

Qigong and Neurologic Illness

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Introduction

Qigong is an ancient Chinese meditative moving exercise similar to, but more profound, than T'ai Chi Ch'uan. Qigong has been practiced in China for thousands of years to improve health and longevity.¹ In China 70 million Chinese practice qigong daily mainly for health maintenance.² In China there are many qigong clinics, and in some hospitals qigong is integrated with traditional Chinese medicine and conventional Western medicine. The practice of qigong is divided into three main applications: medical, spiritual and martial. This chapter will review clinical studies of qigong's effect on various neurological illnesses, and discuss mechanisms by which qigong promotes healing.

Recent scientific research has shown that qigong does indeed have profound health benefits. The author has published several experimental studies and reviews of clinical studies of qigong.³⁻⁶

The word qigong (pronounced chee gong, and sometimes spelled chi kung) contains two concepts: *qi*, the vital energy or life force of the body, and *gong*, the training or cultivation of the qi. Qigong practice consists of a series of exercises including slow circular movements, regulated breathing, meditation, focussed intention, self-massage, and postures that can be learned by almost any one of any age or physical condition. A qigong therapist can send his/her qi to heal another person in a process called emitting qi (*waiqi* in Chinese). It is believed that emitted qi has information that can open blocks to qi (energy) flow in the body and favorably balance the qi of the patient. The therapist usually emits qi from an acupuncture point at the center of the palm (*Laogong point*) or from one or two fingers. The mechanism of emitted qi is not known, but suggestion appears to be ruled out because experiments have shown that emitted qi can affect living but non-human subjects.⁷

The benefits of qigong can be achieved by the self-practice of qigong, but for serious illness a qigong therapist may be required to diagnose the illness and recommend suitable qigong exercises. In qigong diagnosis the therapist senses the patient's body field for blocks to the flow of qi. The therapist also may make diagnosis according to traditional Chinese medicine by examining the tongue, eyes, and the pulses at the radial artery of the wrist. Qigong therapy includes prescribed qigong exercises and treatment with emitted qi in serious cases. Qigong

is well suited for treating chronic health problems such as hypertension, asthma, cardiovascular disease, stress, pain and aging, and for reducing the side effects of chemotherapy and radiation therapy. Qigong can increase the effectiveness of Western medications, even allowing the use of smaller doses that reduce the risk of undesirable side effects.⁵

The basic principles of qigong – meditation, awareness, movement, and breathing – underlie several complementary energy exercises that are practiced in Western hospitals and paid for by insurance. Among these exercises are Yoga, Therapeutic Touch, T'ai Chi Ch'uan and Mindful Meditation. Yoga is prescribed as part of Dean Ornish's therapy for reversing heart disease,⁸ and his cardiac health program is covered by some major insurance companies and administered in hospitals.⁹ Therapeutic Touch has some of the elements of emitted qi wherein the therapist, often with out touching, balances the patient's body energy. Therapeutic Touch is taught to thousands of nurses and is practiced in about 100 health facilities¹⁰ and 80 North American hospitals.¹¹ T'ai Chi Ch'uan, which derives from Chinese martial art, is considered an offspring of qigong. T'ai Chi Ch'uan was part of a study on the effects of exercise to prevent falls of elderly patients.¹² John Kabat-Zinn's Mindfulness-Based Stress Reduction Therapy is a meditation exercise with awareness of the mind and body that is offered in many hospitals and clinics in the United States.¹³ This therapy has been applied to physical pain.

Sources of Information

This paper endeavors to provide information from scientific research studies to help validate some of the many claims of the healing benefits of qigong. Various obstacles to collecting high-quality research do exist. Until recently, scientists in China performed almost all the research on qigong, and these studies were reported mainly at scientific meetings. Few studies are published in China because suitable scientific journals are unavailable, and those that are published are usually in Chinese. One rich source of information on research is the abstracts in English that are printed in the proceedings of international conferences on qigong. These abstracts range in length from a paragraph to several pages. Some abstracts are minipapers with tables and statistical analysis, but by their nature many details are missing.

The abstracts in English since 1986 have been collected in the Computerized Qigong Database™ that presently contains about 1500 citations taken from proceedings of meetings, scientific journals and Medline.¹ While there are many clinical studies of the benefits of qigong, too few meet current scientific standards. The English in the abstracts from proceedings often leaves much to be desired. However, these limitations should not be an obstacle for appreciating the

¹ For information about the Qigong Database contact the Qigong Institute, 561 Berkeley Avenue, Menlo Park, CA 94025, U.S.A. or at <<http://www.qigonginstitute.org>>.

significant body of research on medical applications of qigong. The reader is also asked to keep in mind the difficulties that the researchers in China encountered. For centuries qigong was a secret art passed on only to one person in a family. During the Cultural Revolution qigong was essentially outlawed and qigong masters were persecuted. In the late 1970's, after the Cultural Revolution, research was initiated to demonstrate that qigong had a scientific basis and not superstition, as the communists feared. Many of the research studies were carried out in hospitals by staff members who were poorly trained in science, and many qigong masters worked full time in factories

Scope of Review

Qigong has a wide scope of medical applications, and some studies that pertain to neurologic illnesses will be discussed in the following sections. Searching the Qigong Database for selected neurologic-related words indicates the range of such studies. The number of references pertaining to selected neurologic terms that appear in the Database are shown in Table 1.

Table 1. The number of references of selected neurologic terms appearing in the Qigong Database with references.

<u>Neurologic terms</u>	<u>Number</u>	<u>References</u>
Anesthesia	7	14-20
Anxiety	14	21-34
Circulatory disturbance	5	35-39
Dementia	2	40;41
Dizziness	4	42-45
Neuro (-pathy, -logic, -logical)	3	46-48
Neuromuscular	17	19;37;49;50;50-63
Pain	19	14;16;18;37;38;49;54;57;59-61;63-70
Back	10	51;57;61;63;71-76
Headache	6	24;53;76-79
Migraine	2	80;81
Neck & shoulder	2	54;59
Paralysis	11	15;82;83;83-90
Parkinson	2	91;92
Psychosomatic	10	23;24;26;30;34;93-97
Stroke	8	40;79;84;98-102
Tinnitus	1	103
Vertigo	1	77

Some terms relating to neurologic illness that do not appear in the Database are brain damage, carpal, coma, chronic fatigue syndrome, multiple sclerosis, palsy, peripheral neuropathy, radicular, seizure, stress headache, and TIA.

Qigong's Effect on Neurologic Illness

Some of the best clinical studies were chosen to illustrate qigong's potential for treating neurologic illnesses. These studies are grouped under several main descriptors of neurologic disorders. For each clinical study, a brief description is provided of objectives, methods of treatment, and results. Where appropriate, the author has added comments about the study.

Paralysis

Hemiplegia & paraplegia: Huang M combined emitted qi with self-practice of qigong to treat paralysis of 19 cases of hemiplegia and 24 of paraplegia.¹⁵ The Qigong masters emitted their qi to the acupuncture meridians of the patients 2-3 times a day. They also emitted qi while massaging energy (acupuncture) points of the patient once every other day. Under the instruction of a qigong master and according to the condition of the patient, the patients practiced qigong exercise 1-2 times a day.

Results of improvements brought about by the qigong therapy are summarized in Table 2.

Table 2. Improvement in conditions of patients with hemiplegia & paraplegia after therapy by emitted qi and self-practice of qigong.

Conditions	Subjects	Improvements after therapy
Changes in myodynamics of paralyzed limbs	35	increased range of motion from 0-2 to 3-5 degrees for 34 cases
Walking: Before treatment 37 of the 43 paralytic patients needed support	43	23 cases could walk without help; 20 cases still required crutches, but some only 1 crutch instead of 2
Managing daily life	43	increased from 7 to 34 cases

The authors report that the overall effect of treatment was excellent in 10 cases (23.3 %), good in 20 cases (46.5%), fair in 10 cases (23.3 %), and poor in 3 cases (7.0%). The total effective rate was 93.0% (excellent+good+fair). The authors also reported relief of symptoms such mental state, sleep, appetite, perspiration (limbs), and speaking ability.

Facial Paralysis:

Xu reported that Yoga is especially effective for treating facial paralysis.⁸³ Yoga as used in this study is similar to qigong because the therapists emit energy from their fingers while massage the patient. The therapist uses contact or non-contact therapy to

treat the disease. The therapists try to make the flow of energy (qi) rotate around the patient's face by using pushing, pressing, kneading, scrubbing, vibrating and grasping manipulations. The massage points were mainly on the head at 13 acupuncture points associated with the meridians as described according to traditional Chinese medicine. The treatment mainly focused on the disordered side, and an accessory treatment, such as acupuncture, was applied to the healthy side of the face. When treated, the patient may sit, lie or stand. According to the author, the treatment relaxes muscles and tendons to open the meridians, activate blood circulation, and decrease stagnant energy conditions.

Among the 31 cases that were treated, 22 were male and 19 female. The age range was 19-40 years old in 22 cases; 41-55 in 6 cases; above 60 in 3 cases. Nine cases fell into the ten-day duration of illness, six cases between six months and a year, ten cases between one year and three years, six cases above three years. Out of 31 cases, 9 suffered from hemiplegia caused by cerebral hemorrhage with complication of facial paralysis marked by distortion of mouth and eye and disturbance of speech. The total effective rate of the 31 cases was 96.8% while the failure rate was 3.2%.

Comments on paralysis studies: The above report that some forms of paralysis can be treated successfully by a combination of emitted qi and self-practice of qigong exercises. Apparently, qigong was able to restore the damaged nervous system of paralyzed parts of the body. Perhaps limited by the nature of the abstract format, information was not included on the effectiveness of therapy according to duration and severity of the illnesses.

Pain

Spine-related diseases: Liu reported clinical studies of 292 cases of spine-related diseases that were treated by a combination of qigong and Chinese and Western medicines.⁵¹ In these studies, the back was usually chosen as the treatment site when internal organs have problems because according to Chinese medicine many of the meridians associated with internal organs are located along the *Du* Channel, which runs down the back. To open up the meridians through which qi flows, the treatments included traction by qigong, Chinese massage, and emitted qi.

Results on the treatment of 18 diseases and conditions were reported, and data relevant to neurologic illness are summarized in Table 3. The total effective rate for all the treatment of all 18 diseases was reported to be 97.7%.

Table 3. Clinical effects of treatments of spine-related diseases by a combination of qigong and Chinese and Western medicines. The numbers of cases are shown.

Disease	Total cases	Cured	Markedly effective	Improved	No effect
Prolapsed lumbar	108	95	10	2	1
Dislocated thoracic lumbar discs	26	12	5	7	2

Herniation cervical disc	70	59	7	3	1
Hyperostosis cervical spine	10	8	2		
Chronic lumbosacral pain	18	8	6	3	1

Frozen shoulder and tennis elbow: Gao reported on qigong's curative effect for treating 32 cases of frozen shoulder and tennis elbow.⁵⁹ The patients were 8 males and 24 females whose ages ranged from 27 to 76 and with histories of neuromuscular problems from 1 week to 2 years. The author emitted qi for 5 to 10 minutes to a patient's shoulder or elbow emitted without touching the patient. Acupressure and massage were applied after the external qi treatment. Shaking, vibrating and other massage techniques were applied to the elbow or arm for approximately 10 to 30 minutes, and the patients received treatments 2 to 3 times a week.

Most patients experienced relief from symptoms such as insomnia caused by pain, difficulty in holding objects or moving their shoulder or arm. Six patients (18.8%) received complete relief from the first visit; seven patients (21.9%) felt that most symptoms disappeared after 2 to 5 treatments; thirteen patients (40.6%) had noticeably effective or improved conditions after 6 to 15 treatments; four patients (12.5%) interrupted treatment after 2 to 4 treatments; and two cases failed (6.3%). The total effective rate was 81.2%.

Comments: Frozen shoulder and tennis elbow are difficult to treat by conventional medicine, but this study suggests that a combination of emitted qi and massage is beneficial.

Ankle joint sprains: Huang reported a clinical study comparing qigong and herbal therapies for cases of ankle joint sprain.⁶⁰ For the qigong group (n=50) the average age was 30.2 (range 16-43) and the average course of the injury was 4.5 days (range 1-15 days). For the herbal group (n=47) the average age was 30.1 (range 17-41) and the average course of the injury was 4.3 days (range 1-14). For both groups, the first step was bone setting. Qigong therapy consisted of emitting qi to the afflicted area while performing rotating and sweeping manipulations for 20 minutes/day for 7 days. Herbal therapy consisted of applying Chinese herbs to the affected areas once a day for 7 days. The results are summarized in Table 4.

Table 4. Comparison of the therapeutic benefits of qigong and herbal therapies for cases of ankle joint sprain.

	*****	***Number of	Cases *****	*****	
Group	Total number of patients	Marked effectiveness	Effective	Failure	Cure (%)
Qigong	50	39	8	3	94
Herbal	47	35	9	3	94

Comments: A statistical difference was not found between the two groups ($p>0.05$), a result that shows that qigong and Chinese herbs are both effective in treating injury of soft tissue.

Fibromyalgia: Singh, et al. reported a pilot study of cognitive behavioral therapy for fibromyalgia, a syndrome characterized by widespread musculoskeletal pain and multiple tender points as well as high levels of self-reported disability and poor quality of life.¹⁰⁴ In this pilot study, a mind-body approach (cognitive-behavioral therapy), which has been successful in treating chronic back pain, was tested to determine whether the therapy would improve function, decrease perceived pain, and improve mood state for fibromyalgia patients.

Twenty-eight patients participated in an 8-weekly session, 2.5 hours each, with three components: an educational component focusing on the mind-body connection, a portion focusing on relaxation response mechanisms (primarily mindfulness meditation techniques), and a qigong movement therapy session. Data collection instruments were the Fibromyalgia Impact Questionnaire, the Health Assessment Questionnaire, the Beck Depression Inventory, the Coping Strategies Questionnaire, the helplessness subscale of the Arthritis Attitudes Index, the Medical Outcomes Study Short Form General Health Survey, and a double-anchored 100-mm visual scale to assess sleep.

Twenty patients completed the study. Standard outcome measures showed significant reduction in pain, fatigue, and sleeplessness, and improvement in functions, mood, and general health following the 8-week intervention. The authors conclude that

an effective mind-body adjunctive therapy for patients with fibromyalgia should include patient education, meditation techniques, and movement therapy.

Slipped discs: Noda describes a short (1-3 min) qigong treatment for slipped discs, which usually result in painful pinched nerves.⁵⁷ While the patient lays supine with the arms of the upper body fixed with belts to a therapeutic bed, the qigong therapist focuses his qi to a point at the patient's upper chest (*Zhongfu*, Lung 1) and to a point above the knee (*Xuehai*, Spleen 10). The patient's legs are first bent then pulled straight and slightly upward, and this procedure is repeated two or three times. Qigong is then emitted to the patient while lying on the floor to release concentrated qi to the low back. The released qi radiates within the entire body and moves all the muscles of the body. As the muscles move, the intervertebral disc tries to move back to its original place, pressure is reduced on the nerve fibers, and back pain is decreased. The patient can now freely bend the body forward and backward.

Among more than 2000 clinical cases, 70% were treated successfully by one to three treatments and 15% by four to five treatments. Improvement was seen in about 5%, and no improvement was observed in about 5% of the patients. The remaining 5% of the patients discontinued the treatment.

Comments: The treatment appears to be a combination of qigong and chiropractic therapies. Qigong relaxes the muscles so that a chiropractic maneuver proceeds more readily and effectively.

Arteriosclerotic obstruction: Agishi reported the effects of emitted qi on 20 patients with arteriosclerotic obstruction.^{38,39} The qi therapy proceeded with the patients seated with their lower extremities unclothed. The therapist held or moved his palms close to a patient's head, lower abdomen and lower limbs, sometimes gently touching or rubbing for a period of 20 to 30 minutes, 1 to 8 times during weekly intervals. The therapeutic effectiveness rates are summarized in Table 5.

Table 5. Effect of emitted qi on relieving symptoms associated with arteriosclerotic obstruction.

Symptoms Relieved	Therapeutic Effectiveness (%)
Leg pain on walking, leg pain at rest, cold legs	83.3
Leg temperature rise (2 to 4°C)	90.0
Peripheral blood flow	67.7

Improvement in plethysmography at the toes	72.4
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The rise in the leg temperature (2° to 4°C) was measured by thermography, peripheral blood flow by ultrasonic Doppler flow meter, and plethysmography indicated pulse amplitude and arterial notch.

Comments: This study provides evidence that qigong relieves leg pain due to arteriosclerotic obstruction. The authors propose that qigong improves blood circulation that may help to prevent the arteriosclerotic condition.

Intractable pain: Omura discussed common factors contributing to intractable pain and approaches using qigong for alleviating pain.⁷⁹ He reported it was possible to relieve pain and circulatory disturbances due to spastic muscles or arteries in vasoconstriction by applying qigongized paper (i.e., paper to which he emitted his qi) to an affected area of the body.³⁷ For a favorable effect, the qigongized paper should have (+) polarity. The polarity on the paper depended upon how the emitted qigong was applied to the paper and from which part of the body it emanated. The polarity on the paper was determined by the Bi-Digital O-Ring Test.

Comments: Omura suggests that the mechanism of qigong's action is to relax diseased or stressed tissues so that blood flow is enhanced to those areas of the body. Increased blood flow implies more efficient delivery of oxygen, nutrients and pain-killing substances,

including the delivery of drugs in the blood, and also greater efficient removal of metabolic waste products that could contribute to pain.

Human skin pain threshold: Zhang, et al. reported on the analgesic effect of emitted qi on the human skin pain threshold by the method of potassium mediated pain.¹⁸ The subjects were divided into 3 groups: Group 1 received emitted qi from a qigong master, group 2 was treated by a non-qigong master, and group 3 was a control (not defined). The results of emitted qi on human skin pain threshold are summarized in Table 6.

Table 6. The effects of emitted qi on human skin pain threshold.

Time after qi emission (min)	Skin pain threshold (μA)	p-value
0	1525.4 \pm 92.6	
2.5-5	1631.1 \pm 89.1	<0.05
7-10	1657.8 \pm 93.3	<0.01

The authors concluded that emitted qi had an obvious analgesic effect that raised the human skin pain threshold. Further studies of the influence of emitted qi on the cortical evoked potentials elicited by c-fiber inputs (C-CEP as an index of response of

somatosensory cortex to slow pain) in cats led them to suggest that endogenous opiate-like substances are associated with the analgesic effect of emitted qi.

Comments: The pain threshold increased with time after qi therapy suggesting that the autonomic nervous system continues to respond to the stimulation of emitted qi.

Qigong and psychotherapy. Mayer discussed an integrated approach to chronic pain relief that combines qigong and psychotherapy.⁹⁷ He outlines an approach to working with anxiety disorders by integrating qigong with Western psychotherapy and hypnotherapy. One of his approaches to pain relief is using microcosmic and macrocosmic orbit breathing. In this form of qigong the subject use his mind to focus on the breath and to imagine that the qi is circling continuously about the body. The circulating qi helps energy flow through blocks, which may be the cause of pain. Mayer also uses a balancing method that combines the Taoist concept of *yin* and *yang* with a hypnotherapeutic technique called “pain transferal.” He discusses some case studies to illustrate these approaches.

Qigong Anesthesia

Lin reported clinical studies using qigong anesthesia (QA) during the resection of thyroid gland tumors and operations on tongue cysts.¹⁴ The qigong doctor emitted qi from the center of the palm of his hand (*Laogong* point). Thirty-four case of resection of thyroid gland tumors and cysts were successfully operated on under QA. Judging from the Anaesthetic Effect Standards stipulated at the National Conference of Acupuncture Anesthesia, 17cases reached grade I, 14 cases grade II, and 3 cases grade III. Grades I

and II combined accounted for improvement of 91.1%, showing that QA was fairly effective as anesthesia during surgery.

Machi and Chu reported on physiological changes that occur during qigong anesthesia.¹⁰⁵ Measurements were made of the physiological changes that occur in a qigong master and his patient undergoing simulated qigong anesthesia, that is, without surgery. Simultaneous measurements included EEG, ECG, galvanic skin resistance (GSR), skin temperature (by thermography), respiration rate, and plethysmography of a finger. Some of the results during emission/receiving of qi are: (1) the alpha waves increased and beta-waves decreased in the frontal lobes of both the qigong master and the subject indicating greater relaxation, (2) the GSR at first increased indicating some tension, but decreased strongly before the end of the anesthesia, (3) a similar response of the thermography patterns of the faces, and (4) heart rate changes between therapist and subject were synchronized in the final stages of anesthesia. These phenomena suggest that qigong can control the autonomic nervous system.

Parkinson Disease

Chen studied the effects of emitted qi for treating Parkinsonism.⁹¹ He stated that over a period of more than two years, his qigong therapy cured hundreds Parkinson's patients. Chen's approach combined the theory of the Chinese traditional medicine and the basic principles for Qigong treatment. The first principle is to establish a diagnosis

and then prescribe treatment based on an overall analysis of the illness and the patient's condition.

Among 15 patients who came for one course of 60 treatments, 7 patients got an obvious effect (46.7%), 5 patients got a better effect (33.3%) and 3 patients got a general effect (20%). The definitions of these terms are:

Obvious effect: diminished frequency and amplitude of tremble, time interval between two attacks is obviously prolonged, and duration of attack is obviously reduced.

Better effect: tremble is obviously weakened, more dexterous and quick in walking, and speaking in a louder voice with clearer enunciation.

General effect: tremble diminishes at time of emitted qi therapy, but the patient's condition relapses.

Zhang studied the effect of qigong on Parkinson patients by measuring brain waves according to the P33 auditory Event Related Potential (ERP).⁹² A recording was made of P₃₀₀ of 24 normal controls and those of 30 patients with Parkinson disease before and after practicing Qigong. The Webster scale was also recorded for 33 Parkinson patients who practiced qigong for one year.

The principal results are as follows:

1. In comparison with the normal controls, the P₃₀₀ indexes of Parkinson patients exhibited a lengthening of the latency period and an increase in amplitude.

2. Comparing the records taken before and after Parkinson patients' self-practiced qigong, the latency of target stimulating of P₃₀₀ shortened significantly.

3. The Webster's score indicated that the clinical symptoms of Parkinson improved for patients who practiced qigong.

Comments: This study shows that self-practice of qigong can alter the brainwaves of Parkinson patients. A question that needs investigation is how changes in brain waves relate to improvements in clinical symptoms.

Drug addiction

Finding effective and humane methods to help heroin addicts break the drug habit is a challenge to modern medicine. Li, Chen, and Mo compared the effectiveness of treating heroin addicts with qigong, regular medicine and a control.¹⁰⁶

Eighty-six heroin addicts (all met DSM-III-R substance dependence criteria) in mandatory drug rehabilitation centers were randomly assigned to one of the three groups: 1.) qigong treatment group (N=34) practiced Pangu Gong 2 to 2.5 hours per day, plus some adjustment by a qigong master (qi emission); 2.) medicine comparison group (N=26) took regular detoxification pills (lofexidine-HCl, 0.2mg) in a 10-day gradual reduction method, 3.) control group (n=26) received basic care but no medicine. Blood test, urine morphine test, ECG test, HAMA scale, and a withdrawal symptom evaluation scale were given prior to treatment and subsequently everyday for 10 days during the study.

Results:

(1) Withdrawal syndrome: From day one, the Qigong group had significantly lower mean scores than other two groups ($p < 0.01$). By day eight, 100% reported no withdrawal symptoms while the other two groups still reported some at the end of the 10-day study.

(2) Anxiety Symptoms: Both the qigong and the medicine groups had much lower anxiety score than control group ($p < 0.01$) on the 5th and 10th day of treatment. The qigong group had significantly lower anxiety score than medicine group ($p < 0.01$). The qigong group also reported more rapid improvement in sleep time and quality.

(3) Urine morphine test: All subjects had positive response to the urine morphine test before treatment. On the third day, urine tests were negative for 50% of the qigong group, 23% for the control group and 8% for the medicine group ($p < 0.01$). By the 5th day of treatment, the urine test was negative for all 34 patients in qigong group, medicine group by the 9th day and the control group by the 11th day.

The authors suggest that the mechanism of drug cessation depends on external qi breaking the combining power of the exogenous opium and human cells and expelling the opiates from the body. They conclude that qigong treatment is an effective and safe treatment for detoxification and possibly for rehabilitation, with additional benefits of low cost and no side effects.

Comments: The efficacy of a combination of qigong and drugs therapy for detoxification of drug addicts should be investigated. This suggestion is based on

reports that a combination therapy is better than drug therapy alone for treating hypertension and asthma.⁵

Mechanism of Qigong Healing

The research studies presented in this paper provide evidence that qigong can alleviate symptoms of some neurologic diseases. While qigong can improve single symptoms, it has the potential to affect many functions of the body.¹⁰² In this sense qigong is a holistic practice.

Qigong's role in affecting neurologic illness can be accounted for by a model that depends on qigong's ability to relax tissues, muscles and tendons that are stressed, injured or diseased, and once relaxed the tissues permit greater blood circulation.^{83;107} The enhanced blood circulation increases the efficiency of delivery of oxygen and nutrients to all cells of the body and also increases the removal of metabolic waste products from the cells. **As qigong increases blood circulation it also enhances the immune system and thereby improves health and healing. Several research studies have reported improvement in the immune system in humans and animals.**¹⁰⁸⁻¹¹⁴

Qigong helps relax the mind, muscles, tendons, joints and inner organs of the body by exercises involving physical movements, focused meditation, breathing, and self-massage. One of the distinguishing features of qigong is that the mind can be trained to direct the flow of qi to any part of the body to relieve stress and pain. As the injured or

diseased tissues become more relaxed, vasoconstriction will be decreased and blood circulation will be increased. Increased blood circulation may enable removal from tissue pain-inducing substances such as metabolic waste products, and enhance delivery of pain-killing substances such as endorphins or drugs in the blood stream to control pain.

During qigong meditation important changes can occur in the production of hormones. Higuchi studied the effects of qigong on hormone levels in the blood.¹¹⁵ He measured the endocrine and immune responses of 6 qigong practitioners and 7 non-practitioners before and after 30 min qigong meditation. Plasma cortisol, adrenaline, dopamine and beta-endorphin levels decreased during meditation, while the beta-endorphin levels of a few qigong practitioners showed a slight increase. Apparently, qigong meditation decreases sympathetic nerve activity. These effects may be related to the effects of qigong meditation on brain waves^{116;117} and on the synchronized brain waves of a qigong master and his subject during qigong anesthesia.¹¹⁸

Qigong's effect on enhancing blood circulation has been invoked by many researchers, for example, in the removal of drugs from the body of drug addicts,¹¹⁹ the delivery of drugs to diseased or stress tissue,³⁷ and increased blood circulation to the brain¹²⁰ and to the nailfolds of qigong practitioners,^{121;122} A qigong master can increase the skin temperature of a subject without touching the subject,¹²³ evidence that the local blood circulation was increased.

One of the main objectives of qigong is to balance the functions of body so that there are neither deficient nor over excited organs. This balance can be assessed in a

qualitative way by Traditional Chinese medicine by “reading the pulses” at the radial artery of the wrist. From the pulse reading, the therapist can deduce in a subjective way the condition of the 12 meridians and their corresponding organs of the body.

Quantitative information on the condition of the meridians and their corresponding organs can be obtained by using Electroacupuncture According to Voll (EAV), which measures the electrical conductivity of acupuncture points on the meridians. A healthy, energetically balanced person will ideally have the same electrical conductivity for all 12 meridians and for the right and left side of the body. Sancier reported a pilot study in which EAV measurements were made on 11 subjects before and after the subjects practiced qigong of their own choosing for 10-15 minutes.¹²⁴ The results indicate that 7 of the 11 subjects had balanced the functions of their meridians and organs. For example, the average reading of all 24 measurements was 69.0 ± 5.2 before and 51.4 ± 13.5 after the qigong practice. The EAV readings also provide other advantages, such as an insight into the condition of the individual organs and whether a given therapy is effective in balancing the organ.

A recent hypothesis endeavors to explain distance and non-touch healing from a biophysical point of view. According to Gough, non-local inputs, i.e., a healer’s intentions, affect the shape of the molecules such as DNA in the bodies.¹²⁵ Non-local input, such as emitted qi, provides guidance for maintaining the intercellular communication process essential for human growth and a healthy body. The intercellular communication between healer and healee, or the healing of one-self, is

thought to involve increased coherence among cells. According to Gough, recent physics experiments strongly support the existence of the phenomena.

Conclusions

Clinical evidence of the beneficial effects of qigong for treating some neurologic illnesses is presented in this paper. There is a need for more rigorous methodological controls in future studies in order to clarify putative qigong effects in neurologic disorders and to elucidate mechanisms.

The results of many studies offer promise that qigong can effectively complement orthodox medicine. For example, studies report that qigong decreases the drug dosage required to maintain patients with hypertension or asthma, helps drug delivery to stressed tissue, and assists detoxification of heroin addicts.

Qigong therapy has the additional benefit of being relatively inexpensive and often allowing patients to participate in their own healing process. For example, Reuther and Aldridge in their study of the effects of self-practice of qigong on asthma reported improved breathing function and other benefits such as decreases in drug dosages, hospitalization rate, sickness leave, antibiotic use, and emergency consultation. These benefits resulted in significant reduced treatment costs.¹²⁶

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