

# USE OF QIGONG THERAPY IN THE DETOXIFICATION OF HEROIN ADDICTS

Ming Li, Kevin Chen, PhD, and Zhixian Mo, MD

**Ming Li** is a lecturer with the Institute of Qigong Research, Guangzhou University, People's Republic of China. **Kevin Chen** is an assistant professor in the Department of Psychiatry, University of Medicine and Dentistry of New Jersey, in Newark, NJ. **Zhixian Mo** is an associate professor in the Department of Chinese Medicine, First Military Medical University, Guangzhou, People's Republic of China.

**Context** • Qigong is a traditional Chinese health practice believed to have special healing and recovery power. Little scientific documentation was found on qigong and its effectiveness, and no literature was found on qigong as a treatment of substance addiction.

**Objective** • To explore the effectiveness of qigong therapy on detoxification of heroin addicts compared to medical and nonmedical treatment.

**Design** • Participants were randomly assigned to 1 of 3 groups: qigong treatment group (n=34), medication group (n=26), and no-treatment control group (n=26).

**Participants** • Eighty-six male heroin addicts, aged 18 to 52 years, who met the substance-dependence criteria of the Diagnostic and Statistical Manual of Mental Disorders, Third Edition Revised, with a history of heroin use from .5 to 11 years, all residents at a mandatory drug-treatment center in the People's Republic of China.

**Intervention** • The qigong group practiced Pan Gu qigong and received qi adjustments from a qigong master daily. The medication group received the detoxification drug, lofexidine-HCl, by a 10-day gradual reduction method. The control group received only basic care and medications to treat severe withdrawal symptoms.

**Measures** • Urine morphine test, electrocardiogram, Hamilton Anxiety Scale, and a withdrawal-symptom evaluation scale were applied before and during the 10-day intervention.

**Results** • Reduction of withdrawal symptoms in the qigong group occurred more rapidly than in the other groups. From day 1, the qigong group had significantly lower mean symptom scores than did the other groups ( $P < .01$ ). Both the qigong and medication groups had much lower anxiety scores than did the control group ( $P < .01$ ), and the qigong group had significantly lower anxiety scores than did the medication group ( $P < .01$ ). All subjects had a positive response to the urine morphine test before treatment. On day 3, 50% of the qigong

group had negative urine tests compared to 23% in the control group and 8% in the medication group ( $P < .01$ ). By day 5 of treatment, all subjects in the qigong group had negative urine tests compared to day 9 for the medication group and day 11 for the control group.

**Conclusions** • Results suggest that qigong may be an effective alternative for heroin detoxification without side effects, though we cannot completely eliminate the possibility of the placebo effect from the current study. (*Altern Ther Health Med.* 2002;8(1):00-00)

Qigong (pronounced *chee kung*) is an ancient, traditional Chinese health practice believed to have special healing and recovery power. For thousands of years Chinese have used various forms of qigong techniques to build up healthy bodies and get rid of sickness with reported success. Regular practice of qigong is believed to help cleanse the body of toxins, restore energy balance, reduce stress and anxiety, and help individuals maintain a healthy and active lifestyle. Today millions of people practice qigong in China and around the world to treat diseases ranging from hypertension to cancer,<sup>1</sup> but little scientific documentation was found on qigong and its effectiveness. No literature has been found on qigong as a treatment of substance addiction, one of the most prevalent psychiatric disorders in modern society.

The word *qigong* is a combination of *qi*, meaning breath of life or vital energy, and *gong*, meaning the skill of working with, cultivation, and achievement. Qigong consists primarily of meditation, relaxation, guided imagery, deep tranquility, mind-body integration, and breathing exercises. Because of relaxation and concentration during the practice of qigong, practitioners are reported to have increased blood flow to the brain, more efficient oxygen metabolism, and a slower pulse.<sup>2,3</sup> Practitioners are said to have developed an awareness of qi sensations in their bodies and to use their mind or intention to guide the qi. When they practice long enough and gain sufficient skills, some qigong practitioners can reportedly direct or emit energy (external qi) for the purpose of healing others.

According to traditional Chinese medicine (TCM), good health results from a free-flowing, well-balanced energy system, whereas sickness or the experience of pain results from qi blockage or unbalanced energy in the body. Although no instrument can

Reprint requests: Kevin Chen, PhD, Department of Psychiatry, UMDNJ-New Jersey Medical School, 30 Bergen St, ADMC 1419, Newark, NJ 07107; phone, (973) 972-7225; fax, (973) 972-8305; e-mail, chenke@umdnj.edu.

presently measure the strength of a person's internal or external qi and we do not fully understand exactly what qi is, research has reported that the emitted qi of a qigong master was associated with significant structural changes in water and aqueous solutions. The master's qi also seemed to alter the phase behavior of dipalmitoyl phosphatidyl choline (DPPC) liposomes and enable the growth of Fab protein crystals.<sup>4</sup> A small but growing body of scientific evidence proves the physical existence of qi as well as the healing power of qigong.<sup>5-10</sup>

TCM and modern Western medicine have philosophical differences in terms of healthcare and purpose of medicine. Western medicine tends to identify the specific bacterium, virus, or gene causing a symptom or disease, and treat the symptom or disease with tested methods or drugs. If you do not have any symptoms, you do not have a disease; therefore, you do not need medical help. TCM, on the other hand, has a holistic perspective and considers human health to be an integration of body, mind, and spirit. TCM believes that everyone is born with a self-healing ability and emphasizes that the best cure is prevention and balanced energy flow—precisely the aim of qigong. The original purpose of qigong practice is not for treating disease, but for preventing potential diseases. When a person is sick or has a disease, qigong does not treat just that symptom or disease; instead, it is said to help that person restore the entire body's energy (qi), smooth the energy flow, and balance the yin-yang harmony.

This same philosophy applies to qigong therapy for treating addiction. There are no specific qigong exercises just for treating addiction; the same practice may be used for treating and preventing numerous illnesses. In addition, most qigong forms also tend to promote a life philosophy that encourages a harmonious, less aggressive, easygoing, and open-minded lifestyle.

From March 1996 to January 1999, we used a simple form of qigong to treat substance addicts in a series of clinical trials to test the effectiveness of qigong therapy for drug detoxification.

The Institute of Qigong Research at Guangzhou University, the First Military Medical University, and the Second Workers' Hospital of Guangdong Province, all in the People's Republic of China, designed and conducted a series of studies of qigong to treat substance addicts in the Second Workers' Hospital of Guangdong Province and the Changzhou Drug Treatment Center of Guangzhou City. This article reports on the third of these studies, conducted from December 1998 to January 1999 at the Changzhou Drug Treatment Center.

## METHODS

### Subjects

Eighty-six male heroin addicts participated in this study in the Changzhou Drug Treatment Center, where they were enrolled for 1 to 3 months of mandatory addiction treatment (Table 1). These individuals were admitted to the treatment center as inpatients for at least 1 month and met the selection criteria outlined below. Seventy-nine used heroin by injection and 7 by sniffing. Their ages ranged from 18 to 52 years, with a history of heroin use from 0.5 to 11 years. The amount of heroin last used before entering treatment ranged from .1 to 2.5 g. No significant differences were noted in baseline data in any of the treatment groups (Table 1).

Informed consent is not a standard procedure in the People's Republic of China for a research project such as the one reported here. However, the subjects knew why they were sent to the drug treatment center and were expecting treatment for their addiction. Although Chinese universities or hospitals do not have the equivalent of institutional review boards, the research protocol was carefully reviewed and approved by different levels of authority at Guangzhou University, the hospital, the Public Security Bureau (police stations), and the city government. All participants were informed orally about the research study in which they would be participating and what treatment they might receive for

TABLE 1 Descriptive statistics of subjects by group

	Control group (n=26)*	Qigong group (n=34)*	Medicine group (n=26)*
Age (y)	31.7±6.1	33.3±6.5	31.9±5.9
Years of drug use	5.86±3.0	5.47±3.7	5.03±3.3
Heroin used 1 week before treatment (g)	.99±.5	.89±.6	1.18±.5
Last use (g)	.33±.1	.45±.4	.41±.2
Hours from last use to entry into the treatment center	25.2±9.5	25.1±15.9	33.9±11.9

\* Numbers are group mean ± SD

detoxification. None of the subjects had any complaints about the treatment they were assigned to receive, or at least we did not observe such a complaint or refusal during the study.

### Subject Selection

The following criteria were used to select subjects in the treatment center for this study:

1. Subjects had a reliable history of heroin abuse and dependence, used heroin for more than 3 months, and were still using before entering the treatment center.

2. Subjects met the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition Revised* (DSM-III-R), substance dependence diagnostic criteria (ie, they reported at least 3 heroin-dependence symptoms).

3. Subjects' urine tested positive for morphine.

4. Subjects had used heroin within 36 hours of entering the treatment center.

Additional criteria included no infectious disease or sexually transmitted disease, no other serious psychiatric disorders, and normal tests for blood, urine, and liver/kidney function.

### Group Assignment

The preset ratio between the qigong treatment group and the 2 control groups was 1.5 to 1. Qualified subjects were assigned into 1 of 3 groups according to the order in which they entered the treatment center. The 1.5-to-1 ratio was achieved by assigning 2 subjects to each of 3 groups, then assigning the seventh subject to the qigong group.

The following 3 groups were established for this study:

1. The qigong treatment group practiced qigong collectively for 2 to 2.5 hours per day and accepted the emitted qi or adjustment from a qigong master for 10 to 15 minutes per day. The master emitted qi at a distance of 15 cm or more from subjects with no physical contact.

2. The medication-treatment group (comparison group) received the detoxification pill (lofexidine HCl, .2 mg) using a 10-day gradual-reduction method. The dosage protocol in the treatment center was as follows: on day 1, .4 mg twice a day around 8 AM and 4 PM; days 2 through 4, .6 mg 3 times a day around 8 AM, 2 PM, and 8 PM; days 5 through 8, .4 mg 3 times a day (same times as days 2-4); day 9, .2 mg twice a day around 8 AM and 4 PM; and day 10, .2 mg once around 8 AM.

3. The nontreatment control group received no detoxification medicine or qigong treatment except emergency care for acute physical symptoms such as pain, diarrhea, and sleep disorders if it was deemed necessary by the attending physician. For pain relief, aspirin, metamizol (Analgin), rotundin, and indomethacin were usually used; for diarrhea and sleep disorders, Chinese herbal medicines were used; and specifically for sleep disorders, diazepam and methaqualone were used. All medicines for acute symptoms were prescribed by medical doctors in the treatment center. The same care also was available to subjects in the other groups as needed. However, almost none of the subjects in the qigong or medication groups used these alternatives, because their symptoms did not

constitute an emergency according to the attending doctor.

Subjects in each group participated in the same number of outdoor activities every day. While the qigong group practiced qigong, the control group and medication group performed physical activities or received necessary psychological counseling from the treatment center staff. Most counseling consisted of groups discussion in which subjects talked about their life experience and drug-use history. Then the psychotherapist would explain what was wrong with substance abuse or addiction, what subjects would experience in detoxification and rehabilitation, and how to rebuild health and confidence in their lives. Services given to the control group were available for the qigong group and medication groups as needed. All subjects' blood pressure and pulse were monitored closely daily.

### Qigong Intervention

More than 1000 forms of qigong are practiced today in the People's Republic of China. It would be difficult to judge which qigong could have better effects in drug treatment. Considering the high anxiety and low patience common to drug addicts, we selected the relatively simple and easy-to-learn Pan Gu qigong<sup>11</sup> for our experimental treatment. This form of qigong takes about 25 to 30 minutes for a complete session of self-practice. Unlike many forms of qigong, Pan Gu qigong does not require strong intention or meditation, does not require skillful breathing, and does not require the student to believe in the efficacy of qigong.

During practice, students (subjects) listened to prerecorded audio instruction and followed it through 4 simple steps (see sidebar). The exercise is so simple and easy that most subjects were able to do it on their own after it was explained the first time. Subjects in the qigong group usually practiced the same exercise routine 4 to 5 times collectively every day during the treatment. Group practice of qigong is believed to generate a special qi field that benefits all the practitioners.

According to TCM theory, qi, or life energy, makes a person alive. Blocked or unbalanced qi is believed to contribute to illness or pain, such as the discomfort associated with addiction or withdrawal. Frequent and effective qigong practice is considered helpful for breaking through a blocked area and restoring a balanced energy flow.<sup>12</sup> When people cannot balance their own qi or break through blockages by themselves, the external qi emission of a skilled qigong master or group practice of qigong can help. During the study reported in this article, qigong masters from Guangzhou University gave each subject in the qigong group external qi emission or adjustments for 10 to 15 minutes daily at a distance of 15 cm or more with no physical contact. If a subject had specific symptoms or pain, the qi was emitted toward that area. For subjects who had no particular complaints, the master emitted qi toward their palms; this was believed to help subjects gain extra energy and balance their qi flow.

### Measurements and Comparison Indicators

Medical staff collected the following data for each subject:

1. Urine morphine test: Subjects were tested before treat-

ment and daily during treatment until no urine morphine was detected. The test was made with the Visualine II drug-screening test kit (product of ABI, San Diego, Calif), with sensitivity to morphine at 1050 nmol/L.

2. Brief medical record: Subjects' blood pressure, weight, pulse, and other clinical details were recorded daily.

3. Withdrawal syndrome evaluation scale: Trained staff members evaluated each subject daily using the Standard Evaluation Scale of Withdrawal Symptoms, recommended by the National Committee of Narcotic Experts, Chinese Ministry of Health. The scale includes evaluation on 5 levels and 23 withdrawal symptoms (Table 2).

4. Hamilton Anxiety Scale, including evaluation on 14 anxiety symptoms, evaluated at 3 time points: before treatment, 5th day, and 10th day of treatment.

5. Records of the physiological or psychological reactions to withdrawal: For the qigong groups, these reactions included hallucinations, behavioral deviation, nausea, vomiting, and other withdrawal symptoms. For the medication group, the side effects described in the drug package insert were carefully recorded.

Before treatment, all medical staff and nurses who participated in the study attended a training seminar to introduce the research protocol, the evaluation criteria, and personal duties. Actual patients received pretest and evaluation tests during the seminar to demonstrate methods and technique. Each measurement mentioned above was assigned to specific personnel to administer at a specific time each day.

The original study design required that medical staff who evaluated withdrawal and anxiety symptoms be blinded to the subjects' group assignments. However, because different groups lived in different areas of the treatment center, we found that many staff identified the group members by the end of the study. All technicians who performed the urine and blood tests were completely blinded to subjects' group assignment throughout the study.

Usually researchers of a well-designed clinical trial attempt to implement a double-blind design to assure validity and reliability and to eliminate potential placebo effects. In our case, we tried to have all the medical staff involved in evaluation or examination blinded, as described previously. However, given the relative popularity of qigong in China, it would not have been possible to have the qigong group blinded unless we could have designed similar sham exercises. This is still a methodological challenge for researchers. However, the participating subjects did not know that other alternative methods (or groups) were available for treatment due to their separate living arrangements.

### Analytical Strategy

Most data are presented as mean  $\pm$  standard deviation for each group. A chi-square test was applied to the ordinal or categorical data, whereas multivariate repeated measures analysis of variance were applied to the continuous or ratio

## BASIC PAN GU QIGONG EXERCISE

1. **Opening position.** Stand naturally with feet apart the same width as shoulders; arms bent at elbow with palms facing up; eyes closed, and completely relaxed. Repeat 3 times mentally: "Take kindness and benevolence as its basis, take frankness and friendliness as its bosom." This is considered the position to receive the qigong state. Hold this pose for 5 to 6 minutes.

2. **Rotated motion.** Left side: Place both palms 15 to 20 cm apart in front of the left side of the waist with the left palm face up, right palm face down. Imagine holding a golden sun between your hands. Rotate your hands clockwise 26 times with the little finger leading. Right side: Move both hands over to the right side of the waist so that the right palm faces up and the left palm faces down, again 15 to 20 cm apart. Imagine holding a silver moon between your hands. Rotate your hands counterclockwise 26 times with the little finger leading. Center: Place your hands so that they face each other in front of your chest, about 15 to 20 cm apart. Imagine kneading the sun and the moon together, then move your hands forward (away from you) in a clockwise circle 26 times. Repeat this sequence of left-right-center motions 3 times.

3. **Deep breathing.** Straighten and slowly extend your arms in front of your chest, while breathing deeply through your nose. Imagine absorbing energy through your body (skin). Open your arms to each side, then embrace the universe by exhaling slowly while drawing your hands back in front of your chest. Place your hands before your chest, wrists touching, and fingers slightly curled. Repeat this deep-breathing exercise with arm extensions 3 times.

4. Repeat steps 2 and 3 three times each.

5. **Closing position:** Draw hands back to the waist with palms facing up as in the opening position, and say to yourself, "Speak with reason, treat people with courtesy, move others with emotion, and act with result." This concludes the exercise routine.

data with the appropriate F test or *t* test. All analyses were made using SPSS for Windows 9.0 (SPSS, Inc, Chicago, Ill).

## RESULTS

### Effects on Withdrawal Symptoms

Withdrawal symptoms were evaluated by trained staff using the Chinese Standard Evaluation Scale of Withdrawal Symptoms, recommended by the National Committee of Narcotic Experts, China Ministry of Health (Table 2). The Figure shows the relationship between mean scores of withdrawal symptoms for each group and the time of treatment. Before treatment there was no difference in the mean score of withdrawal symptoms among the 3 groups. During the 10 days of detoxification, the mean scores of

**TABLE 2** Standard evaluation scale of withdrawal symptoms\*

Level	Symptoms†
1	Craving, anxiety
2	Lacrimation, sweating, dysphoria, yawn, nasal congestion
3	Trembling, chills, myalgia or muscle pain, loss of appetite, diarrhea, dilated pupils, fetal position of withdrawal
4	Insomnia, hyperactive or restless, nausea, higher blood pressure, diaphoresis, palpitations
5	Weight loss, self-ejaculation, impulsive or aggressive self-mutilation

\* Recommended by the National Committee of Narcotic Experts, China Ministry of Health (People's Republic of China)

† Evaluations done by trained staff for each of the 23 symptoms on a 0 to 4 scale, but final score was weighted by the level of the symptom.

withdrawal symptoms began decreasing gradually. However, symptoms resolved more quickly in the qigong group than in the other groups. Multivariate repeated measures analysis of variance shows a significant between-subjects effect in group ( $F=71.0$ ,  $df=2$ ,  $P<.001$ ) as well as a significant interactive (within subjects) effect between group and time ( $F_{2,83}=24.3$ ,  $P<.001$ ), indicating the 3 declining curves are significantly different. A pair-wise analysis of group differences found significant differences in within-subjects interaction effects between the medication and control groups ( $F_{1,50}=13.1$ ,  $P<.001$ ), between the qigong and control groups ( $F_{1,58}=32.3$ ,  $P<.001$ ), and between the qigong and medication groups ( $F_{1,58}=23.9$ ,  $P<.001$ ). In fact, from day 1 of treatment, the mean score of withdrawal symptoms in the qigong group was significantly lower than in the other groups ( $P<.05$ , Student's *t* test). By day 7, all 34 cases in the qigong group reported that withdrawal symptoms had ceased (mean score=0), whereas members of the other groups still reported some symptoms at the end of the 10-day treatment.

### Effects on Anxiety Symptoms

No significant differences were noted in the mean anxiety score measured by the Hamilton Anxiety Scale among the 3 groups before treatment (the first evaluation). However, after treatment began, differences became statistically significant when measured on days 5 and 10 ( $F_{2,83}=15.1$ ,  $P<.001$ ). Multivariate repeated measures analysis of variance showed

that both the qigong and medication groups had lower mean scores of anxiety than did the control group (anxiety score by group interaction term,  $F_{1,50}=3.95$ ,  $P<.05$ ; and  $F_{1,58}=31.3$ ,  $P<.001$ , respectively). Meanwhile, the change in the qigong group (Table 3) was significantly different from that in the medication group (anxiety score by group interaction,  $F_{1,58}=12.6$ ,  $P<.001$ ).

According to staff at the treatment center, it was not unusual for subjects to have difficulty sleeping for 10 to 15 days after entering treatment. However, among the qigong treatment group, most subjects could sleep after 2 to 3 days of qigong practice. The medical records show that after 6 days, 67% subjects in the qigong group went from getting no sleep at all to getting normal sleep (5 or more hours per night). A similar proportion was observed in the medication group, whereas only 7.6% of subjects in the control group slept normally after 2 to 3 days.

### Urine Morphine Test

One of the selection criteria for this study was the presence of morphine in subjects' urine before treatment. By the third day of treatment, 17 of 34 subjects (50%) in the qigong group had no detectable morphine in their urine, whereas only 6 subjects (23%) in the control group and 2 subjects (8%) in the medication group did so ( $P<.01$ , Table 4). By the fifth day of treatment, all 34 subjects in the qigong group had negative tests for morphine; the medication group had negative tests by the ninth day and the control group by the 11th day. (Although the qigong interven-

**TABLE 3** Hamilton anxiety scores by group

Day in treatment	Control group (n=26)	Qigong group (n=34)	Medication group (n=26)
0 (pretreatment)	35.0± 4.7	37.4±7.5	33.5±8.5
Day 5	21.3±11.4	8.2±4.9†	13.6±6.4†
Day 10	7.3±18.2	.7±1.0†	5.3±3.1*

Compared to control group: \*  $P<.05$ ; †  $P<.01$

tion study lasted 10 days, patients were in treatment for a minimum of 1 month. Observable measurements could therefore extend beyond the intervention period.) No significant differences were found in urine morphine levels between the control group and the medication group (see note).

**COMMENT**

Substance abuse and dependence are 2 of the most serious health problems around the world. Modern medical science has the challenging task of finding a safe and effective way to treat addiction from detoxification to rehabilitation. Currently the most common treatment for drug addicts is still medical substitutes using a gradual-reduction method and symptom-specific therapy.

The advantages of substituting the addicted drug with medication in the gradual-reduction method are its wide application, ease of use, and low requirement for physician attendance. However, because this method uses another drug (a morphine simulator) to substitute and gradually reduce patients' craving and pain in the withdrawal process, it does not really solve the problem of the potential side effects of the substituting substance. In addition, when the dose of the substitute drug is reduced substantially, the patient may be in pain or feel uncomfortable and may report some withdrawal symptoms. Therefore, this may not be the ideal way to treat drug addiction.

Symptom-specific therapy means that physicians treat withdrawal symptoms using anxiolytics, antidepressants, or relaxants. But most drugs have side effects in the long run. For example, some of the drugs used to affect mood might have the potential to inhibit normal functioning of the central nervous

system; therefore, symptom-specific therapy is not an ideal method for treating substance dependence.

The treatment method explored by this study is a new experimental method for detoxification that seems to be easy to learn and so far appears to be relatively reliable. We have not yet found any side effects or risks from this therapy. This method may have some significance and wide application in treating substance addiction if we conduct additional, well-designed control studies.

This study shows that qigong practice may accelerate the detoxification process, reduce withdrawal symptoms, and shorten recovery time. As shown in the study, all subjects in the qigong group had negative urine morphine tests within 5 days, whereas the other study groups required twice that time (Table 4). From the second day of treatment, the qigong group reported significantly fewer withdrawal symptoms than did the other groups; by the fifth day, the mean number of withdrawal symptoms in the qigong group was close to zero, which was significantly lower than the scores for the other groups (9.9 for the medication group and 44.4 for the control group). Subjects who practiced qigong had much lower rates of anxiety, craving, and insomnia.

This study was designed to examine the overall effects of qigong therapy on treating substance addiction, from detoxification to rehabilitation. The results show some effectiveness of qigong therapy in detoxification for the first 10 days of treatment. During the 3-month treatment program, no difference was noted in relapse among any of the study groups, because subjects had no access to addictive drugs. When they completed their 1 to 3 months of mandatory treatment, very few subjects gave us permission to do follow-up work on their subsequent lives and

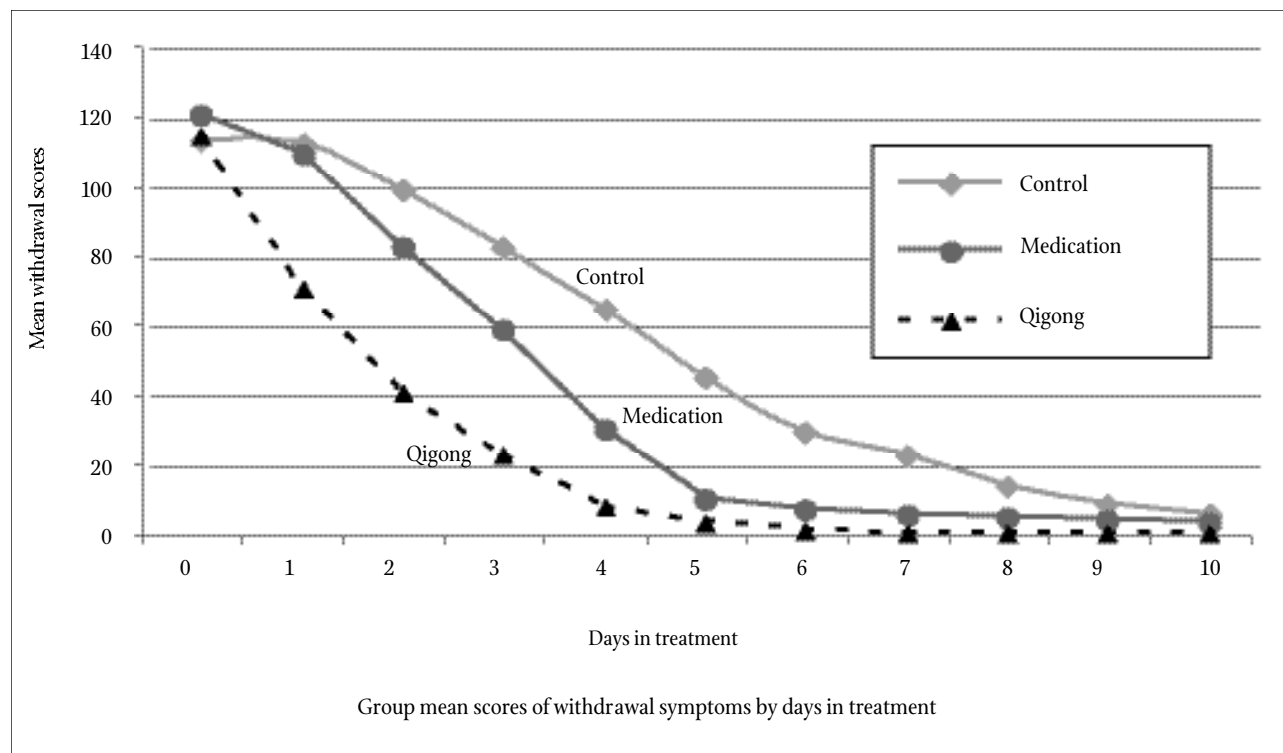


TABLE 4 Days to negative urine morphine test among treatment groups

Days in treatment	Control group (n=26)		Qigong group (n=34)		Medication group (n=26)	
	n	%	n	%	n	%
0 (pretreatment)	0	0	0	0	0	0
1	0	0	1	3	0	0
2	0	0	2	6	1	4
3	6	23	17*‡	47	2	8
4	15	58	32†‡	89	13	50
5	22	85	34†‡	100	20	77
6	24	92			23	88
7	25	96			25	96
8	25	96			25	96
9	25	96			26	100
10	25	96				
11	26	100				

Compared to control group: \*  $P < .05$ , †  $P < .01$

Compared to medication group: ‡  $P < .01$

drug habits, because most of them did not come to the treatment center voluntarily, even though all agreed to participate in the study. Collecting data on subsequent rehabilitation or relapse rates would require more research funds and a different sample population to follow in the future.

How could qigong treat substance addiction? The mechanism behind what we observed here may be a question that needs more basic scientific research. Presently, most drug addictions are considered a disorder of the brain or a blockage of normal neurological functions, such as the action of dopamine.<sup>13,14</sup> The practice of qigong has been found to be associated with increased blood flow in the brain, increased oxygen metabolism in the body, and increased bioelectric current in the brain.<sup>3,5</sup> As shown by electroencephalographic observations, in a qigong state the excited brain cells in the deep layers of the cerebrum generate relatively strong bioelectric currents.<sup>15</sup> It is reasonable to assume that these currents and increased metabolism in the brain could have some effect (with unknown mechanism) on the brain blockage or malfunctioning caused by substance addiction, and could restore normal neurological functions. Meanwhile, the increased oxygen metabolism and extra vital energy gained through qigong practice also may supply the body with energy needed for detoxification, drive toxic elements out of the body, and remove the dysfunctional effects produced by addictive substances. Of course, these assumptions need more sophisticated basic scientific research to verify and to investigate further.

In some sense, qigong is similar, though not identical, to meditation, especially transcendental meditation. According to Gelderloos et al<sup>16</sup> and Clements et al,<sup>17</sup> transcendental meditation has been shown to be effective for preventing and treating substance abuse and addiction. However, these authors considered the resulting decrease in drug abuse and dependence an automatic or secondary consequence of the practice of meditation, or part of

the overall personal improvement. In other words, meditation, like qigong, can produce an overall and stable state of well-being that naturally removes the need and craving for drugs and becomes a good alternative for rehabilitation. However, there is no documentation of the effects of meditation on detoxification.

Our study shows that applying qigong in treating substance addiction seems to speed up the process of detoxification, whereas most medicines can only suppress or mitigate withdrawal symptoms. Qigong also may combine the processes of detoxification and rehabilitation, because those treated by qigong therapy learn a reportedly powerful self-healing technique that is believed to increase their immune function, improve their oxygen metabolism, and possibly help them for the rest of their lives if they are persistent in practice. Qigong might become a relatively safe, economical, and effective way to treat substance addiction if the patient voluntarily committed to quitting.

### Limitations

Despite relative successes, our study needed improvement in several areas, including the following:

*Qigong Control Group.* One of the problems in this study was the lack of a completely compatible control. An ideal control group would have practiced an exercise that appeared similar to but was not qigong. Group members would have been treated by a sham master to eliminate the possible placebo effect. It would be relatively easy to have a sham master perform treatment, but it would be very difficult to design something similar to qigong that has no qigong effect. We are still searching for such an alternative "placebo treatment."

We had difficulty designing a "placebo" treatment first because the simplest form of qigong is just sitting and breathing naturally without thinking of anything. According to some

qigong masters, sitting quietly without thinking (empty mind state) could be the highest level of the qigong state. Many qigong movements are designed to help practitioners achieve that empty-mind state by forgetting things around them. Therefore, even if we simply ask the control group to do nothing for 20 or 30 minutes, it is still possible for them to enter into a form of the qigong state. The ultimate way to design a control group may be to keep people busy doing something meaningless.

Designing a placebo form of qigong is also difficult because the health benefits of qigong practice are not the same as regular physical workout or exercise, but rather a specific mental and physiological state. Some people can achieve such a mental or physiological state without any designated activity, whereas others cannot achieve this state even by following the qigong movements. Unless we can objectively monitor the physiological and mental states of the subjects, it is very difficult to separate the so-called placebo effect from the real qigong effect, which could be a combination of neurotransmitter changes, somatic effects, increased energy flow, relaxation-induced immune modulation, and psychoneuroimmunology.

The group practice of qigong is said to produce a strong “qi field” that may generate or accelerate the health benefit for those who did not even practice qigong but were in the field. One of the challenges that modern medicine may confront in regard to qigong research is that qigong therapy or the qigong state tends to maximize the placebo effect. This state is said to achieve unexpected health benefits without medicine or doing anything differently.

Unlike psychotherapy, most qigong therapy is self-practiced and does not involve a patient-therapist interaction. Instead, qigong involves a positive belief in the practice itself or a positive mental state developed during the practice. This could easily be achieved in any form of control group as well, if members are told that they are practicing an effective traditional qigong.

In other words, we need to acknowledge that some of the effects observed in the qigong group may be confounded with potential placebo effects or psychological hints that have nothing to do with qigong per se, but result from being in the “qigong group.” Therefore, future studies need a better design with regard to a compatible control group that can eliminate the potential placebo effect. However, given the significant differences between the qigong group and the medication group, we cannot attribute all the qigong effects observed in the study to the placebo effect, because the effectiveness of the traditional medical detoxification procedure was already well known and widely used in the treatment center. It appears that qigong practice achieved the same or even better results in detoxification than the medication group. In addition, qigong practice has no known side effects, unlike most medications. Given the difficulties in designing a more appropriate control group, the current study should be considered as the beginning of a long exploration process. We will attempt in future studies to separate the real qigong effect that presents only in the qigong state from the usual placebo effect that presents in any clinical trial.

*Study Design.* This study had another problem with its

research design, in which the self-practice of qigong was combined with external qi emission from a master. Because the use of qigong therapy to treat addiction was a new research area, we attempted to get the maximum effects of qigong practice and to reduce the subjects’ painful experience during detoxification. This is why all subjects in the qigong group self-practiced and received adjustment from a master. We agreed that self-practice and self-healing are the key components of qigong practice, and that detoxification is possible without external qi emission. Therefore, in future studies we will examine the effects of self-practiced qigong separately from the effects of external qi emission.

Furthermore, in comparison with the control group and the medication group, the intensity of the intervention for the qigong group (2 to 3 hours a day) was much higher than the control group (almost none), which by itself would have some implied psychological effect on treatment outcomes. The variation in the intensity of intervention may partially contribute to the observed outcome to an unknown degree. Future studies should consider the effect of activity duration on outcomes.

Finally, qigong cannot completely eliminate the painful experience or symptoms of withdrawal for some subjects during the first 2 days of treatment. Therefore, qigong cannot act as a substitute for medicines that have better results in relieving withdrawal symptoms. Because of these symptoms, some subjects initially had difficulty practicing qigong 2 hours a day. It is indeed boring to practice the simple qigong exercise for 4 to 5 sessions a day, 30 minutes per session. Besides, qigong is still a subject of many debates and suspicions, and many people, including scientists, are skeptical of the effectiveness of qigong in treating substance addiction. Consequently, it may be difficult to persuade subjects to practice qigong on a daily basis for the purpose of treating addiction unless we can carefully document some scientific evidence of its effectiveness—such as with the present study.

In short, different from other known methods of treating substance dependence, qigong therapy seems to provide self-healing without medicine, engage both mind and body, combine detoxification with craving reduction, shorten the detoxification period, and reduce the discomfort of detoxification. Qigong therapy may be a useful alternative method for effective detoxification for substance addicts in combination with low side-effect medications at the beginning to relieve the physiological pain of withdrawal. Patients also need to know more about why and how qigong can work for them. With better physiological and psychological preparation and a better control group, qigong therapy appears to have potential to achieve good results in detoxification for drug addicts.

#### **Note**

We also conducted blood morphine tests among the subjects before treatment and on days 2, 4, and 6. Due to limitations in research funds, each test was based on a single sample and 1 test only, instead of conventional multiple samples with multiple tests. The results were unstable, with significant group differences even before treatment and many outliers from the normal radioimmunoassay measurement curve. Therefore, we decided not to present these data here.



## References

1. Sancier KM. Medical applications of qigong. *Altern Ther Health Med*. 1996;2(1):40-45.
2. Jahnke R. The physiological and energetic mechanisms triggered in the human system by the self-applied health enhancement methods: qigong, taiji, yoga and mind/body health improvement practices. In: Proceedings of the 5th International Congress of Chinese Medicine and the First International Congress of Qigong; June 22-23, 1990; Berkeley, Calif.
3. Feng L. *Modern Qigong Science*. Beijing, China: Economic Science Publishers; 1994.
4. Yan X, Lin H, Li H, et al. Structure and property changes in certain material influenced by the external qi of qigong. *Material Res Innov*. 1999;2:349-359.
5. Hisamitsu T, Seto A, Nakazato S, Yamamoto T, Aung, SKH. Emission of extremely strong magnetic fields from the head and whole body during Oriental breathing exercises. *Int J Acupunct Electrother Res*. 1996;21:219-227.
6. Sancier KM. The effect of qigong on therapeutic balancing measured by electroacupuncture according to Voll (EAV): a preliminary study. *Int J Acupuncture Electrother Res*. 1994;19:119-127.
7. Sancier KM, Chow EPY. Healing with qigong and quantitative effects of qigong measured by a muscle test. *J Am Coll Trad Chin Med*. 1989;7(3):13-19.
8. Sancier KM, Hu B. Medical applications of qigong and emitted qi on humans, animals, cell cultures and plants: review of selected scientific research. *Am J Acupunct*. 1991;19(4):367-377.
9. Wirth DP, Cram JR, Chang RJ. Multisite electromyographic analysis of therapeutic touch and qigong therapy. *J Altern Complement Med*. 1997;3(2):109-118.
10. Wu WH, Bandilla E, Ciccone DS, et al. Effects of qigong on late-stage complex regional pain syndrome. *Altern Ther Health Med*. 1999;5(1):45-54.
11. Ou W. *Pan Gu Mystical Qigong*. Burbank, Calif: Multi-Media Books; 1999.
12. Lu N. *Traditional Chinese Medicine: A Women's Guide to Healing From Breast Cancer*. New York, NY: Avon Books, Inc; 1999.
13. Leshner AI. Addiction is a brain disease, and it matters. *Science*. 1997;278:45-47.
14. Leshner AI, Koob GF. Drugs of abuse and the brain. *Proc Assoc Am Physicians*. 1999;111(2):99-108.
15. Yan X. Exploring the mechanisms of qigong healing. Available at: <http://www.qigong.net>. Accessed November 1999.
16. Gelderloos P, Walton KG, Orme-Johnson DW, Alenander CN. Effectiveness of the transcendental meditation program in preventing and treating substance misuse: a review. *Int J Addictions*. 1991;26(3):293-325.
17. Clements G, Krenner L, Molk W. The use of the transcendental meditation programme in the prevention of drug abuse and in the treatment of drug-addicted persons. *Bull Narc*. 1988;40(1):51-56.