Benefits of External Qigong Therapy on Morphine-Abstinent Mice and Rats

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ABSTRACT

Objective: To exclude possible psychological effects of qigong therapy in the treatment of addiction effectively, morphine-dependence models need to be established in mice and rats.

Method: The effects of external qi on withdrawal syndrome were examined in naloxone-precipitated mice and rats in three randomized control experiments: naloxone-precipitated test in morphine-dependent mice (n = 100 in 5 groups, 20 mice each group); conditioned position preference test in morphine-abstinent mice (n = 30 for 3 groups, 10 each); and naloxone-precipitated test with paired box in morphine-dependent rats (n = 40 for 4 groups, 10 each).

Results: These experiments showed that morphine-dependent mice, after external qigong (EQ) therapy, had decreased incidence of jumping and lower jumping frequencies, and attenuated loss of body weight. After EQ therapy, morphine-dependent rats had reduced withdrawal scores and body weight loss was inhibited. In the conditioned place preference test, the time spent in the drug-paired box was significantly shorter for the qigong group than for the morphine group.

Conclusion: These results suggest that qigong might have an inhibitory effect on withdrawal syndrome, and reduce the dependence potential in mice. Three different designs confirm that the impact of qigong therapy on morphine-abstinent mice and rats is reliable and substantial. Further research on the effectiveness and the mechanism of qigong therapy on addiction is warranted.

INTRODUCTION

Substance addiction is one of most serious health problems around the world. Many medications and therapies have been used to treat patients suffering from drug addiction. Most medications, such as methadone and buprenorphine, serve as a substitute for the addicted substances and are effective in relief of withdrawal syndromes. However, as soon as the patients stop medication, protracted symptoms soon become obvious and serious, which may result in the patients’ craving for the substance. Consequently, the relapse rate among drug addicts treated by medication remains high. Thus, finding safe and effective therapies for detoxification and rehabilitation is an important issue for modern medicine.

Complementary and alternative approaches are beginning to be integrated into the clinical

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practices of some addiction treatment programs, including yoga, music therapy, tai chi, herbals, meditation, and acupuncture. Qigong (also known as chi kung) is an ancient Chinese health practice that is believed to have special healing and curative capacity. There is no consistent definition of qigong. Generally, qigong is considered to be a self-training method in which cultivation of qi (vital energy) and yi (consciousness or intention) achieves an optimal state of both body and mind (Lin, 1997). Traditional Chinese Medicine (TCM) posits the existence of a subtle energy (qi) circulating throughout the entire human body. When qi is strengthened or balanced, it can improve health or slow the progress of disease. TCM considers sickness or pain to be a result of qi blockage or unbalanced qi energy in the body. All TCM therapies—herbs, acupuncture, massage and qigong—are based on this philosophy and perspective. Although qigong has had a history of more than 3000 years, only recently has qigong become a public health practice in China. Today it is reported that more than 70 million people practice qigong in China and others practice it around the world to treat diseases ranging from hypertension and arthritis to cancer and human immunodeficiency virus (HIV) (Feng, 1994; Liu and Perry, 1997; McGee and Chow, 1994; Sancier, 1996, 1999).

According to TCM theory, when a person becomes sick or experiences pain, such as the pain caused by addiction or withdrawal, his or her qi flow is blocked or unbalanced. It is believed that frequent and effective qigong practice can help qi through the blocked area as well as restore and balance the energy flow. When a person cannot balance his qi flow alone, the external qi emission of a skilled qigong healer could help the person to balance the qi and break the qi blockage. The same theory can be applied to animals. Qi that animals might receive from qigong healer might help them to overcome the withdrawal symptoms and to reduce craving.

Although qigong is practiced mainly a self-healing method, qi emission or external qi therapy (EQT) has always been part of medical qigong practice in the attempt to help others regain health. It is said that practitioners develop an awareness of qi sensations in their bodies and can use their intention to guide the qi. With enough practice and sufficient skill, some qigong practitioners can direct external qi for the purpose of healing others. EQT refers to the process by which a qigong practitioner directs his or her qi energy to help others break qi blockages and induce the sick qi out of the body, so as to alleviate pain or abate disease and balance qi flow. This study explores EQT as an intervention therapy in treating morphine-dependent mice and rats. The qi emitted by a qigong healer is purported to have the similar healing characteristics as the qi flowing within the body.

Although the nature of qi remains unknown and there is no instrument that can measure the strength of a person’s external qi, there are some intriguing reports that suggest an association between possible physical, biophysical, and/or biochemical alterations and “qi emission.” For example, it is reported that qigong emission might enable the growth of Fab protein crystals (Yan et al., 1999), inhibit tumor growth in mice (Chen et al., 1997), accelerate seed germination (Bai et al., 2000), and change the conformation of biomolecules such as polyglutamic acid, poly-lysine, and metallothioneine (Chu et al., 1998). Although these reports might need further verification by Western scientists, there is a growing body of scientific evidence in Western medical literature that suggests the existence of qi, as well as the healing power of qigong therapy (Agishi, 1998; Hisamitsu et al., 1996; Iwao et al., 1999; Loh, 1999; Sancier, 1999; Sancier and Chow, 1989; Wirth et al., 1997; Wu et al., 1999).

Qigong therapy is new to the field of addiction psychiatry. This method combines traditional Chinese qigong healing with modern rehabilitation therapy. Our clinical trials with human heroin addicts showed that qigong could accelerate detoxification, relieve withdrawal symptoms, improve sleep quality, and reduce patients’ craving for drugs (Li et al., 2002). Qigong might have a therapeutic benefit, without side-effects, in the treatment of opiate addiction. However, some have suggested that the value of qigong therapy for human addicts might be solely the result of psychological suggestion. This study uses morphine-dependent mice and rats to investigate the effects of ex-
ternal qi emission in treatment of substance dependence and to exclude potential psychological effects of human studies. This preliminary examination explores the biologic basis of qigong therapy and the effectiveness of qigong therapy against substance withdrawal syndromes.

**MATERIALS AND METHODS**

**Materials**

**Chemicals.** Morphine hydrochloride (powder), provided by the Department of Medicine Supply of Chinese Army (Beijing, China). Buprenorphine hydrochloride (injection), produced by Qinghai Pharmacy Factory, (Xining, China). Naloxone hydrochloride (injection), supplied by Beijing Tetracycline Pharmaceutical Company of China (Beijing, China).

**Animals.** Kunming-specific mice, half male and half female, weight, 18–24 g. Sprague-Dawley rats, male, weight 200–250 g. All were provided by the Animal Center of the First Military Medical University, China.

Animal housing conditions were: light/dark cycle, 12 hours on/12 hours off; room temperature was controlled between 20°-25°C and humidity was 40%–60%. Five mice or rats were housed in each cage during everyday routine and experiments. Food and water were available ad libitum.

**Methods**

**Study 1. Naloxone-precipitated test in morphine-dependent mice.** Using a protocol similar to Marshall and Weinstock (1971) and Lin et al. (1996), 100 mice of both genders were randomly assigned to 5 groups (n = 20 for each group). The 5 groups included: (1) normal saline control group: saline plus imitative qigong (by sham healer without qigong training); (2) morphine model group: morphine plus imitative qigong; (3) qigong treatment group I: 1 hour of qigong treatment per day from day 7 to day 11 after naloxone was given intraperitoneally (ip); (4) qigong treatment group II: 1 hour of qigong treatment per day from day 7 to day 11 before naloxone was given ip; (5) buprenorphine group: buprenorphine (0.4 mg/kg, ip at 2:00 PM, given from day 5 to day 9) plus imitative qigong (sham treatment). It usually takes 7 days to achieve a successful morphine-dependence model in mice. The mice in the normal control group received an injection of saline (0.5 mL per mouse, subcutaneously) on day 1 to day 7. The mice in groups 2 through 5 were given morphine subcutaneously, twice per day at 9:00 AM and 8:00 PM on day 1 to day 7. The initial dose was 25 mg/kg, increasing by 25 mg/kg per day until day 6, the animals received 150 mg/kg on day 7. All mice had free access to food and water during the experiment. Two hours after the last injection on day 7, after the morphine dependence model had been established, naloxone (5 mg/kg) was given to all mice ip, naloxone was given daily until day 11. The withdrawal syndromes in mice, precipitated by naloxone, were observed on those days. The incidence and frequencies of jumping (during 30 minutes after naloxone treatment), and the body weight of the mice (before and 1 hour after naloxone treatment) were recorded. The qigong treatment was performed 1 hour after naloxone was administered for qigong group I, but 1 hour before naloxone for qigong group II, respectively. Buprenorphine (0.4 mg/kg, ip at 2:00 PM) was given to one group on day 5 to day 9 as the control in order to observe the possible reflective response after the use of buprenorphine.

**Study 2. Conditioned position preference test.** We applied a protocol similar to Katz and Gormezano (1979) and Spraki (1985) in our design. Thirty (30) mice of both genders were randomly divided into the following 3 groups (n = 10 each): (1) normal saline control group: saline (0.5 mL per mouse, ip) plus imitative qigong (by sham healer without qigong training); (2) morphine model group: morphine (9 mg/kg, ip) plus imitative qigong treatment; (3) qigong treatment group: morphine (9 mg/kg, ip) plus real qigong treatment. All mice were trained for 5 days. In the morning, 20 minutes after the designed treatment, mice were confined in the black box (drug-paired box) for 30 minutes. In the afternoon, all mice were given saline ip (0.5 mL per mouse); 20 minutes later, mice were con-
fined in the white box (non-drug–paired box) for 30 minutes. On day 6, mice were placed in the shuttle-box that consisted of a black and a white box. The amount of time that the mice stayed in the black box and the white boxes, respectively, was recorded.

Study 3. Naloxone-precipitated test in morphine-dependent rats. We used morphine-dependent rats in our exploration of qigong therapy so as to verify the observed qigong effect in a different animal model. Forty (40) male Sprague-Dawley rats were randomly assigned to 4 groups (n = 10 for each group) after morphine dependence had been established: (1) normal saline control group: saline plus imitative qigong (sham treatment); (2) morphine model group: morphine plus imitative qigong; (3) qigong treatment group: 1 hour of EQT per day from day 5 to day 9 before given ip naloxone; (4) buprenorphine group: buprenorphine (0.2 mg/kg, ip, given on day 5–9) plus sham qigong treatment. All the real or sham qigong treatments were given 1 hour before giving morphine or naloxone. The rats in groups 2–4 were given morphine subcutaneously, twice per day at 8:00 AM and 8:00 PM from day 1 to day 7. The initial dose was 10 mg/kg; subsequent dosages were increased 20 mg/kg per day up to a dose of 90 mg/kg on day 5. This dosage was repeated on days 6 and 7. Saline injected rats served as the control. On day 8–day 11, naloxone (3 mg/kg) was given ip to all rats. After 5 minutes, the withdrawal syndromes were observed for 20 minutes. Body weights were recorded at baseline and then every day 1 hour after the treatment to monitor the changes in body weight over time.

Withdrawal scores of morphine-abstinent rats were evaluated according to symptoms and signs, including 6 graded signs: wet-dog shakes, exploratory-rearing, self-stimulating, escape attempts, writhing and jumping, and 14 quantal symptoms: burrowing, diarrhea, ear blanching, exophthalmia, rhinorrhea, salivation, tachypnea, tearing, teeth chattering, vocalization, abnormal posturing, penile erection, and seminal emissions. The criterion of scoring was determined in accordance with previously published references (Geoffrey et al., 1984; Wei et al., 1973), and the sum of all symptom scores were used as the indicator of withdrawal syndrome.

External qi treatment

The three qigong healers in this study came from the Institute of Qigong Research, Guangzhou University, Guangzhou, China. They all had learned and practiced Pangu qigong (a form created by master Ou) for more than 5 years, and had 3–4 years of clinical experience at the time of study. All three qigong healers had participated in other scientific qigong experiments before this study. Each study was completed with multiple trials, usually one of the healers performed the healing for one trial with one group of animals. Results were consistent from healer to healer, so we reported the results all together.

Before entering the laboratory each time, qigong healers were required to wash their hands and to change into white laboratory clothes (but not wear gloves). The EQT procedure involved the qigong healer purportedly emitting external qi from the palms of both hands toward the mice or rat cage at a distance of 40–50 cm for 60 minutes in each session.* During these sessions, the qigong healer occasionally used his eyes or simply his intention, instead of his palms, to direct his energy. The healing intention of the qigong healer varied from session to session, depending on the healer’s sensation and the animals’ responses. It is said the intention plays an important role in EQT healing. However, we did not set up a mechanism to examine intention in this study. The number of treatment sessions and schedule varied in each study. There was no physical contact between the qigong healers and the animals.

*In the pilot study, three time intervals (30, 60, and 90 minutes) were tested for the optimal treatment time. We found that group with 30-minute treatment was not as good as that of 60 minutes, while there was not much difference between 60 minutes and 90 minutes. Therefore, we chose 60 minutes as the treatment time. Note that, different from many other medical qigong, external qi healing from Pangu qigong tends to absorb and emit the universal qi energy, instead of internal cultivated qi energy. So the 60-minute treatment is not unusual for the healer to perform, and would not exhaust any internal qi.
Sham qigong treatment was used in the studies as a control to account for the possible effects of physical presence of a healer (stressor), or factors such as healing movement and body temperature on the animals. Three imitators of EQT came from the First Military Medical University, Guangzhou, China. They knew nothing about qigong and used no healing intention, but simply imitated qigong healers’ actions to emit “qi” toward the experimental mice. The imitators and the qigong healers worked in the same laboratory. The imitator would always do the sham treatment first; 30 minutes later the qigong healer would perform the real treatment to the qigong group. In this way it is less possible for the sham treatment group to benefit from the residual healing information from the real qigong treatment.

Other methodological considerations

We used a dual-blinded design (Caspi et al., 2000) in these experiments. Mice or rats were randomly assigned to one of the treatment groups after morphine dependence was established. The qigong healer was not involved in organ collection or assays (but was not blinded to the treatment); the laboratory director and research staff were unaware of which treatments an animal had received and had no acquaintance with qigong healers or imitators. The statistician was blinded to the experimental conditions.

The animals were housed five per cage during the treatment, the same as they were in everyday life. There were no blankets covering the cages, therefore the animals could see the healer during the treatment. However, this visual effect should be taken care of by the sham healer treatment.

Most data are expressed in the form of mean (X) and standard deviation (SD) for each group. \( \chi^2 \) Test was applied to the ordinal or categorical data, while t test was applied to the continuous variables. All analyses were done with SPSS software (SPSS Inc., Chicago, IL).

RESULTS

Effects of EQT on withdrawal syndromes of morphine-dependent mice (study 1)

Tables 1 and 2 present the results for five different groups showing incidence and fre-

Table 1. Incidence of Naloxone-Precipitated Jumping Mice in Different Treatment Groups

<table>
<thead>
<tr>
<th>Group (n = 20)</th>
<th>Number of days in study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day 7</td>
</tr>
<tr>
<td>Saline control</td>
<td>2*</td>
</tr>
<tr>
<td>Morphine model</td>
<td>18</td>
</tr>
<tr>
<td>Qigong I</td>
<td>12**</td>
</tr>
<tr>
<td>Qigong II</td>
<td>15</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>8*</td>
</tr>
</tbody>
</table>

Note: Number of mice (out of 20) jumped on the day, 0 indicates no mouse jumped.

* \( p < 0.01; ** p < 0.05 \) compared to morphine model group.

Table 2. Jumping Frequency of Mice Precipitated by Naloxone

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of days in study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day 7</td>
</tr>
<tr>
<td>Morphine model</td>
<td>32.8 ± 10.9</td>
</tr>
<tr>
<td>(n = 18)</td>
<td>(n = 15)</td>
</tr>
<tr>
<td>Qigong (I)</td>
<td>28.3 ± 10.4</td>
</tr>
<tr>
<td>(n = 12)</td>
<td>(n = 8)</td>
</tr>
<tr>
<td>Qigong (II)</td>
<td>22.8 ± 7.5*</td>
</tr>
<tr>
<td>(n = 15)</td>
<td>(n = 8)</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>17.1 ± 3.6*</td>
</tr>
<tr>
<td>(n = 8)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Mean ± standard deviation on the numbers of jumping among those who jumped. \( n \) = incidence of mice for each group (see Table 1), not all mice jumped.

The group of normal saline control was not listed here because too few mice jumped.

* \( p < 0.01; ** p < 0.05 \) compared to the morphine model group.

* \( p < 0.05 \) compared with qigong I.
quency of mice jumping after precipitation by naloxone. Figure 1 presents the results of changes in body weight among the experimental mice. We found that in the morphine model (treatment control), naloxone-precipitated morphine withdrawal resulted in marked jumping reaction and body weight loss in mice while in the saline control group, mice had occasional jumping and their body weight change was not significant. There was a significant difference between the saline control and the morphine model. In the two qigong treatment groups, the frequencies of mice jumping and loss of body weight were significantly less than in the morphine model group. The effects of the two qigong treatments were somewhat different: the number of jumping mice in qigong I (post-treatment with qigong) were less than that in qigong II (pretreatment with qigong) at day 7. In qigong II, the effect of treatment was more obvious on later days of the study. On the fifth day of treatment, only two mice of the qigong II group exhibited a jumping reaction and with lower frequencies than group I; there was no significant difference between the qigong II and the saline control group. In the buprenorphine group, after 5-days of treatment with buprenorphine, mice showed no jumping reaction on day 8 and 9. However on day 11, after buprenorphine treatment ended, four mice exhibited a slight jumping reaction.

Figure 1 shows that the body weight of mice in the saline group increased daily, which is normal for mice. When mice were treated with morphine for 7 days, their body weight was significantly less. After morphine was withdrawn, the body weight of the mice was gradually restored and increased at day 9 and day 11. Qigong or buprenorphine treatment could reduce loss of body weight of morphine-dependent mice and promoted body weight recovery.

Effects of EQT on conditioned place preference in mice (study 2)

Table 3 shows, after 5-day treatment, that the amount of time that the mice in the morphine model group stayed in the drug-paired box was much longer than the time spent by the saline control group ($p < 0.01$). A dose of 9 mg/kg of morphine produced a significant place preference in the mice. After EQT treatment mice given morphine stayed for a shorter time in the drug-paired box than did mice in the morphine control group.

Effects of EQT on withdrawal and body weight of morphine-abstinent rats (study 3)

In study 3, morphine-abstinent male rats were used instead of mice. Table 4 shows that after withdrawing from morphine (on days 8

<table>
<thead>
<tr>
<th>Group (n = 22)</th>
<th>Drug-paired box</th>
<th>No drug-paired box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saline control</td>
<td>7.57 ± 0.72*</td>
<td>7.43 ± 0.72</td>
</tr>
<tr>
<td>Morphine</td>
<td>10.4 ± 1.26</td>
<td>4.62 ± 1.26**</td>
</tr>
<tr>
<td>Morphine + qigong</td>
<td>8.88 ± 1.12*</td>
<td>6.11 ± 1.12**</td>
</tr>
</tbody>
</table>

Note: n = 10 for each group
* $p < 0.01$ compared to the morphine group.
** $p < 0.01$ compared to the drug-paired box.
# $p < 0.05$ compared to the morphine group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Day 8</th>
<th>Day 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saline control</td>
<td>2.85 ± 2.15*</td>
<td>2.47 ± 2.03*</td>
</tr>
<tr>
<td>Morphine model</td>
<td>32.0 ± 43.7</td>
<td>21.0 ± 3.40</td>
</tr>
<tr>
<td>Qigong</td>
<td>24.2 ± 6.94*</td>
<td>16.8 ± 4.57**#</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>21.9 ± 3.73*</td>
<td>23.7 ± 4.61</td>
</tr>
</tbody>
</table>

Note: n = 10 for each group
* $p < 0.01$, ** $p < 0.05$, compared to the morphine group.
# $p < 0.01$ compared to the buprenorphine group.
and 11), the rats in the morphine model group showed marked abstinence symptoms and signs. The withdrawal scores of the morphine model group were significantly higher than that of the saline control group ($p < 0.01$). On day 8, the withdrawal scores of the qigong group and the buprenorphine group were significantly lower than that of the morphine model group. On day 11, the withdrawal scores of the qigong group were continuously reduced, but the buprenorphine group showed a slightly rebounded score, which was the same as morphine model group (see Table 4).

Before morphine administration, body weight was the same among different groups. After introduction of morphine dependence, the body weight of the morphine model group was significantly reduced. The peak weight loss occurred at 24 hours after morphine withdrawal (day 8). On day 11, the body weight of the morphine model group showed a slow return. In comparison to the model group, body weight loss in the qigong group and the buprenorphine group was much slower and returned more rapidly (see Fig. 2). It is interesting that there is a significant difference in body weight between the qigong group and the buprenorphine group, which suggests that qigong therapy might be more effective in promoting body rehabilitation after drug withdrawal.

**DISCUSSION**

Qigong has been used by the Chinese to maintain health and treat various diseases for thousands of years. Qigong therapy for detoxification and rehabilitation is a possible addition to the current methods of addiction treatment. In a previous study, we reported that the benefits of qigong therapy for the treatment of addiction include being medicine-free, easy to perform, and side-effect-free (Li et al., 2002). The mechanism of action of qigong therapy is a challenging question that needs more basic scientific research. The field of addiction treatment faces the challenge of understanding both the mechanism of addiction and the mechanism of different therapies for addiction.

Our study showed that after precipitation by naloxone, mice exhibited marked withdrawal syndromes, such as jumping and body weight loss, and rats had abstinence symptoms such as wet-dog shakes, exploratory-rearing, self-stimulation, burrowing, and diarrhea. After treatment with qigong therapy, the incidence and frequencies of jumping and loss of body weight of morphine-dependent mice were significantly reduced. Qigong therapy also reduced the withdrawal scores of rats. This suggests that qigong alleviates morphine-abstinent syndromes in mice or rats to a certain extent. The results from the qigong group also demonstrated that continuous treatment with EQT might elicit a marked recovery effect on morphine-abstinent mice or rats.

Buprenorphine, a popular and effective drug for detoxification, had an apparent healing action for morphine-dependent mice and effectively inhibited withdrawal syndromes precipitated by naloxone in this experiment. However, after stopping buprenorphine, the mice exhibited some withdrawal symptoms. These results suggest that buprenorphine, as a substitute of morphine, may generate slight addiction as well. In contrast, qigong treatment, as a medicine-free therapy, may not be better than buprenorphine in symptom relief, but could avoid the potential side-effects of substituting substances to aid detoxification.

The conditioned place preference test is a simple and effective method to evaluate drugs with addictive potential (Katz and Gormezano,
Our results showed that after being injected with morphine for 5 days, mice had a significant preference for the drug-paired box over the non-drug-paired box. Qigong treatment shortened the amount of time that mice stayed in the drug-paired box, which indicates that qigong might suppress the conditioned place preference of morphine-induced mice, and weaken the psychological dependence of mice on morphine. One of the mechanisms of qigong therapy in addiction treatment may be to reduce the patients’ craving for drugs and therefore reduce the relapse rate.

Because there are still no methods or instruments to precisely measure the strength of external qi emission and many in the scientific community doubt the effectiveness of qigong treatment, we adhered to rigorous scientific principles and carried out the experiments for a better understanding of qigong therapy. Through our experiments we showed that qigong therapy could relieve physical symptoms, such as withdrawal syndromes, and reduce dependence, as demonstrated by conditioned place preference of mice. The animal experiments eliminated the possibility of psychological effects of qigong on patients in clinics. Our study showed that qigong treatment is a valuable and helpful technique for detoxification. More studies in this area are needed to verify these findings and to explore the mechanisms behind the observed effects.

The mechanism of qigong therapy in the treatment of addiction may be more complicated than its mechanism in the treatment of other symptoms such as pain, and needs more basic scientific research. The literature describes most drug addictions as a disorder of the brain, or some form of blockage of normal neurologic function, such as inhibiting the action of dopamine (Leshner, 1997). The deregulation of the neurotransmitter system has made it difficult to find effective anticraving medications. It is possible that qigong therapy can improve such imbalances more efficiently than current medications designed to regulate dopamine function. On the physiologic level, qigong has been associated with increased blood flow in the brain, increased oxygen metabolism in the body, and increased bioelectric currencies and alpha wave activity in the brain (Feng, 1994; Sancier, 1996). To investigate the mechanism of qigong further, researchers have used both electroencephalogram (EEG) and positron emission tomography technologies (Itoh et al., 1996). The results of these studies suggest that qigong treatment correlates with both EEG theta and alpha activity in the amygdala and delta wave activity in the hippocampus. Furthermore, qigong therapy was also associated with regional asymmetry in cerebral blood flow in the amygdala, frontal lobes, and hippocampus, regions that appear to play a substantial role in addiction, particularly craving.

Although there have been many studies of qigong therapy for cancer or infections in animal models (Chen and Yeung, 2002; Chen et al. 2002; Feng, 1994), this is probably the first study of qigong therapy for addiction using an animal model. It is not clear if this observed effect would persist if the qigong healer was blindfolded or stood at a distance. As qigong becomes more popular in the United States and around the world, we hope that this report will stimulate more scientists and qigong healers to get involved in the scientific research of qigong therapy in the treatment of addiction.

REFERENCES


QIGONG ON MORPHINE ABSTINENT MICE


Leshner AI. Addiction is a brain disease, and it matters. Science 1997;278:45-47.


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