequently and successfully addressed with acupuncture. In such cases, acupuncture can legitimately serve as the initiating therapy.

Chronic musculoskeletal pain problems are also commonly and appropriately treated with acupuncture, although not usually as the only approach. Those problems likely to be responsive to acupuncture intervention include repetitive strain disorders (eg, carpal tunnel syndrome, tennis elbow, plantar fasciitis), myofascial pain patterns (eg, temporomandibular joint pain, muscle ten-

sion headaches, cervical and thoracic soft tissue pain, regional shoulder pain), arthralgias (particularly osteoarthritic in nature), degenerative disc disease with or without radicular pain, and pain following surgical intervention (both musculoskeletal and visceral). In the management of chronic musculoskeletal pain, acupuncture offers a broad range of potential value between the conventional therapy poles of pharmaceuticals and invasive procedures. Other chronic pain problems commonly responsive to acupuncture include postherpetic neuralgia, peripheral neuropathic pain, and headaches from other causes.

### **Least Useful as Primary Therapy**

Although acupuncture has been established as an effective tool to treat many forms of musculoskeletal pain, its limitations must be recognized in dealing with the consequences of spinal cord injuries and cerebrovascular accidents. In these conditions, acupuncture's effectiveness is diminished, and the frequency of treatments is increased and protracted over a longer time. Furthermore, acupuncture is usually not useful for thalamically mediated pain and, apart from symptom management and general vivifying effects, is not of great value in the treatment of chronic neurodegenerative diseases.

Acupuncture as a sole therapy has not shown itself to be of substantial value in severe and chronic inflammatory and immune-mediated disorders such as ulcerative colitis, asthma, rheumatoid arthritis, and collagen-vascular diseases, especially if those conditions have advanced to require systemic corticosteroid medication. Likewise, acupuncture is not appropriate as the primary intervention for chronic fatigue states or HIV disease. There can be general value, however, for the symptom control and vitality-promoting effects of acupuncture in all of these conditions. In malignancies, acupuncture can be considered as an additional therapy to combat the secondary effects of conventional therapy, and as an adjunct in pain management.

### **Adverse Effects of Acupuncture**

In the hands of a medically trained practitioner, acupuncture is a fairly safe and forgiving discipline. It is difficult to introduce new and lasting problems with an acupuncture treatment, even if the treatment is not designed as skillfully as an experienced provider would desire. Many patients report a sensation of well-being or relaxation following an acupuncture treatment, especially if electrical stimulation has been used. That sense of relaxation, however, sometimes evolves into a feeling of fatigue or depression that lasts for several days. Other transient psychophysiological responses can be light-headedness, anxiety, agitation, and tearfulness.

The possible risks and complications of an acupuncture treatment are undesirable consequences of penetrating the body with a sharp instrument: syncope, puncture of an organ, infection, a retained needle. These risks can be reduced by scrupulous sterilizing of needles, acquiring good clinical skills, understanding surface and internal anatomy, and executing responsible clinical judgment. Pneumothorax is the most frequently



reported and the most easily produced visceral complication of acupuncture needling. Pneumoperitoneum, hemothorax, cardiac tamponade, and penetration of the kidney, bladder, and spinal medulla have been reported, although infrequently.

Contact dermatitis to stainless steel needles, local inflammation, and bacterial abscesses can occur, as can chondritis from needling points on the ear. Outbreaks of hepatitis B documented in Europe and America have been traced to single practitioners reusing unsterilized needles.<sup>3</sup> There have been no epidemiologically responsible reports of HIV transmission through the use of acupuncture.

### **Preventive Value of Medical Acupuncture**

Perhaps the most fertile ground for acupuncture intervention is for disorders in their premorbid state, problems commonly encountered by primary care providers but rarely associated with positive laboratory findings, definitive medical diagnoses, or successful therapies. Such states often can be described within the acupuncture diagnostic paradigms, and then modified through activation of the appropriate level of energy circulation. These disorders can be loosely categorized into three groups: aesthenic states, autonomic dysregulation disorders, and immune dysregulation disorders.

Aesthenic states include ill-defined fatigue (eg, "tired all the time," "low energy"), mild depression, stress-related myofascial symptoms (eg, upper thoracic and cervical myofascial pain, muscle tension headache), and early functional disturbances (eg, diminished libido). Autonomic dysregulation disorders may manifest as anxiety, sleep disturbances, and bowel dysfunction. Immune dysregulation disorders include recurrent infectious and inflammatory states without underlying frank immunodeficiency: sinusitis, pharyngitis, bronchitis, gastroenteritis, and viral illnesses.

Some conscientious patients consult the acupuncture practitioner with what might be considered, from an allopathic perspective, minor symptoms, requesting assistance to attain better health and vitality. In such instances, the general characteristics of the patient, the presenting symptoms, the patient's past and family medical histories, and the acupuncture examination allow the acupuncturist to identify minor imbalances in the energetic activity of the organs and energy axes. This level of subtle pathology, for which allopathic medicine has little more than lifestyle counseling to offer, is commonly overlooked in a conventional setting. The acupuncture diagnostic and therapeutic system, however, usually allows for an understanding of the patient and early disturbances, and an appropriate intervention can be formulated. This form of preventive maintenance is a valuable dimension of the subtle aspects of acupuncture.

### **Scope of Practice of Medical Acupuncture**

Medical acupuncture is a highly adaptable discipline, and is of potential therapeutic value in many pain and general medical conditions. Whether it is introduced as the primary or the complementary therapy depends on the nature and severity of the presenting problem as well as the training, orientation, and

practice environment of the provider. The physician trained in medical acupuncture who sees patients early in the course of their disturbances can initiate treatment of a pain or medical problem with acupuncture, and introduce additional therapies if acupuncture proves insufficient as the sole treatment. The physician who receives cases later in their evolution and after conventional treatments have been initiated can add acupuncture to assist, or possibly replace, conventional treatments.

Many patients seeking attention from acupuncture providers demand acupuncture or other unconventional interventions as the starting treatment, agreeing to conventional methods only later in their management. Other patients and many physicians wait until conventional therapies have been exhausted, and then resort to acupuncture intervention. Acupuncture therapy is not miraculous. It has its appropriate range of applications, and, like any other medical intervention, yields good results in well-selected early problems and less successful results when chronicity and complexity of the presenting problems increase. Usually the best moment to initiate acupuncture therapy is early in the evolution of a problem; however, the flexibility and adaptability of acupuncture allow it to be integrated at almost any stage of treatment.

In addition to the treatment of acute and chronic musculoskeletal pain and premorbid or functional problems, medical acupuncture can be used successfully to address many diagnosable medical conditions, although it may need to be used in collaboration with other therapies, whether conventional or unconventional. The four divisions of medicine that appear to be most responsive to acupuncture intervention in this country are respiratory, gastrointestinal, gynecologic, and genitourinary.

Respiratory ailments potentially accessible to acupuncture intervention include allergic rhinitis, sinusitis, and bronchitis. Gastrointestinal ailments include gastritis, irritable bowel syndrome, hepatitis, and hemorrhoids. Gynecological problems include dysmenorrhea and infertility. Genitourinary problems include irritable bladder, prostatitis, male infertility, and some forms of impotence.

Acupuncture, particularly when applied to the external ear, has proven valuable for managing substance abuse problems and reducing prescription narcotic analgesics. One of the most socially visible for acupuncture, this application has gained the respect of rehabilitation programs internationally.<sup>4</sup>

For mental and emotional disturbances, acupuncture can be useful as a transient aid in early and acute emotional states such as anxiety, excitability, worry, early stages of depression, and fearful states. Acupuncture should not be considered as a primary or ongoing therapy for deep-seated or chronic psychoemotional illness, because its effect on these conditions is not enduring.

### **Acupuncture as Complement, Complements to Acupuncture**

Acupuncture's adaptability to the changing requirements of the patient's condition extends to its adaptability when combined with other modalities of healthcare. This integration is

an expression of the training, orientation, and creativity of the practitioner. Acupuncture can be used as the initiating therapy for many common medical problems and can be combined with other modalities and disciplines according to the needs of the patient and the availability of other services. There are medical modalities in addition to allopathic pharmaceutical and surgical interventions that particularly complement the effects of acupuncture, or that acupuncture can complement. These include physical medicine techniques in pain management, osteopathic manipulation, movement training, herbal therapy, homeopathic remedies, and psychiatric or psychological intervention.

Management of chronic musculoskeletal pain offers many occasions in which therapeutic modalities can be combined. A physical therapist experienced in myotherapy can extend the impact of an acupuncture treatment directed at relaxation of contracted muscles and fascial tension patterns. The conventional spray and stretch, trigger point infiltration, and transcutaneous electrical nerve stimulation techniques of physical medicine combine well with acupuncture therapy. Osteopathic manipulative therapy and its subspecialty of cranial therapy also can be productively combined with the musculoskeletal applications of acupuncture. Hatha yoga postures assist patients with biomechanical rehabilitation and maintenance of results, and the breathing exercises assist with relaxation and stress reduction. Movement therapy such as the Feldenkrais, Alexander, and Aston approaches also can be useful adjunctive activities during rehabilitation.

With chronic medical problems, the traditions of herbal therapies and homeopathic remedies can be usefully combined with acupuncture treatments. Chinese herbal formulae, when prescribed according to the classical patterns of disharmony of internal organs, can serve as protopharmaceutical substrates to enhance and prolong the effects of acupuncture treatments. Herbal formulae can accomplish lasting change or maintenance that cannot be achieved with needles alone.

Homeopathic remedies are generally used in low-potency form to treat acute problems, middle-potency form to treat chronic medical problems, and high-potency form to treat problems that have a core psycho-emotional disturbance. These remedies can be used to specify and enhance the acupuncture treatments and have capability in high potency to effect enduring changes in the patient's emotional configuration. It is sometimes necessary to work in collaboration with a psychiatrist or psychotherapist who is both sensitive to the acupuncture process and can serve in a guiding role for the patient.

## **ORGANIZATION**

### **Training and Quality Assurance**

In the United States, acupuncture is performed by physician as well as nonphysician practitioners. In 35 states, the practice of acupuncture is included in the scope of a physician's medical or osteopathic license, and no regulations or restrictions are imposed on medical practitioners. The 15 other states

require physicians practicing acupuncture either to demonstrate evidence of participation in training programs of 200 to 300 hours or simply to register with the board of medicine with evidence of formal training. From these loose regulations of physician practitioners, it is clear that the degree of acupuncture training and experience among physicians varies from state to state and individual to individual.

The American Academy of Medical Acupuncture (AAMA) represents the education, legislation, and professional interests of physicians who are well trained in acupuncture. Full membership in the AAMA requires 220 hours of formal training and 2 years of clinical experience. This standard follows the physician-training guidelines established in the constitution of the World Federation of Acupuncture-Moxibustion Societies, an international society guided by the World Health Organization. The AAMA has established a proficiency examination as the first of a two-part board certification examination. Membership eligibility in the AAMA has become the standard of physician credentialing for state registration, hospital privileges, liability insurance, and third-party reimbursement. It is likely that the proficiency examination will also become a requirement for participation in managed care programs (American Academy of Medical Acupuncture; Los Angeles, Calif).

The practice of acupuncture by nonphysicians is regulated in at least 33 states, and another dozen states have statutes pending. The educational prerequisites and training requirements vary widely from state to state, and have been in a flux of improvement during the past decade. Approximately 30 colleges are accredited by the National Accreditation Commission for Schools and Colleges of Acupuncture and Oriental Medicine. Most of the programs span 3 years of didactic and clinical training. All states except California and Nevada that license nonphysician acupuncturists recognize the national examination developed by the National Commission for the Certification of Acupuncture and Oriental Medicine. There are two main national societies (the American Association of Acupuncture and Oriental Medicine in Catasagua, Pa; and the National Acupuncture and Oriental Medicine Alliance in Olalla, Wash), together with many regional, state, and local organizations, that represent the interests of the licensed acupuncturist communities.

The World Health Organization has adopted guidelines on basic training for physician and nonphysician providers, standards for safe practice, and clinical indications for acupuncture. The training guidelines reflect the minimum hours expected in most member nations and are consistent with regulations enacted in the United States: 2500 hours for nonphysician acupuncturists and 200 hours for physicians. The basic curriculum is founded on the classical tradition of acupuncture requiring a firm knowledge of the acupuncture points and channels and the traditional models of diagnosis and treatment. A basic knowledge of Western biomedical science is also encouraged in the curriculum.<sup>5</sup>

### Reimbursement Status

Whereas no national standard currently exists for the third-party insurance industry regarding acupuncture, many policies recognize acupuncture as a legitimate and reimbursable procedure. Because of the popular and professional demand for acupuncture services, it is likely that insurance reimbursement will become more uniform with time. Medical acupuncture, particularly as practiced by an experienced medical provider, integrates creatively into many of the disciplines of medicine. Traditional Chinese medicine integrates less smoothly into conventional settings because the herbal diagnostic model that is fundamental to traditional Chinese medicine is alien to most Western physicians' thinking.

### PROSPECTS FOR THE FUTURE

The potential for medical acupuncture is just beginning to be understood. Future clinical research and utilization evalua-

tions should clarify how best to integrate acupuncture into the conventional healthcare system. Medical acupuncture offers the opportunity to expand contemporary medicine to treat conditions for which current interventions are either ineffective or have undesirable secondary effects. Because of its usefulness and adaptability to so many aspects of allopathic medicine, medical acupuncture will likely be integrated with increasing frequency into private and institutional practices.

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