THE FIRST WORLD CONFERENCE FOR ACADEMIC EXCHANGE OF MEDICAL QIGONG

BEIJING CHINA 1988

THE FIRST WORLD CONFERENCE FOR ACADEMIC EXCHANGE OF MEDICAL QIGONG

(ABSTRACTS OF PRESENTATIONS)

BEIJING CHINA, 1988

Approved For Release 2000/08/15 : CIA-RDP96-00792R000701080001-1

CONTENTS

Approved For Release 2000/08/15 : CIA-RDP96-00792R000701080001-1

Approved For Release 2000/08/15 : CIA-RDP96-00792R000701080001-1

Approved For Release 2000/08/15 : CIA-RDP96-00792R000701080001-1

Titles of Papers Not Included in the Collection

1. 发展中的养生气功

吉宫照词(日本)

HEALTH-PRESERVING *QIGONG* IN FULL FLOURISH

Yosimiyaterusni(Japan)

2. 气功师在进行气功治疗时的精神生理变化

昌村毫之(日本)

MENTAL AND PHYSIOLOGICAL CHANGES OF *QIGONG* MASTERS IN GIVING THE *QIGONG* THERARY

Sukginuka Noriyuki and Yosimiya, Terasni(Japan)

3. 关于"气"的客观化的研究　　森和(日本明治针灸大学)

AN OBJECTIVE STUDY OF *QI*

Kazu Mori at al (Japan)

4. 气功防治爱滋病的中医机理

陈建(香港中国气功科学研究协会)

THE MECHANISM OF PREVENTION AND TREATMENT OF AIDS BY *QIGONG*

Chen Jian

(China *Qigong* science Institute, Hong Kong)

5. 气功在香港的推广与纠偏

林菁(香港中国气功科学研究会)

POPULARIZATION AND DEVIATION RECTIFICATION OF *QIGONG* IN HONGKONG

Lin Qin(China *Qigong* Science Inatitute, Hong Kong)

6. 站桩功中足压,足形的变化与身体平衡的关系—站桩功调节身体平衡复原的机制

今田　求仁生(日本)

FOOT PRESSURE, CHANCE OF FOOT STEP AND THE EQUILIBRIUM OF THE BODY IN THE STANDING POSTURE *QIGONG*—THE MECHANISM OF REGULATION OF THE BODY EQUILIBRIUM BY THE STANDING POSTURE *QIGONG*

Konta Kunio (Japan)

7. 作为预防医学的气功

ZADOCHIZUKO

佐藤千鹤子(日本东京卫生学园专门学校)

QIGONG—AS AN APPROACH OF PREVENTIVE MEDICINE

Zadochizuko (Japan)

A STUDY ON THE EFFECT OF THE EMITTED QI OF QIGONG ON HUMAN CARCINOMA CELLS

Feng Lida, Qian Juqing, Chen Suqing et al

(China Immunology Research Center, Beijing, China)

We used the techniques of tissue culture, cytogenetics and electron microscopy to study the Hale cells and SGC-7901 human gastric adenocarcinoma cells, the change of the cellular ultrastructure and abnormal structure of the chromosomes of the cells. The results showed:

1. The effect of the emitted *qigong* on the Hale cells:

We repeated the experiment 20 times under identical conditions. The result is shown in Table 1.

Table 1 The effect of the emitted *qi* on the Hale cells

Group	The number of the Hale cells (10/ml)		Survival rate	Destruction rate
	Before receiving *qi*	After receiving *qi*		
Exp.	4.53	15.33	100.00	0
Control	4.53	10.62	69.28	30.72

Table 1 shows, after the Hale cells received the emitted *qi* for 20 minutes, the survival rate of the cells in the experiment group was 69.28% of that in the control group, i.e., 30.72% of the cells were killed.

We analysed the distribution of the destruction rate, which is shown in Table 2.

Table 2 shows, the emitted *qi* could kill the Hale cells. The destruction rate could reach 8.91, 59.61%, and the average destruction rate was 30.72% ($P<0.001$).

At the same time, we observed the Hale cells with a translation electronmicroscope, and found that degeneration and swelling took place in some of the cells which received the emitted *qi*. The endoplasmic reticula were dilated obviously, and the nuclei of the cells were destroyed.

Table 2 Analysis of the destruction rate of the Hale cells by the emitted *qi*

Destruction rate (%)	<10	11	21	31	41	>51	total
Frequency	1	3	9	6	0	1	20
Ratio(%)	5	15	45	30	0	5	100

2. The effect of the emitted *qi* on the gastric adenocarcinoma cells:

After the gastric adenocarcinoma cells received the emtted *qi* for 1 hour, the survival rate of the cells was 74.98% of that in the control, i.e. the average destruction rate of the cells was 25.02%. (as shown in Table 3).

TAble 3 The effect of the emitted *qi* on the gastric adenocarcinoma cells

Group	Number of cells (1000/ml)	Survival rate (%)	Destruction rate (%)
Exp.	51.12	100.00	0
Control	38.33	74.98	25.02

We repeated the experiment 41 times under identical conditions, and through statistical analysis there was a difference between the two groups ($P<0.01$). In the meantime, A scanning electronmicroscope was used to study the cells. The result showed that the microvilli of the cells which received the emitted *qi* had remarkably dwindled or disappeared and tiny holes could be seen on the surface of the cells.

3. The effect of the emitted *qi* on the chromosomes of the gastric adenocarcinoma cells:

We repeated the experiment 10 times under identical conditions 1420 tumour cells were observed in the control group, and 1428 tumour cells were analysed which received the emitted *qi* for 60 minutes. (See Table 4)

(1)The number of the chromosomes of the gastric adenocarcinoma cells:

As Table 4 shows, the subdiploid in the control group was 2.11%, the supertriploid was 0.14%, whereas the subdiploid in the experiment group was 3.29%, and the supertriploid was 0.56%. There was a statistical difference in both conditions between the two groups (P

<0.05) . The abnormality rate of triploid and quadriploid in the experiment group and the control group had no statistical meaning ($P>0.05$)

(2)The structure of the chromosomes of the gastric adenocarcinoma cells:

In the 1428 cells, the total abnormality rate was 5.39% in the experiment group, and the total abnormality rate of the 1420 cells in the control group was 1.40%, in which there was a statistical meaning ($P<0.01$) . The abnormality of the chromosomes included exchange, breaking and dicentromere.

Table 4 The effect of the emitted *qi*
on the chromosomes of the gastric adenocarcinoma cells:

Group	Number, %	The abnormality rate of the number of the chromosomes				The abnormality rate of the structure of the chromosomes
	Number	<2n	<3n	<4n	>4n	20 1.40
Control	%	30	1370	13	2	
	Number	2.11	96.48	1.27	0.14	77 5.39
Exp.	%	47	1349	24	8	
		3.29	94.46	1.68	0.56	
P		<0.05	>0.01	>0.01	<0.05	<0.01

Summary:

Tumour is a common disease which endangers man's life and health. The study on the effect of the emitted *qi* on carcinoma cells, especially the study of the structure and the chromosomes of tumour cells, has not been reported in the world and in our country. The result showed that:

1. The average destruction rate of the Hale cells by the emitted *qi* was 30.72%, the highest destruction rate reaching 59.61%. In order to confirm the effect of the emitted *qi*, we repeated the experiment 20 times under identical conditions. Through a statistical analysis, there was a difference between the experiment group and the control group ($P<0.01$) . We found that degeneration and swelling of the Hale cells took place. The endoplasmic reticula were dilated obviously, and the nuclei of the cells were destroyed after the cells received the emitted *qi*.

2. In 41 experiments, the average destruction rate of the gastric adenocarcinoma cells was 25.02% after they received the emitted *qi* for 60 minutes. There was a statistical

meaning ($P<0.01$). At the same time, we asked some other *gigong* masters to participate in the same experiment, and same result was obtained.

In order to further confirm the authenticity, we used a scanning electronmicroscope to observe the cells. The observed result showed that the villi had come off or become shorter, fewer and scattered. The structure of the surface of the cells was disordered. Some holes were seen on the surface of the cells, and a few of the cells were destroyed completely.

3. The human chromosome is a material base of human heredity and a carrier of the genetic material. The results of our studies showed that the abnormality of the chromosomes of the gastric adenocarcinoma cells took place significantly after they received the emitted *qi*. The rate of exchange, breaking and dicentromere in the sturcture of the chromosomes of the gastric adenocarcinoma cells increased. There was a statistical difference between the experiment group and the control group. The result suggested that the emitted *qi* could kill the chromosomes of the gastric adenocarcinoma cells.

As shown above the results confirmed that the emitted *qi* could kill or inhibit the gastric adenocaricin oma cells and the Hale cells, and the effect of the emitted *qi* on tumour cells could be increased in vitro through self-regulation of a patient. The study may start a new way to cure carcinoma.

THE EFFECT OF THE EMITTED QI ON THE IMMUNE FUNCTIONS OF MICE OF MICE

Feng Lida, Wang Yunsheng, Chen Shuying and Chen Haixing

(China Immunology Research Center, Beijing, China)

In order to determine whether there is an effect on the regulation of the immune response after a body is affected by the emitted *qi*, we chose mature $C_{57}BL$ mice as experiment animals, and randomly divided them into two groups. In the experimental group, the mice were immunized i. p. with 5% SRBC, 0.21ml/mouse, and stimulated by the emitted *qi*, while in the control group only with 0.2ml 5% SRBC / mouse i. p. The mice of the experimental group received the emitted *qi* once a day, 20 min. a time for five days. After five days, we observed the phagocytic function of the peritoneal macrophages, the activity of acid phosphatase in Mφ, the amount of splenic cells and induction of anti-sheep red blood cells IgM direct plaque forming cells (PFC).

The detected values are summarized as follows:

1. The phogocytic function of the peritoneal macrophages in the control was 18.077 ± 7.942 percent of phagocytosis, while in the experimental group it was 31.154±11.739, and there is a statistical meaning (P<0.01).

2. The activity of acid phosphetase in M with a spectrophotometer in the control was 4.826 ± 2.023 Jin's Unit, while it was 7.071 ± 3.026 in the experimental group. The comparison between the values of the two groups has a statistical meaning (P<0.05). The results showed that the emitted *qi* could enhance not only the phogocytic function of peritoneal macrophages, but also the activity of acid phosphatase.

3. The amount of splenic cells observed with a light microscope in the control was 8.505 ± 0.546 × 10^7/mouse, while it was 10.362 ± 0.509 × 10^7/mouse in the experimental group, and there is a statistical meaning (P<0.05).

4. The O. D. value of the PFC response detected by a spectrophotometrical method was 0.706 ± 0.269 in the control while it was 0.889 ± 0.243 in the experimental group, and there is a statistical meaning too (P<0.05). The results showed that the emitted *qi* could increase not only the amount of the splenic cells, but also the PFc response, and suggested that after receiving the emitted *qi* the body could be affected to enhance the amount of IgM antibodies through increasing the nmuber of splenic cells and T lymphocytes or B lymphocytes.

The experiment studied the effect of the emitted *qi* on immune function, and the results showed that the emitted *qi* could significantly enhance the phagocytic function of the peritoneal macrophages and the activity of acid phosphatase in Mφ, which suggested that the emitted *qi* could activate peritoneal macrophages. After the body received the emitted *qi*, the amount of the splenic cells and the PFC response could be increased. The fact showed that some well-trained *qigong* masters can really send out a substance called "emitted *qi*" and the "emitted *qi*" can enhance the immune function of the body indeed.

As shown above, we can see that the emitted *qi* might enhance not only nonspecific immune responses, but also specific immune responses. How much and for how long the emitted *qi* can effect the immune response of the body and through what routes and mechanism still requires further investigation.

A STUDY OF THE EFFECT OF THE EMITTED *QI* ON THE L_{1210} CELLS OF LEUKEMIA IN MICE

Feng Lida and Zhao Xiuzhen

(China Immunology Research Center, Beijing, China)

With the rapid development of modern science and technology and the enhancement of people's living standard, the constitutive proportion of diseases has changed and most infectious and parasitic diseases have been brought under control or eliminated, whereas tumours are becoming a common problem and are endangering man's life and health. In our country the number of patients suffering from tumour diseases is over 1,000,000 a year, and the number of patients who died from tumours have exceeded 800, 000. Therefore, it is important for us to explore a new route to cure tumours.

Leukemia is a malignant tumour, which has a high incidence and is difficult to cure. As there are some similarities between leukemia in mice and human leukemia, we chose DBA mice as a research model to study the effect of the emitted *qi* on the L_{1210} cells of leukemia in mice. The experiment chose DBA mice with a weight of 20 ± 2g, and both male or female mice were used. In the experiment we killed the mice, which had been injected with the *L*1210 cells 7-9 days before we collected the celiec liquid and adjusted the concentration of cells to 4. 70-31. 00 million /ml (average concentration was 1. 20 million/ml) . 0. 2 ml L_{210} cells was injected i. p. into the abdominal cavity of mice, and after 1 day we randomly divided the mice into groups. Among these groups, the mice of the experimental group received the emitted *qi* once a day, 10-40 min. a time for 10 days, while in the control group no treatment was given. After 10 days, the mice were killed and the number of the L_{1210} cells were counted with a light microscope. The average value in the control group was 200. 435x0. 5 million/mouse, while in the experimental group 66. 458x0. 5 million/mouse, and there was a statistical meaning between the two groups ($P < 0.01$) . At the same time, we used the *qigong* information instrument to stimulated the mice injected with the L_{1210} cells once a day. 2 hrs. a time for 10 days, after which the number of L_{1210} cells was observed. The number in the control group was 160.826×0.5 million / mouse, while in the experimental group 70.870×0.5 million/mouse, and there was a statistical meaning between the two groups ($P < 0.01$) . The results showed that the number of L_{1210} cells which were injected into mice could be remarkably reduced after the mice received the emitted *qi*, and the

fact suggested that the emitted *qi* could kill or inhibit the L_{1210} cells in mice.

Qigong is a part of traditional Chinese medicine, which is a therapy with Chinese characteristics. In recent years, *qigong* has been used to cure a lot of diseases, especially difficult diseases and tumour diseases. It is an important issue whether *qigong* can kill or inhibit maligant tumour cells or not. The result of this experiment showed that the emitted *qi*could kill or inhibit the L_{1210} cells of mice leukemia. After a body received it many times, the emitted *qi* could significantly reduce the number of L_{1210} cells in mice. The experimental study laid a theoretical basis for the treatment of tumours with *qigong*. *Qigong* therapy will be a new way to cure carcinoma. However, the mechanism and way that the emitted *qi* kills or inhibits L_{1210} cells of malignant tumours in mice need to be further investigated.

THE CHARACTERISTICS OF HUMAN BRAIN SELF-ORGANIZATION IN THE *QIGONG* STATE

Mei Lei, Zhou Zhandai and Liu Yuehong

(Institute of Space Medico-Engineering, Beijing, China)

Qigong state is the product of self organization of numerous neurons in the brain. Synergetics, developed from the laser theory, can be applied to study the patterns of brain self-organization. According to the domination principle supra-slow fluctuated oscillation as the sequential parameters can be obtained from the scanning of the fluctuation of the dominated specific frequencies of the ordinary brain waves. A new technology called ET (Encephalofluctuograph technology) has been developed and a higher level system in brain self-organization--the S (supra-slow) system——has been discovered. The S-system represents the neurochemical oscillation within the brain and dominates the synergic activities of the numerous neuro sub-systems. A series of specific S frequencies have been verified to be related to specific neurochemicals. They were characterized by typical harmonious and coherent behaviors, and their spatial configulations indicate the functional structures among different brain areas, the left-right brain correlations, and the whole brain picture. The reorganized temporal-spatial patterns signify the qualitative changes of the brain states.

By application of ET to the study of *qigong*, several features of the brain self-organization have been discovered.

(1) Selective neurochemical harmonious oscillation: Harmonious oscillation of S4 system was significantly amplified in the *qigong* state. It was verified in animal experiments that S4 system was alternatively related to 5-HT activities. Other specific S frequencies, such as S1, S2,S5,S7,S11…have been observed in doing other *qigong* exercises.

(2) Right brain predominance of S4 system: There may be non-symmetric distribution of neuro-chemicals in the left and right brain. Our ET experiments demonstrated that the S4 system was generally dominated by the right brain. In the *qigong* state the S4 amplification was predominated by the right brain too, indicating the potentials of the right brain were fully made use of in the *qigong* state.

(3) Frontal predominance in S-system's coherent activities: In comparing with quiet, rest and memory states, the left-right brain coherence of the S-system in the *qigong* state was maximally predominated by the frontal cortex. This means that the potentials of the frontal brain were also intensively exploited in the *qigong* state.

(4) The mosaic cross symmetric patterns: The probability of emergence of mosaic cross symmetric patterns was increased in the *qigong* state. The brain tended to be in the best state. The left-anterior and right-posterior brain was the functionally dominated axis of such patterns, and the left-anterior part of the brain was generally the most important part of the whole brain activity.

These facts demonstrate the qualitative changes of brain self-organization during the *qigong* state. The results also indicate that it is perspective to the synergetic principles and ET techniques in the study of the mechanism of *qigong*.

A SYSTEMATIC INVESTIGATION ON THE *QIGONG* STATE

Yu Hefeng, Yan Xiaoxia and Xu Lihua

(Institute of Space Medico-Engineering, Beijing, China)

Human body is an open mega system. There are exchanges of material, energy and information between it and the surrounding environments or controlled targets. This paper is to explore, during *qigong* exercises, wheather the human mega system enters into a relatively stable *qigong* state, and to analyze and describe a series of characteristics of the *qigong* state as a whole.

Twenty nine tests were conducted in 5 *qigong* masters. Among the tests three to five were

of mind concentration at lower Dantian. One to three control tests were carried out in each subject. Multiple physiological indications, such as frontal and occipital unipolar EEG, breathing rate, expiratory volume, blood pressure, basic resistance, heart rate, stroke volume of heart, cardiac output, total peripherial resistance of blood vessels and skin temperature at Wangu(SI 1), Dantian, Taixi(K 3) and Laogong(P 8). On the basis of the 17 data (EEG, Resp. Skin Temp. etc.), some comprehensive independent indications, their linear function and the functional state points of system in phasic space were calculated, and systems analysis and objective descriptions of the *qigong* state were done. The results were as follows:

1. More than 70% of the information was supplied by the first 2-5 comprehensive indications. It showed the *qigong* state could be described with less (2-5) dimensions.

2. During *qigong* exercises, the brain system and respiratory system played an important role in the values of the original indications in the mathematical functions of comprehensive indications. It corresponded to the physiological characteristics during *qigong* exercises. Energy of alpha rhythm was increased, while delta rhythm decreased. It shows that the *qigong* exercise process of the human mega system is not only based on the principles of mathematical derivations, but also on the physiological grounds.

3. During *qigong* exercises, the functional state point in systems phasic space graudally shifted to and concentrated on the relative stable position, far from the positions in the control tests and pre-*qigong* test. It suggested that the human mega system of the *qigong* master gradually transposed towards the *qigong* state. Orderization was gradually intensified and entropy was decreased. A relatively stable state was present. Some of them had arrived at the object ring of the *qigong* state.

4. The tendencies of the transposition of functional state point and the characteristic values of the original indications in several *qigong* tests done by the same *qigong* master were identical with good repeatability. There were some differences between individual *qigong* masters, which is explained by the difference of their *qigong* exercises and their *qigong* experience. It suggested that the organizing construction of their own mega system during transpositional process of the self-organization and self-adaptation were not the same.

5. It was found after bed rest under the same loading (standing position 75° plus lower body negative pressure—40 mmHg) the shifting distances of functional state points of human mega system in phasic space were longer than before bed rest and the recovery was slower. It suggested the regulating and adaptative ability of the human mega system became weaker.

The shifting distances of functional state points in phasic space under simulated microgravity (head down 15°) would be decreased with the mind concentrated at point

Yongquan (K 1). It showed that *qigong* exercise could improve the functional state of the human mega system and resist the bad effects when the head is lowered.

Some scientific background and methods have been provided for systems analysis on the *qigong* state, and some foundations were laid for the development of treatment of space adaptation syndrome with *qigong* exercises.

AN INVESTIGATION OF PHYSIOLOGICAL CHARACTERISTICS ON *QIGONG* EIGEN STATE

Xu Lihuo, Yu Hepeig and Yan Xiaoxia

(Institute of Space Medico-Engineering, Beijing, China)

According to the principle of integration and dynamics, the dynamical changes of multi-physiological indicators during the *qigong* exercise were observed repeatedly. The chief physiological characteristics during the *qigong* state were studied to provide the scientific basis for making a thorough study of the nature of the *qigong* state and further controlling the human body to reach the optimal functional state.

Five male *qigong* masters (age, 53-66 Yrs.) were subjects. They have practised *qigong* exercised for 3-10 years. One to three control tests and 3-5 *qigong* tests were completed for each. Altogether were twenty nine tests including 21 *qigong* tests and 8 control tests. Every *qigong* test was divided into 3 steps, pre- (sitting quietly with eyes closed for 10 min.), in- (thought concentrated on lower Dantian for 40 min.) and post- (as pre- for 10 min.) *qigong* exercise. The control tests were similar to *qigong* tests. The subject sat quietly with eyes closed for 60 min, but no thought concentration. The control tests and the *qigong* tests in the same subject were made at the same time on different days.

The changes of the left frontal and left occipital unipolar EEG, breathing rate, heart rate, stroke volume of heart, expiratory volume and skin temperature of Dantian, Laogong (P 8) wangu (TE 5) and Taixi (K 3) were simultaneously and continuously recorded. Blood pressure was measured every 5 min. during the *qigong* state and every 3 min. pre-and post-*qigong*.

Power spectral analysis of EEG was made every 2 min. It was found that during the *qigong* state the peak of alpha wave was higher and shifted to the left, percentages of alpha wave power was increased, 20.50+12.4 in the frontal area and 9.98+10.0 in the occipital area. The significant difference between the *qigong* exercise and corresponding time in control

tests (frontal $P<0.005$ and occipital $P<0.05$); delta wave power was decresed; and theta wave power was increased, the peak frequency of theta wave rhythm shifted to the right significantly ($P<0.001$).

During the *qigong* exercise, the expiratory volume and breathing rate were decresed $0.884+0.720$ L/min. and $2.64+3.58$ times/min. respectively. They were significant with the corresponding time in control tests ($P<0.05$).

The changes of point skin temperature and other physiological indicators were slight during the *qigong* exercise.

The changes of physiological indicators during several *qigong* exercises were more correspondent in each of 5 subjects. The repeatability in different tests of the same subject was good. Individual differences among 5 subjects might be resulted from their different process of self-regulation and different *qigong* abilities.

AN INVESTIGATION ON EEG OF *QIGONG* EIGEN STATE

Yan Xiaoxia, Yu Hefeng and Xu Lihua

(Institute of Space Medico-Engineering, Beijing, China)

Qigong has a history of thousands of years in China. It is one of methods for prevention and treatment of diseases, and for health preservation.

With the development of the human science, the research of the *qigong* eigen state was more and more concerned.

Professor Qian Xuesen points out that the important task is to establish the theory of the *qigong* phenomena and the *qigong* state of the human body must be studied in detail with advanced techniques and correct guiding thoughts. Therefore, according to the principle of integration, interconnection, dynamics and orderization, the dynamical changes of multi-physiological indicators in the *qigong* state were repeatedly observed to provid a scientific basis for research of physiological characters in the *qigong* state and for promoting the human body to enter optimal functional state.

In this paper, the changes of EEG in the *qigong* state was further investigated with the technique of power spectral matrix in time series on observed multi-physiological indicators.

Five male *qigong* exercisers (age, 53-66 Yrs,) were subjects. They have exercised *qigong* from 3-10 years. Two unipolar EEG (left frontal, left occipital) and other physiological indicators, such as heart rate, cardiac output, breathing rate, respiratory volume and skin

temprature were simultaneously and continuously recorded. Blood pressure was measureed every 3 min. except during the *qigong* exercise. One to three control tests and three to five *qigong* tests were completed for each subject. During the *qigong* tests and control tests subjects were sitting quietly with eyes closed for 60 min. But in the *qigong* exercises (11-50 min. in *qigong* tests) subjects' thought should be concentrated on their own lower Dantian. Control tests and *qigong* tests in the same subject were completed on the same time on different days.

EEG power spectral analysis was made with 10 m sec sampling time, 1024 points sampling length and 0.25 HZ discriminating rate of frequncy. EEG power spectral matrix in time series was made continuously with 216 spectra, each of them to be the average of 5 continuous EEG power spectra. Both were analyzed by a 7T17 signal processor.

Power of delta (2.00-3.75 Hz), theta (4.00-7.75 Hz), alpha (8.00-13.00 Hz), beta 1 (13.25-20.00Hz) and beta 2 (20.25-30.00 Hz) bands and the power percentage of each band, and the peak frequency of each band was analyzed. Entropy of EEG was calculated too.

It was found that during the *qigong* exercise the peak of alpha wave was higher and shifted to the left, power percentage of alpha waves was increased significantly, and alpha waves were shifted to the frontal area and the occipital area; power of delta waves decreased, power percentage of theta waves was increased, the peak frequency of theta rhythm was shifted to the right. Significant exchanges between the frontal and occipital power were not observed. In one of the exercisers, power of alpha in the occipital area is higher than that in the frontal area. In most of them power of the alpha wave in the frontal area is significant dominant. It might be related with the differences of their *qigong* methods and their own *qigong* abilities, for which further research would be valuable. The fluctuation of EEG power in various frequency bands and the transportation and concentration of energy in different areas and different frequencies of brain waves during the *qigong* exercise were showed in the power spectral matrix of EEG. It was helpful in observing the dynamical change processes of EEG during the *qigong* state.

There occurred correspondent changes of EEG indicators in each of the 5 subjects during several *qigong* tests. The results were repeated in different tests of the same subject. Individual difference might show the different processes of self-regulation and different *qigong* abilities of different *qigong* exercisers.

In the *qigong* state the increase of orderization of the brain was showed by the decrease of entropy.

It was discussed that EEG changes in *qigong* , sleep and hypnosis states. It was thought

that concentrated thought in the *qigong* exercise would be a specific optimal human body eigen state—— *qigong* eigen state.

In the *qigong* state the changes of EEG may be resulted from the complicated activities between the cortex and sub-cortex structure. It reflected the active self-regulation of the human body' s visceral organs.

EFFECIS OF THE EMITTED *QI* ON HEALING OF EXPERIMENTAL FRACTURE

Jia Lin and Jia Jinding

(National Research Institute of Sports Science)

The emitted *qi* has been found to have a good curative effect on soft tissue injuries, such as muscle soreness, scleroma in muscles, acute muscle sprain, muscle contusion and pains. Fracture is also a common injury in sports medicine. We have cured some cases of fracture with the emitted *qi*. The purpose of this experiment was to investigate the biological effect of the emitted *qi* on healing of fracture.

16 healthy male rabbits, weighing between 1. 9-2. 5 kg, were divided into two groups: the control group and the emitted *qi* group. Under a septic condition and with intravenous injection of thiopental sodium of 30-40 mg/kg, the fracture with a gap of 3 mm was made at the junction of the middle and lower thirds of the left radius distal to the insertion of the round pronator muscle. The rabbits in the emitted *qi* group were given the emitted *qi* treatment for 3 minutes per day after fracture. All of them took X-ray films every week. On the 2nd, 3rd, 4th, 5th week after fracture, two animals of each group were killed and specimens for light microscope study were fixed with 10% neutral formalin, decalicified with 75% EDTA, dehydrated with graded series alcohol, embeded with paraffin. Then the specimens were cut into slices of 8 μm thickness along vertical axis of radius, strained with H. E. and studied by a light microscope.

The morphological observations are as follows:

1. Based on some radiographic indexes, such as reaction of fracture section, periosteal reaction and amount of callus formation and callus density, we found that the amount and density of callus formation were better in the emitted *qi* group than in the control group . The difference was significant in the 2nd week ($n=16$, $P<0,01$)and 3rd week ($n=12$, $P<0.05$).

2. Ultrathin sections were produced with LKB-III ultrotome, strained with uranyl acetate and lead citrate, and studied with a DXB_{1-12} electronmicroscope (EM). With EM, the changes in myofibrils were observed and photographed ($\times 13000$). Injuried myofibril volume density in the pictures were calculated by means of point-count method.

3. The ultrastructural examination revealed that overstrain caused pathological changes, such as muscle fibers edema, shortening or lengthening of sarcomeres, disorganization, breaking and disappearence of myofibrils as well as Z lines, accompanied by edema and damage of mitochondria. These changes could be seen less frequently in the emitted *qi* group than in the control group. The result of quantitative analysis showed that the volume density of myofibrils of the injured muscle in the emitted *qi* group was 2.47%, and that in the control group was 20.41%. The difference of density between the two groups was significant ($P < 0.01$). We conclude that the emitted *qi* has a better preventive and theraputic effects on ultratrauma in overstrained muscles.

At present, although the precise mechanism of the emitted *qi* is not clear, it has been found by electronic detectors that it may involve some kind of electromagnetic fields, such as low-frequency modulation waves of infrared, low-frequency electromagnetic wave, microwave, etc. Scientists discovered that weaker pulse magnetic field or low-frequency electromagnetic field has a higher bioactivity in treatment of bone and muscle injuries. Therefore, we think that some kind of electromagnetic contents in the emitted *qi* may influence the electromagnetic field of an organism and produce such preventive and theraputic effects.

EFFECTS OF THE EMITTED *QI* ON ULTRASTRUCTURAL CHANGES OF THE OVERSTRAINED MUSCLE OF RABBITS

Jia Lin, Jia jinding and Lu Danyun

(National Research Institute of Sports Science, Beijing, China)

It is one of major tasks in sports medcine to prevent and cure sport-related injuries. At present, with increase in training intensity, muscle injuries occure frequently, which directly affects the athletic achievement or even ruins the athletic career. For this reason, the progress in prevention and treatment of the muscle injuries have been concerned increasingly in many countries.

In resent years, the research and application of the emitted *qi* is being developed in

China. The emitted *qi* has been found to have physical and biological effects. Clinically, we have treated muscle soreness, scleroma in muscles, acute muscle sprain, muscle contusion and release of pain in athletes with the emitted *qi* and the result was satisfactory. The purpose of this experiment was to investigate the preventive and theraputic effect of the emitted *qi* on ultrastructural changes in the injuried muscle caused by overstrain. 12 healthy male rabbits, weighing 2-2. 4 kg, were divided into two groups: the control group and the emitted *qi* group. Passive contraction of the quardriceps muscles of the thigh was given by stimulation of a chain of square impulses with a frequency of 60Hz, intensity of 8-40 volt and duration of 0. 5 sec. The stimulation underwent 6-9 hours everyday and lasted for 4 days. The emitted *qi* treatment was given to the emitted *qi* group for 6 times totally and each treatment lasted 3 minutes.

Three days after termination of the passive contraction, specimens of musculus vastus lateralis were trimmed into cubes of 1 mm^3 . These cubes were fixed at once with 2. 5% buffered glutaraldehyde solution, post-fixed in 2% osmium tetroxide solution, dehydrated with graded series alcohol and acetone, and embeded with epoxy-resin 812.

Under a microscopy, we observed and compared the healing process of periosteal, bridging, uniting and sealing callus in both groups. It was found that the qualities and quantities of both fibrous and bony callus in the emitted *qi* group were superior to those in controls.

Under the influence of the emitted *qi* the fibroblast could be transformed into osteocytes directly in the region of uniting callus and both of the chondrocytes and fibroblasts were capable of forming bone tissues. These phenomena were not seen in the control group.

The emitted *qi* promoted differentiation of osteogenesis transformed into osteoblasts, which had an inseparable and multi-layer arrangement, while the osteoblast in the control had a sparse and mono-layer arrangement.

The emitted *qi* group, the number of the osteoclasts appeared to increase relatively in the process of both absorption of necrotic bone in the early stage of fracture and bony callus remodeling of the later stage. So the absorption of necrotic bone and reconnection of marrow cavity were both quicker.

On the basis of the results, we preliminarily considered that the emitted *qi* had a good theraputic effect to promote healing of fracture.

THE EFFECT OF THE EMITTED *QI* (EQ) ON THE SKELETAL MUSCLE OF MICE UNDER THE STRESS OF ICE-SWIMMING ---AN ELECTROMICROSCOPIC OBSERVATION

Lu Danyun and Jia Jingdin

(National Research Institute of Sports Science, Beijing, China)

The emitted *qi* is proved to be a matter by modern technical methods. It possesses its own biological effects as it has been reported in many papers. The effectiveness of the emitted *qi* in relieving muscle slight trauma and fatigue was investigated in this paper to further apply the emitted *qi* in medical treatment.

18 Kunming mice weighing 28 ± 1.8g were randomly divided into 3 groups: ice-swimming group with the emitted *qi* given (Group I) and simple ice-swimming group (Group II) and the control group. The first two groups were put into ice water (4C°) and forced to swim until exhausted. GI was given the emitted *qi* for 5 minutes before, during and after swimming and the next day. All the mice were decapitated at the time of postswimming 48 hours. The tibialis anterior muscle was removed for conventional TEM preparation and observed with Philip 410 and JEM-1200EX. According to the statistic data in presenting cases, the results of GI vs GII vs GIII were as follows:

1) Sarolemmal projection: 34% : 85% : 17% (I : III $P>0.05$); (II : III $P<0.05$).

2) Central nuclei: 17% : 85% : 17% (I : II and III : II $P<0.05$).

3) Mitochondia swelling and residual bodies: 68% : 100% : 50%;

4) Smooth reticulum dilating: 85% : 85% : 34%.

5) Glycogen content in GI was less than or equal to that in GIII and it is the least in most of the mice in GII.

Interestingly, active satellite cells (SC) were seen in a case of GII; inactive SC were seen in a case of GII; among the mice given the emitted *qi* active SC were seen in 3 cases and 2 with unusual large unclei (dimeter>12 μm) seen in muscle fiber, in which the euchromatin occupied a large area and evenly dispersed with large nucleolis.

The results show that the emitted *qi* obviously can lessen the changes in skeletal muscle of mice induced by the stress of exhausting ice-swimming. It seems that the energy form of the emitted *qi* is suitable to be absorbed by liquid crystal resonance in the body and compensates the energy lost during ice-swimming.

After all, the effect of the emitted *qi* for regulating the function of nuclei is well worth attention.

PSYCHOLOGICAL EFFECTS OF *QIGONG*

Wang Jisheng (Institute of Psychology, Academia Sinica, Beijing, China)

The aim of this research is to inquire into psychologial effects including intelligent and nonintelligent effects of *qigong* by using the psychological research method.

The author has made many experimental researches on various kinds of forms of *qigong* with approximately similar results. Here are the results of 35 subjects who exercised *Chanmi Qigong*.

The following are the averages and standard deviations of the items under the condition of just having finished the exercise and before the exercise. These items include speed of act (the amount of holding balls per minute), errors of act (errors of holding balls per minute), memory extent of reciting numbers orderly (using figure as the unit), memory extent of reciting numbers backwands (using figure as the unit), pure score of omiting numbers (raw score minus errors), score of number symble test (the amount of finding numbers correctly per minute), numbers of reading words with interference of color (the amount of reading words per minute), errors of reading words with interference of color (errors of reading words per minute), numbers of reading colors with interference of words (the amount of reading colors per minute), errors of reading colors with interference of words (errors of reading colors per minute), black-red number test (the amount of finding black-red number couple per minute). The related averages and standard deviations are:
27 ± 5.207 and 23.943 ± 5.184, 0.943 ± 1.110 and 1.371 ± 1.140, 7.971 ± 1.204 and 7.257 ± 1.268, 5.000 ± 1.029 and 4.2 ± 0.964, 27.217 ± 6.445 and 24.043 ± 6.657, 36.087 ± 11.501 and 31.261 ± 9.107, 108 ± 27.338 and 96.829 ± 25.602, 0.086 ± 0.284 and 0.829 ± 1.098, 49.917 ± 12.667 and 46.971 ± 12.340, 0.914 ± 1.095 and 2.143 ± 1.833, 7.143 ± 2.586 and 5.829 ± 2.595, $P<0.05$.

All above indicate that under the *qigong* state, they improved a lot. They included the speed of act, accuracy of act, memory extent of reciting numbers orderly and backwards, omitting numbers, number symble, numbers of reading words with interference of color, numbers of reading colors with interference of words, black-red number. The errors of reading words with interference of color and reading colors with interference of words

decreased greatly.

All above show that the *qigong* exercise can improve the functions of perception act, attention, memory and thinking. According to the result, the author thinks that *qigong* is an important way to develop intelligent resource of human beings. *Qigong* can promote intelligent development of the children, youths and middle-aged people. *Qigong* can prevent old people from falling their intelligence.

2. Investigations show that *qigong* can improve the following conditions, i. e. stability of emotion, mood, ability of self-control, temper, flexibility of act, attention, observation, will power, flexibility of thinking, memory, quickness of thinking, logic of thinking and speed of act. all above suggest that *qigong* not only improves people's intelligent factors but also nonintelligent factors more evidently.

3. The longer people exercise *qigong* the better the result of the following conditions: stability of emotion, mood, ability of self-control, temper, flexibility of act, attention, observation, will power, flexibility of thinking, memory, quickness of thinking, logic of thinking and speed of act.

4. The author holds that the mechanism of *qigong* is complicated. It may consist of three factors: psychological factor, physical factor and bio-chemical factor, playing a role in the mechanism of *qigong* . They are connected with each other and cannot be replaced by one another.

A RESEARCH ON FACTORS RELATED TO THE *QIGONG* STATE

Wang Jisheng (Institute of Psychology, Academia Sinica, Beijing, China)

The extent of the *qigong* state significantly affects the physical and psychological effect and the health-protecting results of the *qigong* exercise. This study inquires into factors that affect the *qigong* state. It is important to understand the relationship between the *qigong* state and the internal and external environment, and to increase the extent of the *qigong* state. It will also help in gradually clarifying the mechanism of *qigong* .

The psychology questionnaire scale used in the study was formulated by the author. The scale consists of 14 items. The effect of each item is divided into five grades, i. e. very low, low, medium effect, high, very high. The first two grades are regarded as having little effect whereas the other three are regarded as having a marked effect. Arranged according to the percentage of items that have a marked effect on the *qigong* state, the results of 137

exercisers are as follows: emotional stability, propen instruction, perseverance muscle relaxation during the exercise, confidence in the exercise, quiet environment, a good understanding of the method and main points of the exercise, believing in *qigong*, concentration of mind, patience, correct posture, coordinate breathing, proper temperature, and urgency in the exercise, the respective percentage being 97.83%, 95.31%, 94.85%, 94.16%, 94.07%, 91.97%, 91.37%, 90.37%, 88.89%, 85.40%, 85.29%, 84.44%, 81.20%, 80.10%. The results show that the aforesaid 14 factors have a marked effect on the *qigong* state. Among them the following 5 factors have a percentage above 94%: emotional stability, proper instruction, perseverance, muscle relaxation during the exercise, and confidence in the exercise. The effect of these 5 factors on the *qigong* state is greater than that of such factors as a quiet environment, correct posture, coordinate breathing, proper temperature and urgency in the exercise. The difference is statistically significant.

Both the *qigong* masters and exercisers should pay more attention to the aforesaid 14 factors, especially to the first five. These factors are helpful for reducing the time needed for reaching the *qigong* state and enhancing the effect of *qigong* to receive a better therapeutic effect.

The fact that emotional stability has the greater effect on the *qigong* state offering some insight into the mechanism of *qigong*. Emotion is a function of the brain. The nerve centre under the cerebral cortex has an important position in the physical mechanism of emotion. The nerve centre which controls the antonomic system and adjusts the function of the internal organs is located under the cerebral cortex. Thus emotional changes can cause changes in the internal organs and glands including the circulatory system, the respiratory system, the digestive system, the endocrine system and exocrine glands such as sweat glands. The author thinks that emotional stability not only helps enter the *qigong* state, but also is one of the important factors that enables *qigong* to adjust the function of the human body and crue or prevent diseases.

A PRELIMINARY STUDY OF THE BIOLOGICAL EFFECTS OF *QIGONG*

Tang Cimei, Sun Lihua, Zheng Lianxing and Xiang Xiaokuan

(Institute of Psychology, Chinese Academy of Sciences, Beijing, China)

Evidence from two experiments is used in this paper. In the first experiment, excretion of urinary catecholamines was measured in 111 subjects by an average age of 52 years (22-78), who practised different forms of *qigong*. After voiding, each subject was required to do the *qigong* exercise for one hour, then one urine sample was collected. The control sample was collected at the same time of a different day. In the control period the subjects' body posture and movements were different according to the *qigong* exercises they practised. One hour affter the control period another urine sample was collected.

The results showed that the excretion of urinary adrenaline increased following the *qigong* exercise in all six patterns, but significant increase of urinary adrenaline was observed only in the group who practised *Da Yan Gong* (or "Wild Goose Pattern Exercise"). The excretion of urinary noradrenaline increased following the *qigong* exercise as well, but marked increase was observed only in two groups: *Da Yan Gong* and *Lao Zi Quan Zhen Gong*.

Marked increase of urinary adrenaline following the *qigong* exercise was also observed in subjects who had practised *Zhan Zhuang Gong* and *Yang Qi Gong* more than two years.

In the second experiment, the changes of EEG in the frontal area, respiratory rate, pulse rate, skin temperature and excretion of urinary catecholamines and the correlations between these parameters were observed during the *qigong* exercise in 13 subjects by an average age of 56.9.

After voiding, the subjects were required to rest for one hour, then the control urine sample was collected. In the laboratory, the EEG, respiratory rate, pulse rate and skin temperature were recorded with a RM-6000 Polygraph Physiologic Instrument. Then the subjects were requried to rest for 10 minutes and to practise the *qigong* exercise for 40 minutes. A rest of 10 minutes was followed again. The second urine sample was collected.

The results showed that the respiratory rate decreased from 17.8 ± 4.5 to 13.6 ± 7.7, $P < 0.05$; the pulse rate increased from 71.4 ± 11.8 to 76.2 ± 14.7 ($P < 0.01$); the skin temperature increased from 31.5 ± 2.3 to 32.4 ± 1.7C($\beta < 0.05$) during the *qigong* exercise. A decrease of δ power spectrum and an increase of α power spectrum in the frontal area were observed in most subjects, an increase of θ power spectrum in individual subject was seen too.

Negative correlation was found between changes of α or θ power and the respiratory rate, $\gamma = -0.626 (P < 0.05)$.

Slight increase of urinary adrenaline and noradrenaline was found after the *qigong* exercise. However, significant increase of adrenaline was seen only in these subjects whose changes of EEG were marked. A positive correlation was found between changes of α or θ power and excretion of adrenaline, $\gamma = 0.683$ $(P < 0.01)$. It suggests that the excretion of urinary adrenaline increased markedly in successful *qigong* trainees.

Decreased δ power spectrum, increased α power spectrum of EEG and excretion of adrenaline with marked correlation between them, and increased pulse rate suggest that the *qigong* exercise is neither a resting or relaxation condition, nor a quiet state between awaking and sleeping. It seems that the *qigong* exercise is an active process to regulate physiological activities through mental process.

STUDIES OF *QIGONG* EFFECT ON THE HUMAN BODY BY THE COMPUTERIZED SYNCHRONOUS SYSTEM FOR MACRO- AND MICROCIRCULATORY PAPAMETERS MEASUREMENT

Xiu Ruijuan, Ying Xiaoyou, Cheng Jun, Duan Chouggao and Tang Tao

(Institute of Microcirculation, CAMS, Beijing, China)

Qigong, an ancient Chinese art of exercise for protecting and strengthening health, is very effective in treatment of many diseases. But the mechanism of its efficacy is not clear yet. During the *qigong* test, the computerized synchronous system for macro- and microcirculatory parameters measurement was used to check the heart rate (HR), respiration (RESP), body temperature (BY), electrocardiogram (ECG), carotid arterial pulse (CAP), photoelectric plethysmogram (PEPS), skin microcirculatory blood flow (SMBF), blood pressure (BP) and the nail-fold microcirculation (NFM).

The SMBF of the *qigong* master himself was tested at yuji (L 10) before, after and during the *qigong* exercise. Tests were done in 5 *qigong* healthy recipients (males and females), 26 to 50 years by age.

Of the parameters measured, the most significant effect of *qigong* was on the SMBF measured by a laser Doppler flowmeter. The results showed marked effects in amplitude of SMBF both of the *qigong* master and recipients (See Table 1). All other parameters showed detectable changes during the *qigong* test, but not enough to be statistically significant. This

elucidates that *qigong* is very effective on the increase of the peripheral blood flow volume, thus enhanceing the microvascular vasomotion. The investigation is continuing.

Table 1: Mean skin blood flow value (MSBFV) of the emitted *qi* at Yuji (L 10) of healthy adults

Recipients	Before *qigong*	*qigong* 1 (first 10 minutes)	*qigong* 2 (second 10 minutes)	After *qigong*
1	80.4±8.3	84.9±5.8 *	87.0±3.7 *	77.2±9.5
2	10.6±5.0	22.5±9.6 *	30.0±10.2 *	13.3±5.0
3	22.8±10.2	54.6±13.6 *	60.2±10.0 *	47.7±9.4
4	3.1±3.0	9.9±7.7 *	8.8±5.1 *	4.7±3.5
5	27.7±10.2	35.6±9.6 *	36.4±5.7 *	34.5±8.8
Q. M.	64.0+13.8	74.1±10.8	80.0±5.6	80.6±4.9

Q. M. : *qigong* master ($\overline{X}$ ±SE, * :P<0.05)

EFFECTS OF THE EMITTED *QI* ON IMMUNE FUNCTIONS IN ANIMALS

Li Caixi, Jinlong, Liu Zhiyun, Zhao Guang, Zhang Yu and Zhang Guoxi

(Xiyuan Hospital, China Academy of Traditinal Chinese Medicine, Beijing, China)

In order to investigate the actions and the mechanism of the emitted *qi* on preventing and curing human diseases, we have used experimental animals to observe the effects of the emitted *qi* on the immune functions.

Materials and methods: Mice and rabbits were treated by the *qi* emitted by two kinds of *qigong* doctors for a period of time. The functions of humoral immunity, cellular immunity and nonspecific immunity, and the histochemical reaction in spleens were observed.

Results: 1. The emitted *qi* could increase peripheral blood leucocytes. It was found that the number of leucocytes in the animals having received the emitted *qi* was much higher than that in the control (P<0.01).

2. The emitted *qi* could enhance the level of serum antibodies significantly. Experiments showed that the serum agglutinin in the mice treated with the emitted *qi* increased from 33.04 ±10.34 to 48.98±16.4 (P<0.05). The level of rabbit serum hemolysin in the group treated with the emitted *qi* was found to be higher than that in the control group. After determining the level of rabbit serum anti-THY901 agglutinin for 15 times during 96 days, it was found that the special antibody level in the treated group and in the control group were

55.4 ± 8.6 and 47.15 ± 10.5 respectively. The difference between the two groups was significant ($P<0.05$). The decreasing rate of antibody titre in the treated group was found to be slower than that in the control group. And the secondery immune reaction increased significantly ($P<0.001$).

3. The emitted *qi* could increase the cellular immune reaction markedly. The Ea-rosette forming percentage of spleen lymphocytes in the *qigong* group, the normal control group, the immune control group and the *qigong* plus immune group were determined to be 21.33±5.1, 11.8±1.97, 17.58±1.9 and 23.61±4.81 respectively. It indicated that the emitted *qi* not only enhanced the cellular immune functions, but exerted a synergistic effect with special antigens as well. The emitted *qi* could also promote the inhibited immune function induced by cortison, and enhance the Ea-rosette forming percentage to the normal level. It was found that information water (water that had been treated by the emitted *qi*) could increase the Ea-rosette forming percentage just as the emitted *qi* did. We observed that animals reached their maximum responses after one day of drinking information water, and that no further marked changes could be found when the animals continued to drink information water. It is suggested that emitted *qi* possesses a regular action on the immune function.

4. The phagocytic rate and the bactericidal rate were determined indicating the phagocytic function of mouse celiac Mφ. The results showed that the emitted *qi* could stimulate the activity of Mφ in the body and raise its function. Therefore, the phagocytic rate, phagocytic index and bactericidal rate rose significantly. The efficiency of the emitted *qi* was found to be stronger than that of specific antigens.

5. The histochemical response and the results of the fluorescence dying of the spleen indicated that in the *qigong* group that the germinal centre was markedly evident, the spleen lymphatic nodule became larger and the synthetic metabolism of RNA and DNA in the lymphatic cells were promoted.

The experiments showed that different kinds of emitted *qi* resulted in functional differences, but all kinds of emitted *qi* possess marked effects on the body.

Immunity is a kind of protective reaction of the organism. It has the function of recognizing and removing foreign bodies so as to maintain internal balance and stability.

From the results mentioned above, it is obvious that the action of the emitted *qi* on the organism is to improve the immunity and increase its defensive, self-stable and surveillance functions. We think that is one of the major mechanisms of *qigong* or of the emitted *qi* from *qigong* masters in curing and preventing diseases as wel as prolonging one's life. However, the organism is a sophisticated whole. The immune system is regulated by the nervous and

humoral systems, and immune cells themselves have a sense function, so problems such as how the emitted *qi* produces an effect on organisms and how it regulates organisms and makes them reach internally balanced states still need to be further studied.

A STUDY OF THE INFLUENCE OF *QIGONG* ON THE DECLINED INTELLIGENCE OF THE AGED

Sun Fuli, Lei Sumping and Yan Yiai

(Xiyuan Hospital, China Academy of Traditional Chinese Medicine, Beijing, China)

He Qingnian

(Institute of Traditional Chinese Medicine, Beijing, China)

Because the average life expectancy of the human beings has been increasing, the symptom of declined intelligence, which is common among the aged, brings about more and more problems for many families and society. In order to search after the role of *qigong* in preventing and curing the declined intelligence of the aged, we made the following researches.

1. Determination of the intelligence ageing level.

We made use of the microcomputer and the method of talking between man and computer in our research. According to the characteristics of psychological indexes, which changed along with the increasing of the age, a computer program edited by BASIC was used in our test. Our test included 7 indexes of fluid intelligence: speed of mental arithmetic, digit-symbol, choice reaction time, count, visual number span, tracing reaction and recognition of meaningless figures. We found out the mathematical model of the intelligence aging from 506 subjects and a measuring system for the intelligence aging level was established. It could find out the subject's aging level and mental physiological age. This method is suitable for mental workers of 46-75 years old. The measuring accuracy among the subjects of 50-70 years old is higher.

2. Cross-sectional investigation.

We tested two groups, and in each there were 48 subjects. The subjects in Group I were mental workers who had been doing the *qigong* exercise for some years. The subjects' conditions in Group II were just the same as Group I except the *qigong* exercise experience. The test result showed the *qigong* exercise could obviously improve people's thinking response, limb flexibility, short term memory and attention quality and it made the average mental physiological ages 1.62 years younger than the actual ones.

3. Longitudinal observe.

Among the 19 retired mental workers sticking to the *qigong* exercise for 6 months, we found that 3 items among their 7 indexes of fluid intelligence had been improved obviously. The mental physiological age decreased from 66. 34±8. 21 years (before the *qigong* exercise) to 65. 02±2. 44 years (after the *qigong* exercise). This result proves that *qigong* can really delay the intelligence decline of the aged.

4. Changes of EEG.

Through the spectral analysis and multiple stepwise regression techniques, we created the mathmatics model of physiological age of the brain based on 58 subjects' characteristics of EEG parameters. We used this model to calculate the physiological age of the brain for 8 subjects who sticked to the *qigong* exercise. The result showed that the physiological age of the brain were younger than their actual ones.

5. Comparision with drugs benefiting intelligence.

46 subjects were divided into two groups according to their age and education background. One group took the *qigong* exercise. Another group took drugs benefiting intelligence (the Preserving Youth Pills). 3 months later we found that the group taking drugs obviously improved in speed of mental arithmetic, digit-symbol and choice reaction time. The mental physiological age decreased from 62. 89+3. 4 years (before taking drugs) to 61. 00+3. 50 years (after taking drugs). The average age was 1. 85 years younger than before. But all indexes and mental physiological ages in the *qigong* group didn't change except the digit-symbol index. This result shows that although the *qigong* exercise can improve intelligence of the aged, it was difficult for them to grasp the main point of the *qigong* exercise in short time. So *qigong* didn't take effect so soon as the drug. But once people grasp the main point of the *qigong* exercise they can get benefit for whole life. Moreover, *qigong* doesn't have any side-effect as some drugs do. And the environment seldom influences it as well. The *qigong* exercise is easy to learn and popular among people. It is an ideal way to prevent and cure the declined intelligence symptom of the aged.

THE EFFECT OF THE EMITTED *QI* REPERFUSION INJURY OF MYOCRRDIUM

(*Oigong* **Science Institute**, Beijing College of Traditional Chinese Medicine, Beijing, China)

Reperfusion injury of myocardium means that instead of benefiting from reperfusion, the

ischemic and anoxic myocardium dies off as a consequence of reperfusion. The clinical significance of reperfusion injury has attracted people's attention, but its mechanism is not quite clear. We understand that in many diseases, in which recovery is impossible by various therapeutic methods, *qigong* proves to be highly effective. The present study is to find out whether the emitted *qi* has a beneficial effect on reperfusion injury to ischemic myocardium.

Seventeen Newzealand rabbits undergoing operation for reperfusion of myocardium by 60 min. ligation and 20 min. re-clysis of the left lateral branch of the coronary artery were investigated in two randomized groups. The *qigong* group of 10 rabbits received the emitted *qi* for half an hour every morning for 20 days before the operation and received the emitted *qi* on the operation table when the operation was going on. The control group of 7 rabbits as operated on in the same way but without the emitted *qi* treatment. The EGG was taken. Blood samples were obtained for biochemical assay before and after ligation and at the end of re-clysis. Then the animals were killed, heart was inspected and pieces of ischemic myocardium from the left venticular wall were sectioned and prepared for microscopic examination. The serum level of creatine phosphate kinase (CPK), glutamic-oxaloacetic aminotransfrnase (GOT), lactate dehydroqenase (LDH) and its isoenzymes LDH1, LDH2 were determined.

The experimental results showed that the reperfusion injury model was successful. Immediately after ligation of the left lateral branch of the coronary artery, there appeared an elevation of the S-T segment of leads II and III in the electro-cardiogram; the left ventricular wall distal to the ligation became pale in color, contracting weakly and bulging out slightly through the 60 minutes duration of ischemia. During the stage of re-clysis, the ischemic myocardium returned to a somewhat deeper color and showed a shight decline of the elevated. S-T segment in the electro-cardiogram. It was found that the enzymes determined increased in the serum at the time of myocardial ischemia and reached a high level during reperfusion. This was especially marked in LDH1. The mean LDH1 content in the *qigong* group was significantly ($P<0.05$) lower than that of the control group. The mean TDP content was significantly ($P<0.05$) lower in the *qigong* group (42.75 umol/mg) than in the control group (97.98, umol/mg). Thus the mean ATP/ADP quotient (*qigong* group 0.088, control group 0.056) was significantly higher in the *qigong* group; ($P<0.05$) Microscopic examination of the myocardium revealed that most muscle fibers appeared to be swollen with hydropic degeneration, and some muscle fibers appeared to be acidophilic and necrotic with foci of leucocytic infiltration scattered here and there. Occasionally necrosis of the contraction band of muscle fibers could be observed. Histochemical analysis of the myocardium revealed

that the LDH concentration in the ischemic region was much lower than that of the non-ischemic region of the same heart. In comparison, the above mentioned pathologic changes were less severe in the *qigong* group than in the control group. This shows that there is more severe damage of the myocardial cells in the control group and more leakage of enzymea, especially leakage of LDH1 into the blood. At the same time, we found that the oxygen comsumption of liver cells in the *qigong* group was much lower than that of the control group. This may suggest that the emitted *qi* could exert the same effect the myocardium, resulting in low oxygen comsumption which itself is a protective mechanism of tolerance toward hypoxia. The same should be true for the lowered rate of platelet aggregation in the *gigong* grong.

It is concluded that the applicatin of the emitted *qi* to animals may lead to a regulatory effect on internal environmental balance and adaptation during reperfusion. As a result, ischemic tolerance is enhanced and myocardial protection is improved.

A STUDY OF THE IMMUNE REGULATION EFFECT OF THE EMITTED *QI* ON IMMUNOSUPPRESSED ANIMAL MODEL

Zhang Li, Yan Xuanzuo, Wang Shuhua, Tao Jundi, Gu ligan. Xu Yin, Zhou Yong and Liu Dong

(Institute of Qigong Science, Beijing College of Traditional Chinese Medicine, Beijing, China)

Recently, there have been many papers about strengthening of the immune function of an organism by the emitted *qi*, but few papers deal with the immune regulation effect of the emitted *qi* on immunosuppressed organisms. The present paper reports the immunosuppressed model of mice induced by cyclophosphamide (CY), which is used to investigate the immune regulation effect of the emitted *qi*.

In this experiment, NIH mice were divided randomly into three groups: (1) CY group: CY 2mg/ (20mg body weight) were administed ip only on the first day. (2) CY+emitted *qi* group: Besides CY, mouse received the emitted *qi* 10-15 min/day for 7 days. (3) Control group: Physiological saline 0.1ml/ (20mg body weight) was administed ip only on the first day.

Then the thymus index, thymus structure, T cells proliferation and the activity of interleukin-2 (IL-2) were used to investigate the immune regulating effect of the emitted *qi* on the immunosuppressed model of mouse.

The results are as follows:

Firstly, we found the effect of the emitted *qi* on mouse thymus: A decline of thymus

index was seen after CY was given. The index was obviously lower than that of the control group ($P<0.001$). It indicated that proper dosage of CY could injure thymus. But the thymus index in CY+emitted *qi* group was obviously higher than the CY group ($P<0.005$). The result showed that the emitted *qi* could relieve the thymus injury of the mouse imduced by CY. Simultaneously, we found that the emitted *qi* also alleviated injury of the thymus structure of the mouse induced by CY. In comparison with the CY group, the group of CY+ emitted *qi* showed the following variations. The cortex of thymus was thickened ($P<0.001$), medulla was thinned ($P<0.05$). The number of pyknotic thymocytes obviously decreased, the degenerate or necrotic epithelia-reticular cells and medullary Hassall's corpuscles obviously decreased too ($P<0.001$).

Secondly, we found the effect of the emiited *qi* on the mouse spleen T lymphocyte. It was seen that T cell proliferation rate of Group II was lower than that of the control group ($P<0.01$). However, the T cell proliferation rate of Group II was obviously higher than Group I. It indicated that CY could suppress the T cell proliferation of the mouse spleen. But the emitted *qi* could relieve the suppression induced by CY. We also found CY could suppress the IL-2 activity of the T cells of the mouse spleen, as compared with the control group ($P<0.01$). The emitted *qi* could also relieve the suppression induced by CY ($P<0.01$).

At present, it is generally accepted that *qigong* could improve immune function, our experiment results also proved that the emitted *qi* can induce the biological effect to enhance the cell-mediated immune response of the immunosuppressed model of the mouse.

THE EXPERIMENTAL STUDIES OF THE EFFECT OF THE EMITTED *QI* ON MOUSE SPLEEN CELLS AND TUMOR CELLS IN VITRO

Gu Ligang, Yan Xuanzuo, Tao Jundi, Zhang Li, Xu Yin and Zhou Yong

(Institute of *Qigong* Science, Beijing College of Traditional Chinese Medicine, Beijing, China)

Hai Neihou, Zhong Xulong and Liang Shanhe

(Tangshan Health Institute for Woman and Children, Hebei province, China)

This paper will report the enhanced effect of the emitted *qi* of *qigong* in vitro on the proliferative response to concanavalin A (Con A) and interleukin-2 (IL-2) production of murine spleen cell and inhibitory effect on 3H-TdR incorporation into DNR of the mouse H-22

ascites tumor cells.

1. The effect of the emitted *qi* on the proliferative response of spleen cell to Con A stimulation: The emiffed *qi* could not directly stimulate the proliferation of the mouse spleen cells. However, the modulating action on proliferation of the mouse spleen cells to Con A could be increased by the message of the emitted *qi*; the 3H-TdR incorporation cpm of the experiment group was significantly higher than that of the control group ($P<0.001$). In contrary, there was a inhibitory modulating action by the message of the emitted *qi*; the 3H-TdR incorporation cpm of the experiment group was significantly lower than that of the control group ($P<0.02$).

2. The effect of the emitted *qi* on IL-2 production of the mouse spleen cell: The production of IL-2 in the mouse spleen cell could be increased by the emitted *qi*. IL-2 activity was measured by 3H-TdR incorporation into active lymphocytes. The difference was significant in comparing the experiment group with the control group ($P<0.001$).

3. The inhibitory effect of the emitted *qi* on 3H-TdR incorporation into DNR of the mouse H-22 ascites tumor cells: In this study the experimental tumor cells received the eimitted *qi* for 15 mins. The control tumor cells did not receive that. The result showed that cpm of the experimental tumor cells significantly reduced ($P<0.001$). It suggested that the emitted *qi* had inhibitory effect on the tumor cell proliferation.

AN EXPERIMENTAL RESEARCH ON THE NEURAL MECHANISMS OF THE *QIGONG* STATE AND THE EFFECTS OF THE EMITTED *QI*

Liu Guolong, Cui Rongqing, Niu Xin and Peng Xueyan

(Beijing College of Traditional Chinese Medicine, Bejing, China)

1. By using the methods of auditory, visual, somatosensory and somatosensoryspinal evoked potentials we observed that extensive areas of the cortex were inhibited in different degrees while some local areas were excited during the *qigong* state (or meditation). It is important that the inhibition occurring in the *qigong* state is greatly different from that in sleep.

2. The areas from the brainstem to phypothalamus where the chief autonomic nerve center regulating the internal organs lies, were facilitated durging the *qigong* state. It has provided neurophysiological evidences to explain the fact that the activity of the internal

organs were affected and consciously regulated during the the *qigong* state.

3. The somatospinal evoked potentials (SSEP) were either facilitated or inhibited during the *qigong* state, It indicates the physiological mechanism of the muscle relaxation and the strengthened muscle force. It is perhaps the descending inhibitive system or the descending facilitated system affected the spinal anterior horn cells on the basis of facilitation of the brainstem.

4. Compared with a healthy person, the alpha power spectrum was augmented, the dominant peak frequency of the alpha wave was reversed from the occipital lobe to the frontal lobe, the alpha rhythm of the whole cortex synchronized and the dominant peak frequency moved to the left during the *qigong* state.

The performer's EEG power spectrum was increased, dissynchronized and the dominant peak frequency was moved to the right near the beta rhythm while the performer emitted his *qi*.

5. When it was applied to healthy subjects, the emitted *qi* can make the alpha rhythm of EEG synchronize and the power spectrum increase, which is similar to the changes of EEG during the *qigong* state, i. e. , the frontal-occipital reverse of the alpha dominant peak frequency.

6. The measurement of the characteristics of the infrasonic sound in the emitted *qi* proved that there was infrasonic radiation in the emitted *qi*. The dominant peak frequency of the infrasonic was between 8 and 12. 5 Hz, closely coinciding with the alpha frequency of EEG. The infrasonic intensity of the emitted *qi* was 60 to 75 dB. It should be mentioned that the receivers of the emitted *qi* showed their dominant alpha peak frequency tended to synchronize with the dominant peak frequency of the infrasonic of the emitted *qi*. It suggested that the infrasonic is one of the most effective elements in the emitted *qi* that makes the receiver's EEG change.

7. By using a infrasonic generator that simulates the emitted *qi* we found the effect on the receiver's EEG. The receiver's EEG power spectrum was increased and synchronized, and these changes have a certain latency and after effect. It indicates that the human body can receive infrasonic and respond to it, the effect is similar to the emitted *qi*, so we postulate that the infrasonic or the infrasonic component in the emitted *qi* may make the circulative pathway of neurons in the hypothalamus resonate and alter the EEG power spectrum.

8. The effects of the emitted *qi* and infrasonic on EEG and evoked potentials were more or less similar but not all the same. It indicates that the infrasonic may be one effective element of the emitted *qi* or perhaps a main element that effects on the central nervous

system, especially on the hypothalamic neurons.

THE INFLUENCE OF THE EMITTED *QI* ON THE AUDITORY BRAINSTEM EVOKED RESPONSES (ABER) AND AUDITORY MIDDLE LATENCY EVOKED RESPONSES (MLR) IN CATS

Liu Guolong, Wan Pei, Peng Xueyan and Zhong Xuelong

(Beijing College of Traditional Chinese Medicine, Beijing, China)

1. It is known that the emitted *qi* alters the EEG and the cortical evoked potentials in man in our previous studies. In order to exclude the psychological influence when the emitted *qi* is applied to man, we carried out the experiment in the anesthetized cats and observed the effects of the emitted *qi* on the ABER and MLR.

2. The ABER was significantly facilitated and the peak latency prolonged in 10 out of 12 cases when the emitted *qi* was applied to the cats. The component of ABER consisted of 5-7 waves which reflected the activities of the brainstem in different levels. Wave I originated from the acoustic nerve, Wave II from the cochlear nucleus of the medulla, Wave III from the superior olivary complex of the pons, Wave IV from the inferior colliculus of the mesencephalon, Wave V from the counterlateral inferior colliculus and Waves VI and VII from the levels above the mesencephalon, or mainly from the hypothalamus in cats. The emitted *qi* could facilitate the IVth to VIIth waves of the ABER and prolonged the peak latency. It proved that the activities of the brainstem, especially the part above the mesencephalon, were increased but the conductive velocity between the nucli of the brainstem was decreased.

3. The amplitude of the ABER was significantly inhibited and the peak latency prolonged from Wave IV to Wave VI in 2 cases out of 12 cases when the emitted *qi* was applied to the cats. It indicated that the effects of the emitted *qi* not only facilitated but also inhibited the activities of the brainstem above the mesencephalon. It explains the fact that the emitted *qi* may regulate the activities of the interal organs through changing the functional behavior of the brainstem.

4. The emitted *qi* facilitated the MLR in 6 cases and inhibited MLR in another 6 cases. The MLR is the primary component of the acustic cortical evoked responses, indicating the active level of the primary acoustic cortex. The emitted *qi* is similar to ABER but not all the same.

5. These results in our present research has provided an animal experimental foundation

for studing the neuromechanisms when the emitted *qi* is applied to the subjects.

A PRELIMINARY EXPLORATION OF THE NEURAL MECHANISMS OF THE *QIGONG* STATE BASED ON THE METHOD OF AUDITORY EVOKED RESPONSES

Cui Rongqing and Liu Gulong

(Beijing College of Traditional Chinese Medicine, Beijing, China)

This paper is intended to approach the neural mechanisms of the *qigong* state from three levels: the cortex, the brainstem and the peripheral.

Method: 38 subjects with normal audition (32 male and 6 females), aged 21-50 years, and 2-30 years for *qigong* practice was chosen. Evoked potential was averaged by using an Evoked Response Recorder (model MEB-5100). Middle Latency Response (MLR), Auditory Brainstem Response (ABR), Electrocochleargram (EcochG) and post-auricle potential (PAP) were measured before the *qigong* exercise, then the subject was ordered to enter the *qigong* state. The response was done 10 min. later. Then the subjects were called out and recorded 30 min. after the exercise.

Results: The results showed that there were significant difference between the control period (before the *qigong* exercise) and the *qigong* state in measurements. (1) The waves of the MLR were inhibited, during the *qigong* state, i.e. Wave Po decreased by 31.43%; Na decreased by 72.1% ($P<0.01$); Pa decreased by 54.72% ($P<0.05$). (2) The amplitudes of the ABR, on the other hand, were facilitated except Wave VII was inhibited, i.e. Wave I increased by 63.14% ($P<0.05$); Wave II increased by 71.35% ($P<0.001$); Wave III increased by 67.59% ($P<0.01$); Wave IV increased by 138.42% ($P<0.001$); Wave V increased by 91.93% ($P<0.001$); Wave VI increased by 41.65% but Wave VII decreased by 4.47%. (3) The amplitudes of the EcochG were increased, i.e. Wave SP increased by 51.93% ($P<0.01$); N1 increased by 51.3% ($P<0.001$); N2 increased by 50.7% ($P<0.05$); N3 increased by 110.74% ($P<0.05$). (4) The amplitudes of PAP were increased too, i.e. Wave N1 increased by 43.72% ($P<0.05$); P2 increased by 313.86% ($P<0.001$) and Wave N2 increased by 223.16% ($P<0.01$).

Discussion: The decrease of the amplitudes of MLR showed the activities of the temporal acustice cortex and the nuclei polysensory thalamus were inhibited by the *qigong* state. The brainstem is the center of adjustment of the internal organ activities. The ABR potential change reflected the facilitation from the acustica nerve to the medulla oblongata, midbrain and interbrain, but the part near the acustica cortex was inhibited. This supported MLR

results. The increase of the EcochG explained the excitability increase of the basilar membrane of the cochlear and the increase of N1, N2 and N3 showed the number of the synchronous neuron of the acustic nerve was increased during the *qigong* state. It supported the result of ABR. PAP belongs to the muscular electric response that was evoked by the sound stimuli. Increase of PAB showed the excitability of the facial and the middle ear muscule is increased too during the *qigong* state. It may resulf from the brain stem facilitation because the centers of its reflex arc are situated in the brainstem. To sum up, the results suggest that the cerebral cortex and the hypothalamus were inhibited, while the facilitation occurred from the interbrain to the perpheral nerves and receptors during the *qigong* state. These provide a basis for further expounding the theory that "when the internal organs are active the brain is quiescent" during the *qigong* state.

THE EFFECT OF THE EMITTED *QI* AND INFRASONIC SOUND ON SOMATOSENSORY EVOKED POTENTIAL (SEP) AND SLOW VERTEX RESPONSE (SVR)

Peng Xueyan and Liu Guolong

(Beijing College of Traditional Chinese Medicine, Beijing, China)

Methods:

The *qigong* practitioners who can release their *qi* were tested and the intensity of *qi* was more than 70dB. We also used the instrument which could generate infrasonic (60-90dB). The subjects were recumbent comfortably in sofa in a shield room. SEP and SVR changes before, after and during the course of receiving the emitted *qi* or infrasonic were observed. Equal number of subjects were examined as a contral group. SEP and SVR were recorded with a "Neuropack-II". The SVR recording electrodes (0.6cm in diameter tin discs) were attached to the skin over the vertex and both ears were given click stimuli at a rate of 0.5/sec (duration 0.1 ms). 64 responses were averaged, analysis times of 1000 ms and the frequency response of 0.5-30c/sec were used.

Results:

1. When the healthy subjects received the emitted *qi* the amplitude of most SEP waves decreased obviously ($P<0.01$), but the latency of the waves did not change significantly. The amplitude of N4 increased in some cases. The changes were similar to those in meditation.

2. SVR amplitude in 7 out of 14 healthy cases increased obviously when they received

the emitted *qi* ($P<0.001$). The latency was prolonged ($P<0.05$). The amplitude of another 7 cases decreased and that of one diminished ($P<0.01$). The latency did not change significantly.

3. The SEP changes in 20 infrasonic caused by the infrasonic were different from that caused by the emitted *qi* and meditation. The N1 amplitude decreased ($P<0.01$), and the amplitude of N2 and N3 increased ($P<0.05$) and the latency of each wave did not change much.

4. The infrasonic sound caused the amplitude of SVR waves to decrease in 12 out of 17 cases ($P<0.01$). Another 5 case had no significant change. The results were obviously different from that of the emitted *qi*.

Discussion:

1. The emitted *qi* may change SEP of the healthy subjects. It is suggested that the emitted *qi* may be received by the living body and it may influence the activities of the brain and have some similar effect in meditation. This might provide theories for explaining that the emitted *qi* can regulate the function of the living body.

2. The SVR changes caused by the emitted *qi* reflect the state of different cortical inhibition. This state is generally considered to have a protective effect and to diminish the effect of harmful agents. The phenomena of increased SVR amplitude and prolonged latency were similar to that of II and III phase of sleep, but not entirely the same. They might have similar nervous mechanism.

3. The emitted *qi* and infrasonic sound both have obvious effects on the nervous system, but they vary significantly. We cannot say that the effective component of the emitted *qi* is the infrasonic sound, but we can assume that the infrasonic sound is an important agent in the emitted *qi* or a carrier for other components. The infrasonic effect on the nervous system may cause the hypothalamic neuron circuit synchronize.

INVESTIGATION OF THE BIOLOGICAL EFFECT OF THE EMITTED *QI* OF *QIGONG* WITH FLUORESCENCE PROBES

Wu Rongqing, Li Xiaoming, Chen Ling and Qi Songping

(Beijing College of Traditional Chinese Medicine)

In this paper, the effects of the emitted *qi* of *qigong* on the fluidity of rat liver mitochondrial membrane are investigated with the fluorescence probes ANS, As and NPN.

ANS is considered to be located near the membrane interface region and is a fluorescence probe often used in studies of the glycerol region of the lipid bilayer. As is bound to the medium layer. NPN is lipid soluble and penetrates deeply into the membrane hydrocabon region. Two kinds of *qigong* which are called weak *qigong* and strong *qigong* respectively were done by the *qigong* master in the experiment. Weak *qigong* is nourishing and belongs to the general *qigong* state. Strong *qigong* is penetrations and belongs to a more advanced *qigong* state. In this experiment the changes of fluorescence of the mitochondrial membrane were investigated while the mitochondrial membrane received the emitted *qi* of the two different kinds of *qigong*.

Results and Discussion

1. Effect of emitted *qi* on the fluorescence of ANS-labeled membrane.

The experimental results showed that when the membrane was worked on by the weak *qigong* the fluorescence slightly increased and then decreased, and when worked on by the strong *qigong* the fluorescence decreased more markedly than in the former case. But the changes of fluorescence were not accompanied by a shift of the fluorescent emission maximum. The decrease in fluorescence probably means that under the effect of the emitted *qi* the structure of membrane at the interface region of the lipid bilayer will loose, becoming disordered, and the fluidity of the membrance will increase. The effect of weak *qigong* causes the fluorescence to increase slightly and then decrease which is consistent with the procedure of the emission of *qi* in the weak *qigong* , in which there is first contraction and then release. And the two procedures have the same relaxation time.

2. Effect of the emitted *qi* on the fluorescence of AS-labeled membrane.

The results indicate that the weak *qigong* has no effect on the fluorescence of AS-labeled membrane while the strong *qigong* induces a decrease of the fluorescence. It is possible that because the weak *qigong* emits less energy and has weaker penetrability, it is not strong enough to influence the structure and ordering of the medium layer and induce any change of the fluorescence, while the strong *qigong* emits more energy and has stronger penetrability, it alters the ordering of the medium layer, decrease the fluorescence and increase the fluidity.

3. Effect of the emitted *qi* on the fluorescence of NPN-labeled membrane.

The experimental results indicate that when the duration of the fluorescence is induced by both weak and strong *qigong*, but if the *qigong* master emits strong *qi* for 8 minutes, the decrease of fluorescence, i. e. the alteration of the ordering and the increase of the fluidity of the deep layer, can be observed.

Conclusion

The results indicate that the emitted *qi* can alter the fluidity of biomembrane. The strong *qigong* is more effective than weak *qigong* and a long duration produces a more marked effect than a shorter duration. The emitted *qi* not only alters the ordering of the surface layer but also penetrates into the medium and deep layers. It probably is one of the mechanisms of *qigong* in curing diseases.

AN OBSERVATION OF THE POWER SPECTRUM AND TOPOGRAPHY OF EEG IN THE *QIGONG* STATE

Pan Weixing, Zhang Lufeng, Xia Yang and Xu Aimin

(Beijing College of Traditional Chinese Medicine, Beijing, China)

The aim of the present study is thmrough observing the power spectrum and topography of EEG, to research on the frequeuncy and distribution change of electroencephalogram during the *qigong* state with the help of a computer.

In a well shielded room, 27 practisers (22 men and 5 women) by the average age of 28 years old and with 5 years in the average in *qigong* practice were tested with a rheoencephalograph and a signal processor. Polygram and real time analysis were adopted. 12 recorded electrodes were fixed respectively at points $F_{p1}, F_{P2}, F_7, F_8, T_5, T_6, O_1, O_2, F_z, P_z$ (10 — 70 international system). The reference electrodes were fixed on the two earlobes ($A_1 + A_2$). Hamming window and linear average method were adopted. The number of averaging is 10 times. The total sampling time was 50 seconds. Samples were taken twice before entering the quiescent state. Samples were also taken 20-30 minutes after the *qigong* state at least every five minutes for once. Then 3 samples were taken 5-20 minutes after the practice. The power value was compared with the tested results of the average samples taken before, during and after the practice. Moreover, 12 cases, who were not *qigong* practicers sat quietly with closed eyes, were tested in the same way.

The practicers were divided into two groups according to their psychological characteristics of different ways in entering the *qigong* state. One group was doing *"Yi Shou Gong"* and the other *"Non Yi Shou Gong"*. Experimental results showed that the change of the brain wave during the *qigong* state occured mainly in theta and alpha ranges and there were some differences of changes between the two groups.

In most of the first group, there appeared theta rhythm. In topography of EEG, theta power around the frontal mid-line increased markedly. In the power spectrum graph, theta peak which showed concentration of energy appeared. The peak reached its maximum point at F_z, even higher than the main peak of alpha at the point. The phenomenon could generally continue during the practice and disappeared completely after the practice. It was found by "t test" on the theta power value at

point F_Z, that there was a significant difference between them before and during the practice ($P<0.01$), while no significant difference before and after that ($P>0.1$). The theta power at F_Z point of 13 cases in the second group, however, had no significant difference between that before and during the practice ($P>0.05$), even though the theta power increased a little for a few of them. The control group which did not do *qigong* exercise had no changes in the theta power ($P>0.1$).

It was reported that the appearance of the theta rhythm on the frontal mid-line related to "inner experience", such as "thinking on something in earnest" was the same as that in the first group. The increase of the theta power on the frontal mid-line and good meditation feeling of the *qigong* practices are synchronous. The increase of the theta power, especially appearing of the theta peak, is suggested to be used as an indication of entering the *qigong* state for the first group.

The change of power and topography of alpha are complicated. Both increase and decrease of alpha power can be seen. On the topography, it was found that alpha superiority of 6 cases transferred from the occipital area to the frontal area, 4 cases from the left to the right and that 5 cases showed alpha double peaks during the *qigong* state, because of dissynchronization between $alpha_1$ and $alpha_2$.

THE EFFECT OF DIFFERENT *QIGONG* EXERCISES ON EEG MANIFESTED BY THE COMPUTER ANALYSIS

He Qingnian, Zhang Jianzhou and Li Jingzen

(Beijing Institute of Traditional Chinese Medicine, Beijing, China)

The present study was undertaken to analyze the effects of *qigong* on 12-channel EEG compressed spectral array, EEG brain topographic mappings, the statistical T-test topographic mappings and the correlation coefficient topomappings for different practisers of *qigong*.

Total number of the subjects were 30, among whom 10 were long-term practisers of *qigong* (called *qigong* masters), 10 were short-term practisers (called *qigong* beginners), the other 10 were in the control group without any *qigong* exercise. All the members were in good health, and had no history of neurological disease or head injury.

The method of the study was as follows:

The subjects sat comfortably in chairs in a quiet chamber while EEG recordings were made from silver disc electrodes at the following locations: Fp 1, Fp 2, C 3, C 4, F 7, F 8, T 5 T 6, Fz, Pz and 01, 02. EEGs were recorded on paper, and were simultaneously recorded onto a 21-channel analog-magnetic taperecorder (SONY A-821). EEG signals were recorded for 5 min. prior to, 10 min. during, and 5 min. after the *qigong* exercise.

The EEG was continually monitored in order to minimize the effects of muscle activity, drowsiness, eye blinks on off-line computer processing (SIGNAL PROCESSOR 7T17s). The

computer program involved: (1) initial sampling processing; (2) window and periodogram arithmetic processing; (3) compressed spectral array processing; (4) linear three-dimensional interpolation processing; (5) topographic mapping processing; (6) statistical T-test topographical mapping analysis and (7) correlation cofficient topographical mapping processing.

The spectral analysis was performed on the background of EEG using to FFT for the delta band, the theta band, the alpha 1 band, the alpha 2 band, the beta 1 band and the beta 2 band.

The results showed that the EEGs for *qigong* masters (with over 10 years of experience) during the *qigong* exercise were different from that of the others. In the compressed spectral array, the alpha rhythm originally predominant in the parieto-occipital regions decreased and the relatively unmarked alpha rhythm in the frontal region increased. The T-test topographical maps showed that in alpha 1 topographical map only the T values of the anterior half of the brain were over $T(9) = 2.4536$, therefore, the increase in alpha 1 component in the frontal regions was significant. Moreover, we found that the alpha 1 component gradually increased and alpha 2 component gradually decreased during the *qigong* state. This indicated the slowing of alpha peak frequency during the *qigong* state. In comparison with that of the *qigong* masters, the T-test topographic mapping for the *qigong* beginners showed that the increase in alpha 1 component in the frontal regions was not significant during the *qigong* exercise. There was no change of the alpha rhythm in the contral group (without any *qigong* exercise) who were in the resting state with eyes closed.

Quantitative analysis of EEGs in subjects in the process of *qigong* exercise and in the resting state showed that changes in EEGs during the process of *qigong* exercise were specific, and different from patterns associated with awakening and drowiness, or any state between these two extremes. The EEGs of 10 *qigong* masters in the process of *qigong* exercise were clearly different from those recorded during a resting state with eyes closed. The peak amplitudes of alpha rhythm increased during the *qigong* state in all 10 *qigong* masters and this change was statistically significant, especially in the frontal regions. This result was the same as the result of T-test topographical mapping, which showed that the increase in alpha 1 component in the frontal regions was statistically significant ($P < 0.05$). The change in alpha rhythm in the posterior regions was not significant. Thus, the *qigong* state appears to be a special and unusual state of excitation.

EEG COHERENCE AND TOPOGRAPHY IN SUPERQUIESCENT STATE

Wang Wei (Metrology College of China)

Zhou Bomin and He Zhongji (Zhejiang Unirersity, Zhejiang province, China)

The superquiescent state is a special physiological state. Chinese *qigong*, Indian Yoga and transcendental meditation can all completely free a person from external and internal disturbances, bring about protective inhibition of the activity of the cerebral cortex and make a person enter the superquiescent state.

The quiescence index is an objective measurement of the degree of quiescence. One of the important features of the superquiescent state is the synchronism of EEG in all regions, so we used EEG coherence which reflected the synchronous degree of two signals as one item of the quiescence index, and defined the conherence index as the number of times the coherence peaks above the 0. 95 threshold during a 2. 5min. period EEG topography is an important tool in clinical neurophysiology. In order to study the space apearance of EEG in the superquiescent state, EEG power topography and EEG coherence topography were developed. Two signals in EEG coherence analysis were derived from F3, F4 (International 10-20 system) with Cz used as ground. The derivations were dipolar and referenced to linked Al. In EEG topography recordings from Fp1, Fp2, T3, C3, C4, T4, 01 and 02, the derivations were monopolar and reference to linked Al. EEG signals were digitized on-line to 8 bits at 60 samples per sec per channel. A power spectrum was obtained by Fast Fourier transformed with 128 data points. A cosine slope window was added to decrease spectral leak. Coherence was computed for each 4. 12 esc. epoch of data using the average of 12 overlapping frames of 128 smaples, each increment with 12 samples between frames. The EEG index in power topography analysis was the spectrum of each EEG band (there were 6 bands as well as delta, theta, alpha1, alpha2, betal, beta2), or the total EEG spectrum. In EEG coherence topography the value of the Fp1 derivation was the EEG coherence index between signals from Fp1 and Fp2. The value of other recording derivations were the EEG coherence index between signals from those areas and Fp1. Linear interpolation was used in topography analysis. The value of any point was the EEG index weighted average of the three recording derivations which were closest to that point. The weight factor was inversely proportional to the distance between two points. There were 1960 display units which consisted of a pararound area in topography. A topography map was produced by a printer, with 11 homogeneous grey degrees which were expressed by density of the printed unit. With an APPLE-II microcomputer an

on-line analysis program with 6502 assemble language and BASIC was accomplished.

In our experiment, the EEG of the subjects was individually measured according to these protocol: 5 min. of quite sitting , 30 min. of the *qigong* exercise and 5 min. of quite sitting again. The meditator was asked to close eyes in all processes. Communication to the subject was via an intercom at a low volume. Eight channels of ND-82B polygraph were used for primary amplification and paper chart recording. Before the signals were digitized the polygraph outputs were reamplified by an eight channel amplifier with 6 dB settings at 40.8 Hz.

After 34 experiments, the following was found:

1. The control group (14 males with a mean age of 25): after 30 min. of quiet sitting, the frontal EEG coherence index had no significant increment. The EEG power toporaphy and EEG coherence toporaphy also had no outstanding change. The EEG power was mainly in the occipital region with a dominant frequency in band alpha2.

2. Exercisers with short-term training (12 males, 3 females with a mean age of 44 and the period of practice 2-48 months): After meditating for 5 min. the frontal EEG coherence index showed a little increment though it did not reach the significant level, but there was a marked increment after 30 min. ($P<0.01$) . In the EEG coherence topography, the index value of the frontal and occipital region showed an increment with no notable change in other regions, The EEG power distribution in band alphal had changed, and there was a power shift from the occipital to the frontal lobe.

3. Exercisers with long-term training (5 males with a mean age of 52 and over 48 months of practice): The frontal EEG coherence index increased greatly after meditation ($P<0.005$) . There was no difference in EEG coherence topography before meditating compared with the matched controls. But after beginning to meditate the coherence index increased in all regions. The increase was more obvious in the left hemisphere 10 min. later whereas there was a stead increment with greater amplitude in the right 30 min. later. It indicated that the connection between the two cerebral hemispheres was enhanced in the later period of training. In the EEG power topography, the EEG power rose sharply and the dominant region was shifted from the occipital to the left frontal region and the right temple with a dominant frequency decrement from band alphal to theta.

From the abovementioned analysis, we believe that the following factors must be considered when discussing the quiescence index:

(1) the EEG coherence in all regions; (2) the increment of the EEG spectrum in all regions; (3) the decrement of the dominant frequency; (4) the shift of the dominant EEG region.

AN EXPERIMENTAL STUDY OF FAST WITH *QIGONG* EXERCISES

Huang Guanghua, Shen Xiaojun and Zhou Zhenhe

(Zhejiang Research Institute of Traditional Chinese Medicine, Zhejiang province, China)

Zhang Yongtang

(Hangzhou Railway Inspection Office, Zhejiang province, China)

Fast with *qigong* exercises is a historical health-preserving approach. It refers that the performer does not eat any food in a period of time. In March, 1988, under the strict design we made a scientific experiment on it for 21 days.

The subject of the experiment was Zhang Yongtang, a *qigong* master working at the Hangzhou Railway Inspection Office. He has practised *qigong* for over 20 years. During the period of experiment, he stayed in a hospital and was observed 24 hours a day by the researchers. Every day, he was given nothing except the following liquid: boiled water 700ml, 0.9% NaCl 150ml, 40% honey 100ml.

Physiological data: Physique exam, ECG, EEG, T, R, Hr, Bp, weight, count of consumption and grip strength.

Biochemical data: Blood-cell analysis, immune serum globulin, lymphocyte blastogenesis, serum protein, CHOL, TRIG, CRE, BUN, SGPT, SGOT, AMY, GLU, HBDH, K^+, Na^+, SIgA, ptyalin, urinalysis, stool analysis, xylose absorption, etc.

Results of experiment: (1) During the period of fast, his daily life e.g. teaching, study, walk were under observation. On an average, amount of activity is 2917 Kg-cals every day, and the intake provides only 196.8 Kg-cals a day. AMY and ptyalin were in lower level. However, the biochemical was stable. (2) During the period of fast his body weight was reduced by 9 Kg. According to the change of HBDH in blood and KET in urine, it is considered that the energy of the body came from the stored fat, and in the process of acclerating metabolism of fat, acidosis was not seen. In the later days his CHOL and TRIG became lower gradually. Immediately after fast, they did not come up to the original level. (3) During the period of fast, the level of immune serum globulin was raised markedly, continuing to be on a higher level after the fast. It is considered that fast with *qigong* exercises can improve the immune function, and it has an action of two-way adjustment. (4)The result of test of xylose absorption showed the function of absorption of the small intestine was good. (5) According to the theory of modern medicine the condition of starvation can decrease

synthesis of various kinds of protein, esp. albumin. Our experiment indicated serum protein was at higher level.

Conclusion: (1) Fast with *qigong* exercises does no harm to the body. Druing the period of fast one can have normal activities without feeling hungry. (2) It is certain that fast may make metabolism acclerate without presence of acidosis. So this practice is valuable in decrease of corpulence and blood-fat. (3) Whether there is another way to intake protein it should be studied because the quantity of serum protein was stable.

MOLECULAR BIOLOGICAL EFFECTS OF THE EMITTED *QI* ON MAN

Luo Sen, Chai Shaoai, Yi Weiyuan, Ren Hetian and Cao Baozheng

(Zhejiang Institute of Traditional Chinese Medicine, Zhejiang Academy of Medical Sciences, Zhejian University, Hangzhou, China).

Methods:

1. Blood samples were acted upon by the emitted *qi* from point Laogong (P 8) (cAMP group received 5 minutes of the emitted *qi*, T-lymphocyte group, 2 minutes.) The control group did not receive the emitted *qi*.

2. 10 cases with various chronic diseases and low blood hemoglobin, WBC, platelet count were treated by the emitted *qi*. The right index finger, middle finger and ring finger of the *qigong* performer touched lightly the Cunkou of the receivers (the middle finger was directed to the posterior artery of the wrist).

Results:

1. After acted upon by the emitted *qi*, serum (cAMP) of the blood samples increased. Performer A raised this value by 6.0 pmol/ml than that of the control group. Performer B raised the value by 2.0 pmol/ml. No effect was seen by the action of hard *qigong*. The emitted *qi* can elevate T-lymphocyte count in peripheral blood and its replication rate by 6.9-49.8% ($P < 0.05$). It proves the obvious biological effects of the emitted *qi* on macromolecules.

2. In the 10 cases receiving 16 times of continuous emitted *qi*, hemoglobin, WBC and platelet were obviously changed. The average platelet count rose from 67000/ mm^3 to 82000/ m^3 ($P<0.01$). Average WBC count, from 4493.8/ mm^3 to 5187.5/ mm^3 ($P<0.05$), while blood hemoglobin content tended to be modulated in opposite directions. 10 cases with low hemoglobin before the therapy had an elevation from 9.98% (average value) to 10.44%

($P<0.01$). Another 7 cases receiving simultaneous evaluation proved to have an instant rise in 7 parameters out of 8 (RBC, WBC, HCH, HGB, MCV, MCHC, PLT, MCH) with the exception of MCHC. One hour after receiving of the emitted *qi*, they experienced a continous increase. After the *qi* released, however, there appeared an obvious decrease of these parameters in the *qigong* performer. These proved *qigong* has both instant effect and after effect.

Discussion:

1. By observation on the effects of the emitted *qi* on blood samples and the human body, the emitted *qi* proves to have an effect not only on biological macromolecules (cAMP, DNA replication in lymphocyte), but also on human hemopoietic system in a short time (instant and after effect). The emitted *qi* is transmitted in the form of energy or information.

2. The experiment exemplified the relationship between *qi* and blood in traditional Chinese medical theories, from both molecular and systematic point of view. Not only this provides a modern argument for the theory "blood circulation activated by *qi* flow", "*qi* commanding blood circulation," but also it confirms the medical value of the emitted *qi* when it is applied to human blood samples or the human body.

INFLUENCE OF ELECTRICAL LESION OF THE PERIAQUEDUCTAL GRAY (PAG) ON ANALGESIC EFFECT OF THE EMITTED *QI* IN RATS

Yang Kongshun, Guo Zhongliang and Xu Hong
(Guiyang College of Traditional Chinese Medicine, Guizhou, province, China)
Lin Housheng
(Shanghai *Qigong* Institute, Shanghai, China)
Zhao Bangzu and Zhou Daohong
(Guiyang College of Traditional chinese Medicine, Guizhou province, China)

Our previous work showed that the emitted *qi* had an analgesic effect on rats, which could be partially prevented by naloxone. The aim of the present work is to investigate into the analgesic effect of the emitted *qi* after bilateral lesions of the ventral PAG. By means of K^+ penetrating the tail of rats, the stronger the current the more K^+ penetrated, the current intensity (mA) of the vocalization was taken as an indication of pain threshold. The pain threshold was decided by an average value in series of three times (interval 30 seconds). The *Qigong* performers emitted their *qi* on the head and tail of rats from their Laogong (P 8) and the index finger, with a distance of 10-30 cm for 15 minutes. After the *qi* stopped to emit,

pain threshold was immediately measured, then the measurement was taken every 10 minutes.

The rats were divided into four groups; 1) Control group; 2) Group receiving the emitted *qi*; 3) Group with injection of naloxone and 4) electrical lesion of PAG group. 6 rats were in Group III. 3 mg/kg naloxone was preinjected into the abdominal cavity of rats, then the *qigong* performer emitted his *qi* to the rats for 15 minutes. The change of pain threshold was immediately measured. 48 hours later, the same group of rats were preinjected saline and experiments were done in the same way. 8 rats were anesthetized with phenobarbitalum natrium (30 mg/kg). Under a stereotaxic instrument, the single pole insulated electrode was bilaterally implanted into ventral PAG, according to the rat brain atlas of J. Bures (P6.5 LRO. 0.2-0.5 H6.0-7.0). The parameters of lesion of PAG were as follows; intensity at 3mA, time 30 sec. In 12 rats, electrode was only implanted but no lesion was done. Localization of the lesion region was identified by the Prussian blue reaction. In all of the experimental processes, a double blind method was adopted. The main results were as follows;

1. In Group I ($n=8$), pain threshold was quite stable.

2. Pain threshold obviously elevated after the rats got the emitted *qi* for 15 minutes in 12 rats, the difference was significant as compared with the basic pain threshold of the same group ($P<0.01$ or $P<0.001$).

3. By preinjection of naloxone, pain threshold slightly elevated except 30 minutes after cease of emitting of *qi*. While by preinjection of saline, pain threshold obviously elevated as compared with the basic threshold of the same group, the difference was very significant ($P<0.05$ or $P<0.01$).

4. In 8 rats with destroyed bilateral ventral PAG, pain threshold had no elevation after the emitted *qi* was received. While in the sham lesion group, pain threshold obviously elevated after the emitted *qi* is received ($P<0.001$).

The above results showed that the analgesic effect caused by the emitted *qi* was obviously reduced after bilateral ventral lesions or by injecting of naloxone, indicating that PAG played an important role in emitted *qi* analgesia. It was regarded as a strong evidence for the participation of endogenous opiate in emitted *qi* analgesia. In our experiment, we also found that analgesic effect could be partially blocked by injection of opiate antagonist naloxone, suggesting that analgesic effect of the emitted *qi* was related to other factors. The analgesic mechanism of the emitted *qi* is worth further studying.

ANALGESIC EFFECT OF THE EMITTED *QI* ON WHITE RATS

Yang Kongshun, Xu Hong, Guo Zhongliang Zhao Bangzu and Li Zhaohuei

(Guiyang College of Traditional Chinese Medicine, Guizhou province, China.)

Qigong exercise has been regarded for a long time as one of the effective methods in preventing, treating diseases and prolonging life. The emitted *qi* is thought a special energy flow from a well-trained *qigong* master. Recently the emitted *qi* has been used to treat patients with satisfactory results. Particularly, it has better analgesic effect on pains. Previous investigations were only performed on the human body. But the analgesic mechanism and whether psychological factors are involved are still unknown. The present study was undertaken to determine the analgesic effect of the emitted *qi* on white rats and investigate its analgesic mechanism.

In the experiment K^+ was penetrated into the tails, causing nocuous stimulation, the stronger the electric current the more K^+ pentrated. The maximal current intensity (MA) was decided at the moment the rat cried owing to pain and it was taken as an indication of the pain threshold. The pain threshold was determined by the average value of three tests in series with an interval of 30 seconds. Then the *qigong* master emitted his *qi* for 15 minutes to the head and tail of the rat from point Laogong (P 8) and the tip of the index and middle fingers. His hand was at a distance of 10-30cm from the rat. As soon as he stopped emitting his *qi*, the pain threshold was measured, then the measurment was repeated every 10 minutes.

The subjects of this study were divided into four groups: (1) Control group (not any emitted *qi* received); (2) Experimental Group I and Group II (receiving the emitted *qi* from two independent *qigong* masters; (3) Simulated group (an untrained layman doing simulated test); (4) Naloxone injected group.

The results are as follows: In the control group ($n=12$) the pain threshold was quite stable and the difference was not significant as compared with the basic pain threshold ($P>0.05$). In Experimental Group I ($n=15$) and ($n=16$), the pain threshold obviously elevated. The difference was significant as compared separately with the basic pain threshold ($P<0.01$ or $P<0.001$). The peak of the elevated pain threshold was at the 30th or 40th minute after stopping of *qi* emitting. Both experimental groups showed a lasting after effect for a few hours. In the simulated group ($n=6$), no change of the pain threshold ($P>0.05$) was seen. In order to investigate the analgesic mechanism of the emitted *qi*, naloxone (0.2mg/kg) was injected into the tail vein of 5 rats after their pain threshold was obviously elevated by the emitted *qi*. It was found that the pain threshold distinctly reduced as compared with the period when naloxone has not been administered.

The above results showed that the emitted *qi* has analgesic effect on rats without any psychological interaction. This effect may be related to the action of endogenous morphine. The emitted *qi* may promote synthesis and release endogenous morphine. In this study we also found that naloxone could only partially block the analgesic effect of the emitted *qi*. It suggests that the analgesic effect of the emitted *qi* may be related to other substances, which remain to be solved.

A PRELIMINARY OBSERVATION OF THE INHIBITORY EFFECT OF THE EMITTED *QI* ON TRANSPLANTED TUMORS IN MICE

Zhao Shan, Mao Xiaoyun, Zhao Bangzhu, Li Zhaohui and Zhou Daohung

(Guiyang College of Traditional Chinese Medicine Guizhu province, China)

There experiments were made to observe the inhibitory effect of the emitted *qi* from different *qigong* doctors on transplanted malignant tumors in mice.

Experiment 1 was designed for the purpose of observing the effect of the emitted *qi* in diminishing ascitic cancer (EAC) cells in lab beakers.

Ascitic fluid was aspirated from mice which had been transplanted with ascitic cancer (EAC) for 7 days. After being diluted with normal saline to a concentration of 188×10^5 cells/ml. the fluid was divided into two equal portions kept under the same condition. One of the portions was treated with the emitted *qi* for an hour, and the other portion remained untreated for control. Sample fluid was taken from both portions 1 hour (that is, immediately after the treatment with the emitted *qi*), 12 hours and 24 hours later and stained with trypan blue so as to count the surviving cells. The same experiment was done four times. The results showed that the average number of the surviving cells in the control portion was greater than that in the experimental portion each time. The number of cancer cells in the experimental portion sharply decreased during the hour when the emitted *qi* was exercised onto the fluid, the diminishing rate being 20%, 6.6 times as high as that in the control portion ($P < 0.01$). The reduction peak appeared in 1-12 hours, occurring much earlier than that in the control portion which appeared in 12-24 hours. This experiment suggests that the emitted *qi* may directly eliminate cancer cells, thus accelerating the cancer-cell-diminishing process in conditions outside the animal body. After the period of *qi* emission, the rate of cancer cell diminution of both the experimental group and the control group tended to be in comformity with each other.

Experiment 2 was designed for the purpose of observing the effect of the emitted *qi* in inhibiting ascitic cancer (EAC) cells in the mouse body.

20 mice (all male, weighing 18-22g) were randomly separated into 4 groups of 5 each. Three of the groups were used for experiment, the remaining one group for control. All the mice were injected with ascitic cancer (EAC) fluid (concentration: 27×10^6 cells/ml; dosage: 0.1ml/10g body weight). The experimental groups were respectively treated with the emitted *qi* produced by three *qigong* doctors for 7 days, once 2 day, 20 minutes a time for groups 1 and 2, and 10 minutes a time for group 3.

The mice were killed on the 14th day, and the ascitic fluid of each mouse was collected and stained with trypan blue. By measuring the amount of the fluid and counting the number of cancer cells, it was observed that the fluid volume of experimental groups was smaller than that of the control group, (the average value of diminution of each group was as follows respectively: 1.68 ml, 2.8ml, and 1.44ml.) and the cancer cell number (concentration x fluid volume) of Group 1 and Group 2 was both less (the average value of diminution of Group 1 being 1612.2×10^5 and that of Group, being 2639.96×10^5) than that of the control group, displaying a notable distinction ($P<0.01$); the cell number of Group 3 was also less though no statistical difference was evident. The result indicates that all *qigong* doctors' emitted *qi* can inhibit EAC cancer cells when powerful enough to be effective, no matter whether the *qigong* exercise is of the same or not.

Hb, RBC and WBC of the blood were also examined. It was proved that the amount of Hb and number of RBC in the experimental groups were both slightly greater than those of the control group, though this was of no statistic significance, and that the average WBC count of Groups 1 and 2 and 3 was obviously higher than that of the control group, being respectively 4.2, 3.9 and 1.9 times of Group 4 (the control group). This suggests that the emitted *qi* may have the effect of reinforcing the immunity of mice.

Experiment 3 was designed for the purpose of observing the inhibiting effect of the emitted *qi* on S_{180} sarcoma in mice.

Suspension of S_{180} sarcoma cells diluted with normal saline (1 : 3) was injected hypodermically at the armpits of 19 mice (dosage: 0.1 ml. 10g body weight), which were then randomly divided into two groups (7 in one group for experiment and 12 in the other for control). The smaller group was treated with the emitted *qi* for 10 days, once a day, 20 minutes a time. On the 14th day all the mice were killed and the tumors were removed and weighed with an analytic balance. It was revealed that the average weight of the tumors taken from the mice of the treated group was 901.8mg while that of the untreated group was

1719.2 mg, presenting a difference of 817.4mg ($P<0.05$).

These experiments proved that the emitted *qi* generated by different *qigong* doctors, had the effect of inhibiting transplanted malignant tumors in mice, and this effect might be partly due to direct elimination of the cancer cells and partly due to reinforcement of the immunity of the animal.

AN OBSERVATION OF IN VITRO EFFECT OF THE EMITTED *QI* ON HUMAN PERIPHERAL BLOOD LYMPHOCYTES

Ye Ming, Shen Jiaqi, Yang Yuanjin

Fan Juefen, Liu Guizheng and Wu Xiaohong

(*Qigong* Institute, Shanghai Academy of Traditional Chinese Medicine, Shanghai, China.)

We have studied the in vitro effect of the emitted *qi* on human peripheral blood lymphocytes. *Qigong* master, *qigong* exercisers and non-*qigong* exercisers were tested for their potential of the emitted *qi* on the function and surface markers of the lymphocytes. The participants were told to act as if they were thinking of "nourishing" or "killing" the cells. Specimens which were not treated by the emitted *qi* were tested as the controls, and the percentages of lymphoblast transforming cells, total E rosette forming cells (Et • RFC), active E rosette forming cells (Ea • RFC) and the polylayer Et • RFC and Ea • RFC were used as indicators. A total of 10 experiments, 50 indicators per group, were performed.

The results showed that the *qi* emitted by *qigong* exercisers caused significant changes of the function or surface markers of the lymphocytes, which were 41/50 (82%) and 35/50 (70%) respectively ($P<0.05$), and the coincident rate of thinking of "nourishing" or "killing"in these two groups were 34/50 (68%) and 22/50 (44%) respectively ($P<0.01$). The *qi* emitted from the non-*qigong* exercisers caused little change of the above indicators, the rate being 2/50 (4%). There was a significant difference between this group and the master's group or the *qigong* exercisers' group ($P<0.001$).

In the aspect of thinking, the coincident rate of the "killing" group was higher than the "nourishing" group ($P<0.01$). And the Ea • RFC and polylayer Ea • RFC were the most sensitive indicators toward the effect of the "emitted *qigong*".

LOW-DIMENSIONAL CHAOS IN PRACTISING *QIGONG*

Yagu Lin, Jijun Gao and Huo Lu

(Shanghai Qigong Research Institute, Shanghai, China)

Electroencephalographic techniques (EEG) have been widely used in medical diagnosis, psychophysiological investigation and studies on the characteristics of the functional state of physiological activities, etc. This electrical information of the brain activity may be analyzed in various ways in order to obtain some clues regarding the effects of the brain functions. Although the effects of EEG in the course of practising *qigong* were reported long ago, it was not until recently that Kaczmark, I. K. (1977), Nicolis, G. (1985), and Skarda, C. A. and Freeman, W. J. (1987), Xu Jinghua and Xu Nan (1987) reported the systematic complexity and chaos of the brain electrical signals by the analytics of dimensionality in studies of the chaotic dynamics of the biological system. They provided a new method for the study of time series in such fields as human brain activity. But there are few reports dealing with studies of the brain electrical signals during the *qigong* functional state by this method.

In this paper, we used this method to analyze the change of attractor dimensionality d values of the brain electrical activity by means of ordinary EEG recording at O1A1 and O2A2 from a person who had 6 months of experience in *Nei-yang Gong* exercises. Each of the brain electrical signals was recorded ten minutes in the durations before, during and after the exercises, which represents the electrical activity of the two hemispheres. After amplification, these signals were sent into a tape recorder (LJ-401), and a microcomputer was used for a random two-second sampling of each set of brain electrical signals. The samples were calculated by the micro-computer for the dimensionality d. The results are: Low-dimensionality d values were presented in the durations before, during and after *qigong* exercises. Before exercises: $d=1.8$; during and after the exercises: $d=2.1$. But there was a raised d value to 3.6 on the left hemishphere as the person was right-handed. According to the reports, in a healthy and quiet person, the d value is about 4.0 or slightly higher. The d value during and after *qigong* exercises indicates that the after-effect can also be reflected in the dimensionality. These results show that *qigong* exercises can change the characteristics of brain activity, causing a lower complexity under conscious conditions, increase the orderliness and decrease the randomness. They may explain *qigong*'s effect of "warding off distraction thoughts or evils" and may play a leading role in all the functions of *qigong* which affect the person who practises the exercise.

Besides, the existence of the fractional attractor in EEG signals shows that the brain as a dynamic system has a high sensibitity to the initial conditions. Here, the initial conditions are the functional state of the neurons of the brain. It must be pointed out that in practising *qigong*, the function of thought in the mind relative to the extensive excitation of brain activity is only a slight change in the initial condition. Then how do the changes of the initial condition influence these physiological or phathological functions which have more significant reactions? We believe that the key to the settlement of the question lies in studying the mechanisms of *qigong's* curative functions in the initial conditional sensitivity. Therefore, the *qigong* functional state as a specific integrated physiological state will fully bring out the latent capacity of the brain activity.

ANTITUMOR METASTASES ACTIVITY OF THE EMITTED *QI* IN TUMOR-BEARING MICE

Cao Xuetao, Ye Tianxing and Gao Yetao

(Dept. of Microbiol. & Immunol. and Changhai Hospitial,
Second Military Medical College, Shanghai, China)

The effect of the emitted *qi* preventing tumor metastased in vivo in tumor-bearing mice is reported in this paper. The experiment was conducted with the help of the famous *qigong* master Hu Jiefu who emitted his *qi* to C57BL/6 mice inoculated with 2×10^5 B16 melanoma tumor cells via the tail veins. On days 3, 5, 7, 9 after the tumor cell inoculation, the mice received the emitted *qi* for 30 min. each time. On day 13, the lungs were harvested and the number of metastatic tumor nodules on the lung surface were counted. The another group of mice were observed for length of survival. Some mice inoculated sc with 1×10^5 B16 tumor cells were treated with the emitted *qi* as above and the growth of tumor were determined by measuring the size in perpendicular diameters. The results showed that the emitted *qi* strongly prevents tumor metastases in vivo. It markedly decreased the number of B16 melanoma pulmonary metastases nodules in the experiment group (40.8 ± 11.93) as compared with the control group (87.4 ± 15.53), the difference being very significant ($P < 0.01$). The survival period of the experiment mice (31.4 ± 5.27 days) was much longer than that of the control group (21.4 ± 2.70 days) ($P < 0.01$). These results showed that the emitted *qi* has the ability to prevent tumor metastases in vivo in experimental tumor-bearing mice. It can also inhibit intradermal tumor growth. Its mechanisms of enhancing the immune function

against tumors will be reported in the next paper.

THE EFFECT OF THE EMITTED *QI* IN ENHANCING THE INDUCTION IN VITRO OF LYMPHOKINES IN RELATION TO ANTITUMOR MECHANISMS

Cao Xuetao, Ye Tianxing, Gao Yetao

(The Second Military Medical College, Shanghai, China)

The effect of the emitted *qi* in enhancing induction in vitro of lymphokines including Interleukin-2 (IL-2), Interferon-gamme (IFN-r) and Lymphotoxin (LT) from spleen cells of C57BL/6 mice have been studied in this experiment. The mice of the experimental group received *qi* emitted by the *qigong* master Ru Jiefu for 30 min. each time on days 1, 3, 5, 7. On day 10 the mice were killed and spleen cell suspensions were made (5×10^6/ml) in several parallel portions for inducing lymphokines. The 1st portion of the cell suspensions was incubated with 10 ug/ml Con A in 37°C, 5% Co_2 for 24 hrs. and then the supernatants were taken for titration of IL-2 with IL-2-dependent cell line (CTLL-2) by the method of determination of $_3$H-TdR incorporation. The 2nd portion of the cell suspensions were incubated with the same amount of Con A as above for 72 hrs. and the supernatants were taken for titration of IFN-r with the method of cytopathic effect inhibition assay. The 3rd portion of the cell suspensions, by adding 10u/ml PHA-P, were incubated as above for 48 hrs. and then the supernatants were taken and the LT activity was calculated through determining the OD_{570nm} of target cells L_{929}. The results showed that: (1) The activity of IL-2 in the control group was 74.5 ± 22.34u/ml, which was much lower than that of the experimental group (125.6 ± 32.45u/ml). The difference between them is very significant ($P<0.01$). (2) The titer of IFN-r of the experimental group was 460.0 ± 257.41u/ml, which was much higher than that of the control group (166.4 ± 61.82u/ml). The difference is also very significant ($P<0.01$). (3) The LT activity was also enhanced in the experimental group (74.19 ± 16.80u/ml) as compared with that in the control group ($61.07<6.22$u/ml). The difference is significant ($P<0.05$). These results demonstrated that the emitted *qi* has the ability to enhance the induction of lymphokines with an anti-tumor function, including IL-2, IFN-r, and LT, which indicates that the emitted *qi's* action against tumors probably through the enhancement of an anti-tumor immune function. Further studies are under way.

AN OBSERVATION OF T-LYMPMOCYTES BY ANAE STAINING IN THE CLINICAL APPLICATION OF *QIGONG*

Xu Hefen, Wang Guomin, Xue Huining and Zhang Chengming

(Jiangsu Provincial Institute of Traditional Chinese Medicine, Jiangsu province, China)

Wang Junmei and Qi Yueqin

(Jiangsu Provincial Hospital of Traditional Chinese Medicine, Jiangsu province, China)

Malignant tumor is known as one of the common diseases, and by statistics, the patients who died of such disease are as many as 800 thousand every year, averaging one patient per 4 min. Therefore we should pay close attention to the prevention and treatment of it. In general, we have treated such patients with comprehensive treatment in order to prolong their survival periods. In recent years *qigong* has been used as an important integral part in the comprehensive treatment for malignant tumors, and its mechanism has been explored and discussed by observing the immunological function — the determination of T-lymphocytes by acid α-naphthyl acetate esterase staining (ANAE for short), of which the following is a report.

1. Subjects observed:

272 persons were observed in total, including 72 healthy persons who practised the *qigong* exercise (the 1st group), 50 healthy persons (the 2nd group), 50 persons specializing in keeping bees (the 3rd group), 50 patients suffering from malignant tumors and practising the *qigong* exercise (the 4th group) and 50 patients with malignant tumors who did not practise any *qigong* exercise (the 5th group). All the malignant tumors had been identified and diagnosed by pathological biopsy.

2. Methods:

Blood smears were made of blood from their fingers or ear lobes. After being dried, they were put into a kind of solution for 20-30 sec. for fixation. Then they were taken out, rinsed with distilled water and dried. They were put into a kind of incubative soolution for 2 hrs. Then the precipitate was rinsed with the fountain water, dried in frozen condition and re-stained with methyl green for 1-1.5 min.. Lastly, the smears were observed under the oil-immersion microscope and 200 lymphocytes should be counted. Of them those having dark red minute particles were T-lymphocytes, while those not having such particles were B-lymphocytes.

Material:

Fixing solution: Na_2HPO_4 20 mg

$KH2PO_4$ 100mg

H_2O 30ml

Acetone 45 ml

40% Formaline 25 ml PH 6.6

Incubative solution:

(1) Parafuchsin solution: 2g of parafuchsin mixed with 50 ml of 2N Hcl, reserved in a refrigerator of 4°C.

(2) 4% $NaNo_2$ solution: 0.4g of $NaNO_2$ dissolved in 10 ml of distilled water (to be made up when it is to be used).

(3) Drip 3 ml of 4% $NaNO_2$ solution slowly into 3 ml of parafuchsin solution, let them mixed fully and set the mixture aside for one minute, to be made up at the last moment).

(4) 2% α-naphthyl-acetate solution: 2g of α-naphthyl acetate dissolved in 100 ml of methyl glycol, stored in a refrigerator of 4°C and kept in a dark place.

(5) M/15 PH 7.6 phosphoric acid buffer solution:

Solution A: 100 ml containing 9.08g of KH_2PO_4 and water.

Solution B: 100 ml containing 9.47g of NA_2HPO_4 and water.

Mix 13 ml of solution A with 87 ml of solution B when they are to be used.

(6)Make up the incubative solution when it is to be used.

Mix fully 89 ml of M/15 PH 7.6 phosphoric acid buffer solution and 6 ml of parafuchsin-$NaNO_2$ solution. Drip slowly 2.5 ml of 2% α-naphthyl-acetate solution into the above solution to make a perfect mixture with PH 5.6-6.4.

Methyl green staining solution: 0.5g of methyl green dissolved in 50 ml of distilled water, assisted by heating.

3. Result and Discussion:

The value of $X \pm SD$ of ANAE determination of the 1st group was $74.9 \pm 11.61\%$, while that of the 2nd group was $65.60 \pm 8.9\%$. By comparison, the difference was significant ($P<0.01$). The value $X \pm SD$ of the 4th group was $69.2 \pm 12.77\%$, while that of the 5th group was $42.82 \pm 7.09\%$. By comparison, the difference was significant ($P<0.01$). And the value of ANAE of the 3rd group was $76.87 \pm 11.06\%$. From this observation, we could find that the mean value of the 3rd group was obviously higher than that of the 2nd group or the 5th group.

The results mentioned above showed that the value of ANAE of these persons who had

practised the *qigong* exercise or who specialized in keeping bees was obviously higher than that of the healthy or those patients who did not practise the *qigong* exercise. Besides, the value of ANAE of the cancer patients who practised the *qigong* exercise was much higher than that of those cancer patients who did not practised the *qigong* exercise.

The results of observation suggest that the *qigong* exercise may enhance and promote human immunological function, resulting in strengthening the defensive resistance and recovering from such diseases as malignant tumors. Therefore it is suggested that we should continue to carry out systematic and intensive research on the relationship between the *qigong* exercise and the immunological function of the human body, with which we can further elucidate and make the mechanism of treatment of malignant tumors by means of the *qigong* exercise understood.

AN EXPERIMENTAL RESEARCH ON THE RELATIONSHIP BETWEEN *QIGONG* AND CHOLERESIS

Wang Jia Lin (Yunnan Anthropotomy Research Institute, Yunnan province, China)

In 1979 I started to do research on the relationship between *qigong* and choleresis. The first experiment was done on myself. Later, there were 5 subjects altogether. The experimental conditions were cholecystectomy and implantation of a T tube to drain bile out of the body for observation. In the course of the experiment, the subject went on a diet and respitation was controlled to ensure even movement of the diaphram. Various factors (total bilirubin and total cholesterol) were observed together systematically during the inner consciousness action process of *qigong*. The grades of quality of the inner consciousness action process are "good", "common" and "weak" according to the condition of the tested subjects.

We have found in our experimental research:

1. The inner consciousness action process of *qigong* can markedly affect the secreted amount of hepatic bile. Changes in the secreted amount of hepatic bile during the *qigong* state has a close relationship with the quality of the inner consciousness action process. In subjects experienced in *qigong*, the amount increased 2. 5-3. 8 times as compared with that during the resting state before and after practising *qigong*; during weak inner consciousness action process (4 persons practised *qigong* only for 3-12 months) ——13. 5-96. 97%. In two of the tested subjects the amount varied with the quality of the inner consciousness action processs during

the *qigong* state in different experiments. When the process was good, the amount of secretion increased by 69.7% and 28.2% respectively; when the process was common, the amount increased by 24.0% and 20.0% respectively; and when the process was weak, the amount increased by 11.0% and 11.7%. During the whole process of each experiment in each tested subject, the quality of the inner consciousness action process was unstable, i, e. the good, common and weak states appeared alternately. It was a dynamic changing process, in which the amount of secretion increased or decreased with the changes in the quality of the process.

2. The inner consciousness action process can significantly affect the biochemical constituents of the secreted bile, such as total bilirubin and total cholesterol. In two patients with weak inner consciousness action process (they practised *qigong* for 3 months), the total bilirubin increased by 18.32% and 18.09% respectively as compared with that during the resting state before and after practising *qigong*, and the total cholesterol increased by 10.9% and 7.68% respectively. As the inner consciousness action process is a dynamically changeable one, i. e. the good, common and weak states appear alternately, the biochemical constituents of the bile (total bilirubin and total cholesterol) increase or decrease with the changes in the quality of the process.

3. The inner consciousness action process has a great effect on blood pressure. The effect changes according to the locations where the inner consciousness action process takes place. The results obtained from a tested *qigong* master showed that before and after practising *qigong*, the mean B. P. was 138.9 / 90.6 mm Hg, whereas when the inner consciousness action process took place at the navel Dantian, the mean B. P. was 124.0 / 83.8 mm Hg, at Yongquan (K 1) 121.5/81. 3mm Hg, and at Baihui (Du 20) 167.2/126.6 mm Hg.

I know from these experimental results that:

(1) The conscious process in which the "involuntary activities" of the human body change apparently during the *qigong* state is an objectively existing process.

(2) Supposing the indices of involuntary functional activity in the *qigong* state and in the resting state before the exercise are equal to g (t) and g_0, then the change of the involuntary functional activity during the inner consciousness action process is as follows:

$\triangle g(t) = g(t) - g$

(3) When the inner consciousness action process takes place at different locations and is produced by different gestures, styles and contents, it has different effects on the involuntary functional activities.

(4) The degree of change in involuntary functional activity $\triangle g(t)$ depends mainly on the quality and strength of the inner consciousness action process.

(5) The inner consciousness action process is a basic prerequisite for the production and development of the *qigong* state.

A PRIMARY OBSERVATION ON MICROCIRCULATION OF NAIL FOLD AND IMMUNOGENICITY AFTER *QIGONG* PRACTICE FOR SHORT PERIOD

Hong Shunhua, Tao Chun, Han Liantang et al.

(Weifang Medical College, Shandong province, China)

Many facts have proved that *qigong* is helpful to the health of the people, but the mechanism has not been studied in detail. We tried to compare the changes of immunogenicity and microcirculation of nail fold in 38 persons who did *qigong* exercise before and after twenty days to research the effect of it. The 38 persons we selected were the students of *Chanmi Gong* class. There were 16 persons who had practised various *qigong* exercises, the others had not done any *qigong* exercise ever. The youngest was 18 years old and the oldest was 71 years by age. Most of them were healthy, but there were patients with hypertension, coronary heart diseases and diabetes. We used a WX-253 type microcirculating microscope made in China to examine the microcirculation of nail fold of the persons who did the *qigong* exercise twenty days before and after. At the same time, we took the vein blood of each one, with 1640 medium for lymphocyte cell culturing, (37°C, culturing for 48 hours), using ^{3}H-TdR uptake of lymphocyte transformation essay, using the serum with seroprotein eletrophoresis on cellulose acetate sheet and ATAGO optic densitometer scanning to determine the ratio of serum albumin and $\alpha 1$, $\alpha 2$, β, γ globulin. Since there were less in cases and difference in ages or health conditions, so above indexes were compared with before and after the *qigong* exercise by self-control, then statistical analysis by an Apple II computer was done.

The results of our studies are as follows:

1. Microcirculation of nail fold: The mean of the abnormal tubes of the group who did not do the *qigong* exercise ever decreased in number after the exercise for twenty days. There was significant difference ($\overline{X} \pm$SD : $2.55 \pm 1.68$and 1.68 ± 1.17; $t=2.84$, $P<0.01$). It can be considered that *qigong* can improve the microcirculation of the body. The mean of the abnormal tubes of the group who had done *qigong* ever also decreased in number after the exercise for the same duration ($\overline{X} \pm$SD: 2.88 ± 1.78 and 2.31 ± 1.4). (But $t=1.5$, $P>0.05$) It had no significant difference. However, there was no marked difference in the

length of the tubes and the numbers of tubes.

2. Lymphocyte transformation test: There was high difference before and after the *qigong* exercise in the two groups ($P<0.01$), when we did not lead with PHA. It may be thought that *qigong* could effect the level of basic proliferation of lymphocyte. When we led them with PHA, there was significant difference in the group who had done exercise ($t=2.31$, $P<0.05$). The other group's lymphocyte transformation level increased too, but it had no significance by statistical treatment ($P>0.05$).

3. Serum with seroprotein electrophoresis on cellulose acetate sheet: The ratio of the percentage of immunoglobins of the two groups were increased after the *qigong* exercise for twenty days, there was significant difference ($\overline{X} \pm SD$: $36.29 \pm 5.0\%$ and $48.03 \pm 7.53\%$. $t=6.02$, $P<0.01$). It can be considered that *qigong* can raise the immunogenicity of the body.

Through our studies we have observed that *qigong* can prevent and cure diseases, one of the mechanism is that *qigong* can improve the microcirculation and elevate the immunogenicity of the body. Especially it is suitable for preventing and curing common diseases of the aged, such as cardiovascular diseases and cerebral vascular diseases.

CHANGES OF BLOOD VISCOSITY AND RCG IN 44 CASES WITH CARDIOVASCULAR DISEASES AFTER THE *QIGONG* EXERCISE

Chu Weizong et al

(Shanghai Qigong Institute, Shanghai, China)

1. Material and method:

Fourty-four patients of about 60 years old (30 males and 14 females) with hypertension, ischemic heart disease or cardio insufficiency, etc. were divided into 2 groups to undergo the *qigong* training. The *qigong* exercise used was a combination of quiescent and dynamic forms. The traning lasted 4-6 months.

The BJ values were computerized from 8 items by blood rheological examinations: whole blood viscosity, hematocrit, cellular electrophoresis, sedimentation rate and its k value, plasma viscosity and reduction viscosity. The blood viscosity was considered normal when the BJ value was 50 and abnormal if the value reached 51–70, and "warning" as it exceeded 71.

In addition, we examined the rheocardiogram (RCG) in 39 cases, including SV, Co and CI.

2. Results and discussion:

(1) BJ value: In the 1st group among 27 cases the mean BJ value was 69.41 ± 26.85

before the training, and 54.25 ± 26.8 after the training. The decrease was statistically significant ($P<0.02$), though the value remained in the abnormal range. In 12 cases of hypertension the Bp dropped from 141.5/84.7mmHg to 127.3/75.3mmHg when they had gone through the course of *qigong* training, in the meantime the blood viscosity decreased and the symptoms relieved.

The 2nd group included 17 cases. After the training the BJ values decreased from 66.2 ±22.8 to 62.8±23.9, although there was no significance in statistics, but in the control group (9 cases) its BJ values increased from 40.59±25.4 to 59.7±24.6 ($P<0.05$), the difference between them was found to be very significant on the X^2 test ($P<0.025$).

On the other hand, for some patients who did not do the exercise well, the results were negative.

(2) The changes of impedance rheogram: 39 cases were examined with RCG, it was found each index of RCG was increased; SV: from 85.02ml to 112.8ml, CO: from 5.89L to 7.69L, CI: from 3.48 to 4.58. These changes were much significant after statistical treatment (the t test) ($P<0.001$).

According to Liang Zijun et al, the blood viscosity is high in most cases of blood stasis and is lowered after the treatment with Chinese medicinal herbs to promote blood circulation and remove blood stasis. The *qigong* exercise, a non-medication treatment may act to promote blood circulation and remove blood stasis, and possibly, the cerebral cortex and neurohumoral factors may play a key role in its mechanism.

A PRELIMINARY STUDY OF THE RELATIONSHIP BETWEEN *QIGONG* AND ENERGY METABOLISM— THE CHANGES OF THE BLOOD ATP CONTENT IN *QIGONG* MASTERS IN THE *QIGONG* STATE

Wang Zhengchang, Huang Jian and Wu Zijuan

, (Shanghai ***Qigong*** **Institute, Shanghai, China)**

Recently it has been reported that the emitted *qi* by *qigong* masters may have material foundation and the internal *qi* cultivation can promote health. In this paper, the relationship between *qigong* and energy metabolism was studied. The ATP content was measured with 20 μl blood drawn from the ring finger of the *qigong* masters before and after the *qigong* exercise, and at rest by the method of bioluminescence assay. The instrument (FG--30 Type Luminescence Meter) and the chief reagent (luciferase--luciferin) were produced by Shanghai

Plant Physiology Institute.

The experiments were conducted in three groups.

1. The experimental group: The blood was drawn from a *qigong* master's ring finger after he had taken a short rest before he exercised *qigong* and entered the *qigong* state. If he could emit *qi*, he would do it for 5-10 minutes. If he exercised internal *qi* cultivation, he would do it for half an hour. After the *qigong* exercise the blood was drawn again. After rest for half an hour the blood was drawn once more. 2. The control group: The above procedure was repeated on the second day but the *qigong* masters did not exercise *qigong*. 3. The healthy group: Healthy persons did as the *qigong* master did in the same time.

The results are as follow:

In 10 healthy persons the blood ATP contents were constant during the experiment. In 9 *qigong* masters in the control group the blood ATP contents did not change markedly. The blood ATP contents in 11 *qigong* masters after emitting their *qi* decreased markedly (the mean decrease by 1.31×10^{-4} M) compared with that of the healthy group ($P<0.01$). The blood ATP contents in 16 *qigong* masters after cultivating the internal *qi* increased markedly (the mean increase by 0.54×10^{-4}M) compared with that of the healthy and the control group ($P<0.05$). The blood ATP contents in both groups of *qigong* masters were recovered after rest. 5. *Qigong* masters were observed continually. First, they exercised *qigong*, cultivating the internal *qi*, then they emitted their *qi*. The blood ATP contents changed as above.

Typical cases:

1. *Qigong* Master Lin, Male, 46 years old, having exercised "*Shaolin Neigong*" for more than 30 years, is able to treat or anaesthetize patients with his emitted *qi*. Gu Hansen who worked in the Atomic Nucleus Institute of the Chinese Academy of Science confirmed that the emitted *qi* by Lin is "infrared wave with slow modulation." The blood ATP content was 7.5×10^{-4}M 5.9×10^{-4}M and 7.3×10^{-4} M respectively before and after the *qigong* exercise and after rest.

2. *Qigong* Master Chai, Male, 49 years old, having exercised "Three Way Relaxation *Qigong*" for more than 20 years. His blood ATP content was 5.9×10^{-4} M, 5.6×10^{-4}M and 7.1×10^{-4} M respectively before and after the *qigong* exercise and after rest.

The results were discussed. The emitted *qi* may have the material foundation because the blood ATP contents decreased after the *qi* emitted. It promotes anabolism and increases cAMP level during the internal *qi* cultivation so that health may be improved.

Lastly, three main factors which affected these results were discussed.

1. The changes of the blood ATP content after the *qigong* exercise and after rest varied

with the pattern of exercise and his on condition.

2. The duration of *qigong* practice influenced the changes of the blood ATP content.

3. The *qigong* masters could hardly entered the completely normal state in the experiment.

AN EXPERIMENT OF THE EMITTED *QI* ON ANIMALS

Liu Tehfu, Wan Minsheng and Lu Oulun

(Shanghai Medical University-II, Shanghai, China)

To prove if the emitted *qi* has an effect on destroying sarcoma cells completely, we invited, in June 1986, four *qigong* masters who all had the experience for treating some chronic diseases with their emitted *qi*. They emitted their *qi* for 5 times in the experiment and one of them repeated his test twice.

The animals used as the subjects of experiment were 60 BABL/C thoroughbread.

The experiment began firstly with the sarcoma S180 tissue embeded under the skin of the right axilla of the mice. In 10 days' time, the sarcoma grew into 1 cm^3 in size. Then it was extirpated and broken into pieces for transplanting under the same region of the mice used in experiment. On the 4th day after the sarcoma were planted, hemoporphyrin 0.4-0.5 ml. (10mg/kgm body weight) was injected into the peritoneum of 30 mice. Another 30 mice (the control group) were injected normal saline of the same dosage (hereafter simply called "blood" and "water").

24 hours after the injection, the *qigong* masters began to emit their *qi*. The room temeprature was 20°C — 22°C. Every *qigong* master emitted his *qi* to 6 mice, including 3 (blood) and 3 (water). The mice in the control group were also 3 (blood) and 3 (water).

During the experiment the *qigong* group mice were placed on the operating table with the sarcoma region exposed. They received the emitted *qi* one by one for 5 minutes, twice a day, one in the morning and one in the afternoon. The control group was treated in the same way except without receiving the emitted *qi*. The experiment lasted for 3 days, each mouse received the emitted *qi* for 6 times. Afterwards, the mice were still fed for a day. Then, all the mice were killed and their sarcoma were extirpated for weighing, smears were made for examination. The blood smears of every mouse were also made. At last the sarcomas were fixed up for microscopic and electron microscopic examination.

Results:

1. The weight of the sarcomas treated by the emitted *qi* all were lighter than that of the

control group ($P<0.001$).

2. Observation under a microscope:

(1) The numbers of mitotic phenomenon of the *qigong* group were 50% less than that of the control group.

(2) Smear observation: The *qigong* group showed the nuclei condense, nuclei broken and nuclei dissolved. The control group did not show these phenomena.

(3) The blood smears of the mice in the *qigong* group and the control group all showed sarcoma cells, but the numbers of the sarcoma cells were less in the *qigong* group.

(4) Observation under an electron microscope:

The control group: A. Sarcoma cells arranged in order; B. Plenty of mitochondria with inside structures perfect; C. Lysosomes seen.

The *qigong* group: A. Form-changed of many vacuoles in the nucleolus, part of the nuclear membrane ruptured; B. Swollen mitochondria with the cryistals broken and vacuoles; C. Markedly bigger lysosomes about 2-3 times than the lysosomes seen in the control group, more materials swallowed seen inside the big lysosomes. Under an electron microscope although there were lots of dead sarcoma cells in the *qigong* group, few sarcoma cells with mitoses could be seen.

This experiment lasted for 3 days and the *qigong* masters felt tired. We concluded it was difficult to destroy the malignant tumor completely only by the emitted *qi*. A combination of the emitted *qi* with the internal *qi* formed in trained patients for curing the malignant tumor is an interest subject to be studied.

A STUDY OF BIOLOGICAL EFFECTS OF THE EMITTED *QI* WITH TRADESCANTIC PALUDOSA MICRONUCLEAR TECHNIQUE

Sun Silu and Tao Chun

(Weifang Medical College, Shandong province, China)

Scientific experiments have confirmed that the emitted *qi* can be used to produce different effects on external objects, such as plants, human beings, etc. The emitted *qi* also has a special function in medical treatments. What is especially noteworthy is that it can be used to treat difficult cases and cancer.

The tradescantic paludosa micronuclear technique established by Professor Ma Dehsiu of Western Illinois State University in the United States was used to determine that the *qi* emitted with the intention of protecting flowers will decrease the rate of appearance of micronuclei in

the tetrads formed after meiosis of the pollen mother cells and that the *qi* emitted with the intention of injuring the flowers will increase the rate of appearance of micronuclei in the terads.

According to statistics there is a significant difference between the experimental group and the control group.

The experiments show that the *qi* emitted under control of the mind has a bi-directional effect on the chromosomes of hereditary material. It may protect and also destroy. The protective effect provides theoretical evidence for using the emitted *qi* to prevent and treat cancer, and counteract the hereditary toxicity imposed on the body by radiotherapy and chemotherapy. And it also proves that the emitted *qi* has a marked protective effect on the hereditary material before and during the chromosome damage caused by chemotherapy. Therefore, when the emitted *qi* is used for medical treatment, the emphasis should be on prevention and early treatment.

This paper also suggests that the appearance rate of micronuclei may serve as a measurement of intensity of the active factor, so it is possible to use the skill of tradescantic paludosa to determine the force of the emitted *qi*.

The experiments show that the effect of the emitted *qi* is related to the mental activity of the *qigong* master. It can be said that the emitted *qi* has the properties of a mental message. This furthers the studying of the nature of the emitted *qi*.

THE EFFECTS OF TAOIST *QIGONG* ON THE PHOTON EMISSION FROM THE BODY SURFACE AND CELLS

Liu Yaning, Zhao Xinhua and Cao jie

(Xidiaoyutai Hospital, Beijing, China)

Hu Yulan and Zhao Yungsheng

(Special members of Chinese *Qigong* Science Research Society, Beijing, China)

By the ultraweak luminescence measuring technique, we have preliminarily approached the photon emission from *qigong* masters' body surface before and after the *qigong* exercise, and explored the effects of *qigong* on the spontaneous luminescence from cells.

1. The photon emission from the *qigong* masters' body surface.

A probe of our Single Photon Counter was gently put on the right Laogong (P 8) of the *qigong* master in a dark room and the emission intensity counts were measured (the spectral

response was 300-650nm; the integal times were 10 sec.)

The results showed that when the *qigong* exercise was being done, the photon emission from the master's Laogong (P 8) was distinctly less than that before the exercise (their counts were $X_1 = 67, SD_1 = 7.3; X_2 = 1559, SD_2 = 33.7$ respectively) ($P < 0.001$). It has been reported that the body spontaneous luminescence in the 300-650nm region is mainly due to lipid perosidation, corresponding to a consuming process, and the body surface photon emission from the aged smokers and patients suffering from inflammation was evidently greater than that from the healthy persons.

It might be deduced that besides the apparent biological function the *qigong* exercise may show significant automodulating effects on the masters themselves, i. e., enabling them to enter a highly exciting state, as well as reducing their unnecessary and even harmful body dissipation to a great extent.

2. The effects of *qigong* on the spontaneous luminescence from cells.

(1) The effect on the "mitosis radiation" of the bean sprouts: Ten bean sprouts were placed on the bottom of a cuvette, and their luminosity was counted. Then the cuvette was placed on a *qigong* master's right Laogong (P 8) and the effect of *qigong* on them was observed. The comparison of the emission intensities before and after the *qigong* exercise was : $X_1 = 2510, SD_1 = 10,2; X_2 = 3122, SD_2 = 71.3$ respectively. It proves that *qigong* may increase the spontaneous luminescence from the bean sprouts ($P < 0.001$). Those photon emissions were regarded to be caused by the cell mitosis, so we might consider that *qigong* is able to promote the root cell division of the bean sprouts.

(2) The effect on the fetal hepatocyte: The photon emission from the fetal hepatocyte suspensions (both in 199 culture and in cryoprotective agent, DMSO) and from their control blanks (solutions of 199 culture and DMSO) were measured before and after the *qigong* exercise. Before and after the exercise, the intensities counts of the two control blanks showed no significant differences (for 199 culture, counts were 119.4 ± 13.2 and 139.5 ± 14.2; for DMSO, 181 ± 22.8 and 194.5 ± 2.3 respectively ($P > 0.05$), but the photon emission from the hepatocyte suspensions after the *qigong* exercise was obviously greater than that before the exercise (the counts were 647.0 ± 85.1 and 243.3 ± 8.8, 392.3 ± 28.5 and 181.3 ± 15.6 respectively ($P < 0.001$)). Other had no such evident effects on the same cell suspensions.

It should be mentioned that after the *qigong* exercise and the hepatocyte suspension was remaining standing still for 2 minutes, the luminosity counts decreased to a low level for about 172 ± 2. When the exercise was done again the counts immediately increased up to 239.8 ± 141.1. Then another cessation followed, the counts decreased rapidly down to 174.3

±2.1, much lower than those before the *qigong* exercise (392.3±28.5).

The above data verifies that *qigong* may enhance the hepatocyte spontaneous luminscence, but its mechanism still needs further investigation.

AN EXPERIMENTAL RESEARCH OF *QIGONG* FOR ANTISENILITY, KEEPING FIT IN MIDDLE-AGED INTELLECTUALS

Yang Runliang, Yang Intang and Hong Hoqiao

32 managers and administrators studying at the Gangsu Economic Management College were tested. All of them were males by an average age of 35.71.

The Contents and methods of study.

Testing indexs:

TSH, FSH, LH, IgG and Fe-Protein.

The pattern of the *qigong* exercise: Quiescent form of *qigong* exercise was done 3 times (morning, noon and night) for about 30 minutes for each time. A month later the duration prolonged to an hour for each time. The change of the five testing indexes are as follows:

Index	Before the *qigong* exercise	After the *qigong* exercise	T	P
TSH	10.22±1.28	9.8±1.04	1.45	>0.05
FSH	8.72±3.25	4.81±2.69	5.79	<0.01
LH	7.29±5.20	4.73±3.57	2.54	0.01<P<0.05
IgG	8.30±3.37	12.09±5.20	3.89	<0.01
Fe-Prot.	181.55±130.7	2838±178.1	2.92	<0.01

Discussion:

The human body is an integrated self-adjusting system. It is said in traditional Chinese medicine that "blood is commanded by *qi*." It means the circulation of blood is generated by *qi* which in turn is based on the energy of blood. In performing the *qigong* exercise through the regulation of the body, mind and breath, a *qigong* functional state appears. The energy produced by this state would be changed and increased from quantity to quality. Therefore, useful physiological changes in the body would occur alongside the gradually deepening of the self-adjusting function.

The blood sample was taken from the tested persons before and after the *qigong* exercises for 90 days. The separated serum was kept in a refrigerator. Results was obtained with the

analytical method of radio immune RTA.

The normal Fe-protein value is 160 ± 152 ng / ml in the Lanzhou areas. It greatly increased after the *qigong* exercise, indicating that the metabolism of the brain accelerated, the functions of the nervous system, immune system, digestion absorption and muscular movement strenthened.

IgG is an important substance of immunity and it is of about 75% of a gram of serum. The neutralization of the exotoxin of bacteria is its important function because it can combine the exotoxin quickly and clear away the toxicity of it, providing more energy of antitoxins in the body where the toxins were infected. The amount of IgG in the serum can be greatly increased after the *qigong* exercise. That is to say that the *qigong* exercise can improve the immunity and anti-infectious immunity

TSH (thyroxine hormone promoter) showed slight decrease after the *qigong* exercise. It may be a result of the physiological activity of the hypothalamus changing from randomness to nonrandmness after the *qigong* exercise.

The decrease of LH (Luteum hormone promoter) and FSH (ovum growing hormone promoter) which are secreted by the hypophysis to the normal ranges after the *qigong* exercise indicates a regulation of the function of the process from the sex ability to a condition of storing of the sperm of the middle-aged. Then the imbalance endocrine of the body can be regulated and the organs be strenthened, and finally the kidney function is activited.

AN EXPERIMENTAL RESEARCH OF THE CHANGES OF BLOOD VOLUME IN THE BRAIN AND THE CHANGES OF THE HEART BATE IN THE *QIGONG* STATE AND PSI STATE

Wei Shouzhang et al

(Taiyuan Railway Hospital, Shanxi province, China)

The *qigong* state consists of two——still state and dynamic state. Those who have Psi can show their psychokinesis state. These states are all relatd to mental activities. People doing *qigong* exercise all stay awake, but their awake feelings are different from others.

According to our working hypothesis, the same instrument and leads, and the method of comparison with the same persons before and after experiments were used to investigate the physiological brain effects in the *qigong* state and Psi state. The subjects in the experimantal

group, having calmed down for 15-20 minutes, closed their eyes and had a REG test. When the experiment began, detailed records should be kept. Their mean value was determined by three rhythmical waves of REG. The mean value of the heart rate was determined by intervals of the three waves of REG. These data were used as the objective criteria in comparison in the experiment. There were three persons in the experiment. One of them did the quiescent *qigong* exercise. The second did the dynamic *qigong* exercise. The third had Psi. According to the method mentioned above, the first two persons were tested by REG for 34 times respectively. The last one was tested 45 times. There were 73 persons in the control group, 53 of which conducted mental arithmetic. The remaining people were sitting quietly. 73 people were all given REG test too. The data of the experimental group were compared with those of the control group.

The experiment indicated that the amplitude value of REG was reduced from 0.1594Ω (before doing *qigong* exercise) to 0.1157Ω ($P<0.001$) after they had done the quiescent *qigong* exercise with their eyes closed and their mind concentrating at the lower abdominal area (or Dantian), and that the amplitude value of REG reduced from 0.2544Ω (before doing *qigong* exercise) to 0.2359Ω ($P<0.01$) in those who had done the dynamic *qigong* exercise, but their heart rates had no obvious change. The experiment showed that the blood volume of the cerebral blood vessels of the forebrain of those who did the *qigong* exercise obviously reduced, while their heart rate did not apparently change. When the people entered the *qigong* state, these changes were not identical to those of the normal physiological rules of the body, because there appeared an inherent self-adjustment in the brain and the whole body. Those people who had Psi showed their psychokinesis, their amplitude value of REG increased from 0.276Ω (before the experiment) to 0.381Ω ($P<0.05$). It indicated that the blood volume in the cerebral blood vessels of the forebrain increased obviously, but the change of their heart rate was not apparent ($P>0.25$). When the persons having Psi did not show their psychokinesis, their amplitude value reduced form 0.313Ω (before the experiment) to 0.278Ω ($P<0.02$). It indicated that the blood volume in the brain was obviously less than that before the experiment, and the change of the heart rate became obviously slow ($P<0.01$)。 It has been shown by the experiment that the change of the blood volume in the brain was out of proportion to that of the heart rate and was not identical with that of the normal physiological rules of the body. We can see that there is a close connection between the change of the cerebral function and the change of the blood volume in the cerebral blood vessels of the forebrain when the persons having Psi show their psychokinesis. This is because their brain is in a state of special function when the persons having Psi show their

psychokinesis. In the 53 cases of the control group the process of mental arithmetic could cause the reduction of the blood volume in the cerebral blood vessels of the forebrain and the increase of the heart rate ($P > 0.001$). Furthermore, in the control group, another 20 persons were sitting calmly only. There were no apparent changes of REG and the heart rate 30 minutes later ($P > 0.05$).

For this reason, it shows that the *qigong* state, whether in quiescent or dynamic state and Psi state evidently, has a typical function of their own.

EFFECTS OF THE *QIGONG* EXERCISE ON THE CONTENT OF MONOAMINE NEURO-TRANSMITTERS IN BLOOD

Liu Binghuai, Jiao JIe and Chen Quanzhu

(Anhui College of Traditional Chinese Medicine, Anhui province, China)

Li Yefu, Shang Lili

(Affiliated Hospital, Anhui College of Traditional Chinese Medicine, Anhui province, China)

It is well accepted that *qigong* contributes to preventing and curing of diseases and prolonging life. To study its mechanisms, the authors observed by means of fluoresence spectrophotometry in 68 subjects the variations of blood contents of monoamine neuro-transmitters before and after the *qigong* exercises (5-hydroxytamine, 5-HT; norepinephrine, NE; and dopamine, DA). 44 of the subjects were males, 24 females, their age ranging from 25 to 68 years old, with an average age of 48. They all had practised the *qigong* exercise for one month. All of them were patients of common chronic diseases, such as hypertention, coronary heart disease, gastric ulcer, gastritis, pulmonary emphysema, chronic bronchitis, joint system diseases, neurasthenia and neurosis.

Results observed:

1. A comparison of monoamine neurotransmitter contents in the blood of the subjects pre- and post-exercise showed a general reduction in 5-HT, averagely from 0.42 ± 0.21 to $0.21 \pm 0.13\mu g/ml$, close to the normal value (normal value $0.15 \pm 0.04\mu g/ml$). The difference was notable ($P < 0.001$). Variations in NE and DA tended to go up, averagely NE being from 0.27 ± 0.13 to $0.35 \pm 0.27\mu g/ml$, DA from 0.86 ± 0.69 to $1.19 \pm 0.81\mu g/ml$. Variation of DA displayed a statistical difference of $P < 0.02$. The above description showed that the effect of the *qigong* exercise is closely related to the monoamine neuro-transmitters in the body fluid.

2. Effects of the *qigong* exercise on the blood monoamine neurotransmitters of patients of different diseases:

The subjects were divided into 5 groups according to the nature of their disease. Subjects in each group showed reduction in blood 5-HT content after they had practised the *qigong* exercise.

(1) The group of cardiovascular disease: from 0.43±0.34 to 0.16±0.11μg/ml (n=13).

(2)The group of gastric disease:from 0.38±0.19to 0.22±0.13μg/ml(n=20)

(3)The group of joint system disease:from 0.44±0.21 to 0.18±0.13μg/ml (n=10)

(4)The group of respiratory system disease:from 0.44±0.22 to 0.22±0.12μg/ml(n=8)

(5) The gruoup of other diseases (neurasthenia, neurosis): from 0.42±0.22 to 0.25±0.14μg/ml(n=13).

In all the groups except the fourth group, variations in 5-HT content in comparison with the pre-exercise values, were respectively P〈0.01, 〈0.01, 〈0.05, 〈0.05. The difference was obvious. The post-exercise blood content of DA in various groups rose up remarkably. An evident difference was seen in the 2nd group (P〈0.05). The NE content was seen to rise in the 5th group (P〈0.05), while in other groups the variation was not obvious. In all the above groups, the content of vasoconstrictor substance 5-HT dropped to the normal concentration level, resulting in sufficient blood supply for the local tissues and organs. It also improved blood flow, promoted metabolism and strengthened the physiological function of the cells in the tissues, thus helping restore health, adding to the efficacy of *qigong*.

The authors claim that the *qigong* exercise helps regulate the function of the neuralgic system, and the monoamine neuro-transmitters participate in the whole process.

1. The *qigong* exercise helps regulate the neuro-body fluid inner environment. Through regulating the 5-HT blood concentration in the neuro-transmitters of parasympathetic nerve, it causes the extra high blood 5-HT of the cardiovascular patients to drop to the normal level. It also dilates the coronary artery, improves the physiological functions, resulting in the relief of symptoms.

2. The *qigong* exercise helps build or strengthen the physiological function of the digestive system. The exercise exerts an influence on the control of nerves that govern the activities of the internal organs. It is shown by variation in the blood content of neuro-transmitters NE, DA, and 5-HE, with 5-HE getting lower and DA getting higher, facilitating local blood flow and metabolism in the tissues.

3. Through regulating the concentration of pain producer 5-HE in the peripheral blood, the *qigong* exercise achieves an analgesic effect. The drop of 5-HE content is relative to the result of analgesia. This fact shows the drop of 5-HE is good for invigorating blood circulation and reducing extravasation, which is a proof of the TCM principle: "pain removes when block is eliminated".

The *qigong* exercise results in preventing and curing of diseases. It helps regulate the nerve-body fluid inner environment, promotes activities of organs and maintains dynamic equilibrium of the organism through self-stabilization.

A PRELIMINARY STUDY ON THE CARDIAC FUNCTIONAL POTENTIAL EVOKED BY THE *QIGONG* EXERCISE

Bao Guojin and Feng Shaoxiang

(Xing Cheng Air Force Sanatorium, China)

In order to probe into the effect of the *qigong* exercise in excitation of the cardiac functional potentials, and in prevention and treatment of cardiovascular diseases we have observed the physiological effect of the heart function influenced by the *qigong* exercise 30 days before and after practice and measured the physiological loading intensity and the thermal effect of acupoints during the exercise with a PWC_{170} function test. The subjects were divided into two groups. The *qigong* group included 60 healthy people by an average age of 40.5 years, the control group consisted of 20 healthy people who were undergoing craunotherapy. Their average age was 36.4. The experimental results are as follows:

1. PWC_{170} function test: We measured the PWC_{170} value of the *qigong* group who exercised *Shaolin Neijin Yizichan qigong* 30 days before and after practice. The exercise done twice a day, 54 minutes for each. The control group's PWC value was measured 30 days before and after the craunotherapy. The subjects were given two different loading, 3 minutes for each with an interval of 3 minutes. At 2.5 munites the measure of the heart rate was done for half minute. Then the PWC_{170} value and VO_{22} max was calculated. The result indicated the finished power of the *qigong* group was raised by 574.94 kg. m/min. after the *qigong* exercise while the control group only increased by 83.75 kg. m/min. ($P < 0.05$). The *qigong* group's VO_2 max increased by 0.97L/min. after the exercise, whereas the control group's by 0.14L/min. ($P < 0.05$). It shows that the *qigong* exercise has a marked effect on excitation of the cardiac functional potential.

2. The physiological loading intensity: We measured the resting state heart rate before the

qigong exercise and the recovery heart rate 10 minutes after the exercise with a PV-701 WRIST-WANTCH-STYLE PULSE MONITOR. The heart rate during the exercise (lasting for 54 minutes) was measured every two minutes. The resting state heart rate was 73.4 per minute before the exercise, the average rate was 94.3 per min. and the highest rate was 124.4/per min. During the exercise the recovery rate was 82.7/per min. after the exercise. These results tell us that the *qigong* exercise is a kind of light endurable loading exercise, its physiological loading intensity does not exceed 50% of the maximum intaking oxygen. It is a small amount of exercise suitable for the patients of heart trouble.

3. The thermal effect of acupoints: We measured the change of the skin temperature of the middle fingertip, Laogong (P 8), Yintang (Extra), Baihui (Du 20) and Sanginjiao (Sp 6) before and after the exercise with a semiconductor point thermometer. Here is the result. There was a very significant change of temperature at Laogong (P 8) before and after the exercise ($P<0.01$), the average temperature increasing by 1.3°C; temperature on Baihui (Du 20) increased by 1°C; temperature on the middle fingertip and Yintang (Extral) increased by 0.7°C and 0.8°C respectively; temperature oh Sanyinjiao (Sp 6) decreased by 0.1°C. The increase of skin temperature of acupoints shows that the *qigong* exercise can promote blood circulation and expand the capillary.

According to the above tests we can conclude:

1. The *qigong* exercise can excite the cardiac functional potential, PWG_{170} function test is a measurement for the quantitative exercise tolerance test of the heart function. PWG_{170} value is depended on the heart volume, and people who have a larger volume gained higher power, which increased by 148% after the exercise than before. It shows that the *qigong* exercise can bring cardiac reserve into full play, increasing the cardiac systole and diastole volume, and enhancing the heart muscle contractive power.

2. When those who did the exercise bore a smaller physiological loading intensity, their heart rate is 128% of that in the resting state, helpful to lighten the burden of the heart and decrease the myocardial oxygen consumption. This exercise is advisable for the weak old people and for those having chronic diseases, especially heart trouble.

3. The acupoint thermal effect was markedly seen during the exercise. The increase of acupoint skin temperature is helpful to increase the excitability of the muscle and nervous system and to heighten metabolism and cardiovascuclar function.

SPECULATION ON THE MEDIA OF *QIGONG*

Manaka, Yoshio (Kitasato Institute. Shirogane 5-9-1, Minato-ku, Tokyo, Japan)

Qigong exercise is not mere physical training, and *qigong* treatment is not a simple physiotherapy. What is essentiacl is that *qigong* procedure is an art in which *qi* plays an important role. However, it is not easy to define it with scientific terms. The author has much interest in the "biological information system" and the "media" which are unbelievably minute and accurate in the system, but often too fine to detect them in detail. The author has enough reason to believe that certain part of the concepts of *qi* indicates such delicate biological information media which have many characteristics in common with *qi*, untouchable, invisible or inaudible, yet one can recognize their functions one way or another.

The author proposes several topics about some biological information media which might give certain suggestions to explain the modus operandi of the *qi* activities.

(1)OMURA's TEST applied to the abdominal diagnosis.

(2)MANAKA's COLOUR-TEST of the five element points.

(3)KATSUMATA's molecular wave.

(4)KATSUMATA's afterimage-agent

(5)MANAKA's series-effect

(1)OMURA's O-RING-TEST consists of "a" input and "b" output. For example, if one touches a point where pathological occurrence exists, "a" input causes finger muscle tonus reduction. "a" is too minute to be called as nervous stimulation to occur nervous reflex. It is just an agent in the information system. The author has verified the fact that if one gives a right signal on a right point on the extremities, it can affect the concerned point on the abdominal area and one can check it with OMURA's test on the point in question.

(2)In 1986 Manaka demonstrated the fact that if one applies the five element points with proper colouring, i. e. red on the the fire point, yellow on the earth point, white on the metal point and so on, these effects can be checked by OMURA's test.

(3) Katsumata demonstrated in 1987 that any molecules of asymmetric structure emerge a wave while spinning, and studied the charactaristics of the wave. It could affect the OMURA's test either.

(4)Katsumata also proved if a substance stayed at one position for a certain period, there remained so-called molecular wave alias (aftemirage agent).

(5) In 1988 Manaka demonstrated that if one gave signals in certain series, they caused particular (therapeutic) effect. It might give explanation to that particular formula of movement of *qigong* which has special effect.

THE DIFFERENCE OF DIRECTION OF *QI* CIRCULATION IN THE SMALL *QI* CYCLE BETWEEN MAN AND WOMAN

Toshihiko Yayama, Tomohiro Shiramizu and Kiyosi Inokuchi
(Saga Prefectural Hospital, Kouseikan, Japan)

The function of the human body is controlled by twelve main meridians which are divided into six *yang* meridians and six *yin* meridians. *Yang* meridians are superintended by the Du Meridian and *yin* Meridians by the Ren Meridian. To obtain the circulation of the energy or *qi* along the Du and Ren Meridians is said the small *qi* cycle. When small *qi* cycle has been achieved, the stagnation of *qi* in the twelve main meridian is dissolved, and the flow of *qi* in the human body goes around smoothly. The achievement of small *qi* cycle is one of the important purposes in *qi* training. But the process to accomplish this is not clear yet, it is difficult for common people to do it, and furthermore, the real meaning of it is not elucidated. We have practised various classical *qi* training to make clear the process of the small *qi* cycle. Traditionally, it had been suggested that the flow of *qi* in the small *qi* cycle ascended along the Du Meridian and descended along the Ren Meridian. But because we feel the discrepancy between man and woman in our training process, we build up a new hypothesis that in woman the flow of *qi* in the small *qi* cycle ascends along the Ren Meridian and descends along the Du Meridian. We report here the data that testify this hypothesis and make the proposal that this hypothesis is useful to achieve the small *qi* cycle.

Materials and methods:

The subjects were fifty healthy adult men and fifty healthy adult women. The direction of *qi* flow in the small *qi* cycle was measured by means of O-RING TEST (Omura's test), by using the stimulations of magnetic force or ultrasonic scanning on the Du and Ren Meridians. It is said that by this O-RING TEST the biological effects of subtle stimulation can be detected as the alteration of the finger muscle strength. Though the mechanism of this O-RING TEST is not revealed, it is known that the benificial stimulations enhance the finger muscle

strength, but the harmful stimulations weaken it. The subjected person made a circle using the thumb and an index finger (O-RING), and the examiner also made O-RING with the same fingers of each hands passing through the subject's O-RING. We measured the degree of separation of the subject's O-RING fingers pulling toward right side and left side by the examiner's O-RING before and during the stimulations by the magnetic force or the ultrasonic scanning on the Du and Ren Meridians.

Result:

1. Ninety-eight percent of the subjects altered their finger muscle strength by the stimulation by the magnetic force or the supersonic scanning on the Du or Ren Meridian.
2. The men's finger muscle strength was enhanced by the stimulation of the magnetic force or the ultrasonic scanning ascending in the Du Meridian and descending in the Ren Meridian, but the women's was weakened.
3. The man's finger muscle strength was weakened by the stimulation ascending in the Ren Meridian and descenting in the Du Meridian, but the woman's was enhanced.
4. Two subjected persons on whom the stimulation had no effects reported that they realized the small *qi* cycle in high degree.
5. The persons who developed the *qi* felt that the progressive stimulation which enhanceed the finger muscle strength was comfortable, but the regressive stimulation which weakened the finger muscle strength was discomfortable, and they also felt some tenderness on some meridians by the regressive stimulation.

Discussion:

The stimulation of the magnetic force and the ultrasonic scanning, which cannot be precepted, can make some effects on the human body. If the *qi* in the human body goes around smoothly by the stimulation, the finger muscle strength can be enhanced. It is revealed that the direction of the magnetic force and the ultrasonic scanning which enhance the finger muscle strength is reversed between man and woman. This fact may be one ground for the new hypothsis that the direction of the *qi* flow in the small *qi* cycle is reversed in man and woman. The small *qi* cycle may be achieved more facilely considering the difference of the current between man and woman stimulatied by the magnetic force or the supersonicn scanning. And the application of the small *qi* cycle toward health care may develop.

TREATMENT EFFECT AND TENTATIVE WORKING THEORIES OF AUTONOMOUS *QIGONG* EXERCISE

Everlyn Fung Lee, (National Taiwan University, Taiwan, China)

A fairly simple method has been developed to turn on somebody to exercise autonomously by him or her following his or her own flow of *qi*.

Based on yoga exercises and the modified yoga routine——gradual conditioned reflex ——the trainee would autonomously and subconsciously promote *qi* flow.

By continuous practicing the atounomous exercise, one feels better either physically or mentally, especially to those with diseases. Some with hemiplegia would gain muscle power to their weaker limbs. Some with arthritis would lessen their pain or even become symptoms free. Some with toxic hyperthyroidism would become less agitated emotionally and symptomes free. Some with cancer still receiving radiotherapy or chemotherapy, would have less complications after each treatment, namely, they would find their leukocyte count lower but less than before and arise again much quicker. They also feel they can tolerate much more to their treatment. To the ones with acute or chronic injury, they would make their own *qi* flow to the local regions and to the corresponding points.

How can the autonomous exercise come to work and why it has such benefit to one's health? As a medical professional, I can only use my own scientific thinking logic to approach. I think I have come to an assumption very close to the fact.

First of all, you have to find a quiet place, avoid all kinds of external stimuli, and also, prepare your mind to a quiet and relax state, then follow the instruction, do relaxing exercise to warm up the body and relax all the joints, gradually let go of yourself, let your feeling float up, and follow your feeling. If you feel your body wants to move, let it be.

It is more tentative to explain why it works.

The human mind is controlled by two aspects, namely, conscious level and subconscious level. Conscious level controls the irritation coming from the outside world, but subconscious level controls the irritation coming from inside of our body. In conscious level, we think and do things accordingly. We think it is logic, and order our body to do so. If the body can tolerate, usually the body would not complain, though it might not be absolutely good to the body. In subcouscious level, we feel and let the body express as it desires. It is the true voice

of the body.

In the modern way of living, people usually rush their lives, they use more ordering in conscious level, suppressing their feeling, and they think they are taken care of their health, actually, they may do more harm than good.

Autonomous exercise, in the contrary way, allows the body to express its own voice and the exercise is following the body's own demand. Of course it works wonderfully.

Qi seems to be a hidden part of the body structure, waiting to be found. Therefore *qi* is born with. *Qi* should be a very active system since birth, but gradually loses its function after one is growing up by not knowing how to use this system. Since it is built in, *qi* can be arisen by any form of *qigong* practice, autonomous exercise is only one of them.

A STUDY OF STRENGTH FEAT CONCERNING THE HUMAN SELF-CURATIVE POWER

Wang Chuan-Fu (Taiwan, China)

Human beings are born to an innate ability to resist diseases, called "self-curative power". Such power keeps our body permanently in normal and healthy condition. In physiology, such strength is also designated "homeostasis". This power can enable the body to produce resistance against illnesses, eliminate causes of disease and facilitate the body recovered.

The function of both physicians and medicine does not lie in curing diseases directly but in helping such curative power do execution. Provided the body is possessed of great "self-curative power", it would not experience any illness. Even though sick, it can also be recovered within a short time. Such power is so integral that we should increase and stimulate it every day. In such way, the genuine avenue to health can be reached.

The way to health is composed of four elements: air, sunlight, water and electromagnetic wave. It goes without saying that air, sunlight and water are very important. As far as the electromagnetic wave is concerned, it is a very significant treasure, verified recently by scientists. In addition to sunlight, the sun also radiates a kind of magnetic wave of six million meter length. For billions of years, the incessant illumination of sun magnetic wave makes the earth turn out to be an enormous magnetic field. Due to the illumination of the magnetic wave on the earth, the iron material in the body is subject to magnetization which effects the blood circulation in order to keep growth of life. The magnetic waves of

both the sun and the earth are natural superlong waves, integral to the maintenance of human health. However, the function of our body is decaying day by day, so is the natural resistance therein. In order to restore health, the magnetic wave should be reinforced for health-keeping and disease-curing effect.

From the medical viewpoint, such methods as receiving injection and taking medicine can be called chemical therapy, also known as "first medicine". On the other hand, some people discover the curing methods like massage, sun bathing, hot-spring bath, which can be called physical therapy, also recognized as "second medicine". The first and second medicines may be available for superficial therapy, but infeasible for basic cure. Since the first and second medinines are facing an invisible wall which will not be broken through unless the magnetic wave increases as an auxiliary.

According to the evidences of clinic tests undertaken by such famous medical institutions as the Medical College of Roman University, the magnetic line of force cannot only enhance health, offer power but increase the human self-curative power to a large extent, make the abonrmal neurotic system adjusted, provide blood circulation, create new cells and renew tissues in the body.

Different from ordinary electric currents, the electromagnetic wave can flow beyond the surface of objects. It is also unlike X ray because the latter cannot penetrate the bones whereas the electromagnetic wave can reach deep into the muscle, fats, the internal parts of marrow and release neurotic tension. Such electromagnetic wave will never cause any unpleasant feelings, for example, pain or shock, etc. On the contrary, it will result in comfortable and warm vibration. Such vibrant phenomenon gives rise to what is called Joule's heat, which can strenghten the function of cells and produce analgesic and anti-inflammatory function. Passing through the internal tissues, the electromagnetic wave will create the induction current so as to further the metabolism of tissues and ensure its vitality. Besides, by going through the tissues in the body, the electromagnetic wave can keep the internal secretions normal and each organ healthy.

The electromagnetic wave magnetizes the iron material in the body, forwards the function of blood circulation and reinforces the circulation action of lymh. In such a way, the fresh blood is endowed with the ability to transport nutrients fully and the whole cells are provided with resources of energy. At the same time, owing to the vibration of the iron in the red corpuscles, the cholesterin in the vessels is removed little by little so that such diseases as hypertension and paralysis will therefore obtain the fundamental prevention. Most important, it can increase the self-curative power in our body, make the human body produce strong

resistance against diseases and get rid of fatigue as rapidly as possible. If under the appropriate guidance of expert physicians to the proper accompaniment of the first medicine of chemical therapy and the second one of physical therapy, the so-called third medicine of magnetic wave therapy will be undountedly reinforced in view of its medical effect. The feat of strength is, in fact, the eletromagnetic wave, because the feeling of strength is heat, electricity (static current) and magnetic field (power), which are combined into the electromagnetic wave. What the feat of strength means is by enhancing the electromagnetic wave in the human body under the control of human consciousness. The feat of strength in itself is a traditional name, the scientific designation of which is the electromagnetic wave. Accordingly, the curing and reinforcing effect of the feat of strength is also that of the electromagnetic wave as described above.

The feat of strength used by this sect is characterized by the personal performance of the teacher to imbue his own power as acquired by his own cultivation into the body of students for molding a body of strength, reinforcing its power, opening simultaneously the requisite blood circulation, make the students accopmlish their body of strength and furthermore applying it to the treatment of diseases on oneself or others.

This sect of strength feat can cure not only the diseases of one's own but those of others to relieve them of pain, except for the patients with serious illnesses, who should be treated, accopmanied by other above-mentioned therapies.

The feat of strength of this sect is derived from the electromagnetic wave in nature, which can be assembled in the human body for reinforcing the body. Its supply is inexhaustible and its application is limitless. It would never be involved in such drawback that the strength will become weak if performed in an excessive degree, unlike current feats of strength.

A PRIMARY STUDY OF THE INDUCING FUNCTION OF THE EMITTED *QI* OF *QIGONG* ON THE BIOLOGICAL COMPOSITION OF α-AMYLASE IN WHEAT SEEDS

Liu Haitao et al

(Weifang Medical College, Shandong province, China)

This paper is a primary study about the biological effect of the emitted *qi* of *qigong* on the

basis of enzyme study. According to known reports, we know that the emitted *qi* of *qigong* can raise the budding rate of rice seeds. Our experiment also shows that supplying the emitted *qi* to wheat seeds and corn seeds for a period of time can affect them when they later begin budding. If the purpose of the *qigong* supplier is to promote the budding, the budding rate may be comparatively enhanced. The budding process of seeds is a very complex physiological and biochemical one. What actual segment the emitted *qi* affects is something still unkwown.

Wheat seeds contain 72 percent starch, which is a fairly high amount. The starch hydrolyzes and becomes the main source of nourishing matter needed by the embryo's growth. The hydrolysis of starch calls for α-amylase and β-amylase. β-amylase exists even before the budding of the seeds, and it forms quickly when the seeds are swelling and it is formed from the zymogen which formerly existed in the endosperm. Usually it begins to show its vitality three hours after swelling. The porduction of α-amylase is more complex: when the seeds bud, the embryo produces gibberellin (GA). GA is transported to the endosperm and promotes the composition of some particular mRNA, therefore translating a particular protein--α-amylase. It shows its vitality much later than β-amylase, as it shows after the seeds are drenched for 24 hours. The inductivity of GA to α-amylase is a very specific reaction. If we deprive the seeds of their embryos, without the inductivity of GA the seeds cannot produce α-amylase. The exogenous GA has a similar inducing function.

Before the experiment we cut off the embryos of the wheat seeds and cultivated them for 28 hours. After supplying the emitted *qi* to the experimental group, the seeds were cultivated for another 21 hours. Then the amylase vitality of the seeds was tested and compared with that of the control group. The result is that the difference between them is not obvious ($P > 0.05$). The experiment was repeated. In addition to the *gigong* group and the control group, we had two other groups: the group of seeds supplied with GA, the group of seeds supplied with the emitted *qi* and GA. After using the emitted *qi* for 40 hours, the vitality of each group was tested respectively, and the results were compared. We found that the vitality of the group supplied with the emitted *qi* was much higher than that of the control group ($P < 0.05$) and the emitted *qi* did not have much effect on the GA treated group ($P < 0.05$). The experiment shows that the emitted *qi* can affect the vitality of wheat seeds. The influence shows very obvious after the supplying of the emitted *qi* for a comparatively long period (more than 24 hours). This matches with the fact that α-amylase shows its vitality after a long period. We can draw a primary conclusion: the emitted *qi* of *qigog* mainly has an effect on the vitality of α-amylase. In the study of the inducing function of GA on the biological composition of α-amylase it is believed that GA takes part in the translating process of

protein. The emited *qi* has the same inducing function as GA. Its mechanism might also have something to do with this. Besides, when GA exists, the inducing function of the emitted *qi* is not obvious, which also shows that they may compete with each other, just because they have a similar affecting point in the composition of α-amylase.

This experiment is only a primary study of the microcosmic mechanism of the biological effect of *qigong*. Its conclusion needs to be supported by other scientific experiments.

EFFECTS OF THE EMITTED *QI* ON THE SPONTANEOUS DISCHARGES OF CEREBELLAR NEURONS IN RATS

Yao Yuzhong, Zhang Jinmei, Liu Gangquan and Wang Liwei

(Sun Yat-sen University of Medical Sciences, Guangzhou, China)

The cerebellums of 12 rats were exposed under anaesthesia. The spontaneous discharges of cerebellar neurons were recorded with glass microelectrodes. According to the request of the experimental designer to excite or inhibit the neuronal discharges, the *qigong* master emitted his *qi* with different mind power to the animal from a distance of 1-2 meters for 1-2 minutes. After the frequency of discharges was restored to the original level, the above procedure was repeated once or twice. An untrained person imitated the *qigong* master to give off his *qi* as a control.

The mean value of interspike interval was analyzed by a computer. The effects of the emitted *qi* were compared with that of the control group. 25 neurons were measured, 6 of which showed excitatory responses on the excitatory mind power of the *qigong* master. Their discharge frequencies increased. The mean interspike interval shortened from the original 84 ms to 16 ms ($P<0.05$). 8 neurons showed inhibitory responses to the inhibitory mind power of the *qigong* master. Their discharge frequencies decreased and the mean interspike interval increased from the original 12.6 ms to 211.6 ms ($P<0.05$). 9 neurons showed a bidirectional response, i. e. both excitatory responses to the excitatory mind power and inhibitory responses to the inhibitory mind power. The mean interspike interval for the former shortened from the original 83.1 ms to 32.6 ms ($P<0.05$), and for the latter increased from the original 24.5 ms to 491.2 ms ($P<0.05$). 2 neurons, anyhow, showed no response to both kinds of intentions. In control experiments, the mimic *qi* did not cause any change.

The onset of neuron responses to the emitted *qi* was different in different neurons and

could be divided into two patterns. One pattern was with rapid onset. The response appeared as soon as the *qigong* master entered the laboratory and became more intense during the action of the emitted *qi*. The other type was with late onset. The response started 1-2 minutes after the beginning of the action of the emitted *qi*. Yet both types had a common characteristic of the after-effect. The response continued and lasted $1\frac{1}{2}$ minutes to $1\frac{1}{2}$ hours after the ceasstion of the emission of *qi*.

The results mentioned above indicate (1) The emitted *qi* is an objective biological message. (2) The effect of the emitted *qi* on the spontaneous discharges of the cerebellar neurons in rats varies. It can cause excitatory, inhibitory and bidirectional responses of the neurons. And these responses are controlled by the mind power of the *qigong* master. (3) There is a period of after-effect of the emitted *qi* on the discharges of the neurons after the cessation of the emission of *qi*.

CHANGES OF SKIN TEMPERATURE DURING EMISSION OF *QI*

Tokuo Ogawa (Aichi Medical University, Japan)
Shigemi Hayashi (Chinese-Japanese Institute of *Qigong*)
Norihiko Shinoda (Shakti Acupuncture Clinic, Japan)
Norikazu Ohnishi (Aichi Medical University, Japan)

The concept of *qi* is philosophical or psychological and its efficacy has been poorly evidenced scientifically. Previously we examined effects of *Nei-Qigong* on cutaneous autonomic nervous activities and demonstrated changes in skin temperature and sweat rate during the practice of *qigong*. In the present study, we observed changes of skin temperature of the hands of the *qigong* master and the recipient during the emission of *qi* by means of infrared thermography. The effect of the combination of quiescent and dynamic *qigong* was also examined.

Methods: Experiments were carried out with cooperation of two *qigong* masters, one male and one female, and several volunteers of both sexes as recipients of the emitted *qi*. A few of the latter had been practicing *qigong* for some time. In a climatic chamber controlled at the air temperature of 23°C and the relative humidity of 40%, the *qigong* master was directed to practice the quiescent *qigong* and emit his *qi*. *Qi* was transmitted to the tip of the second and third fingers and emitted towards the meridian point , Laogong (P 8) or Hegu (L I4) of the

recipient. During the whole session, skin temperatures of the hands and fingers of both the master and the recipient were monitored by an infrared color thermograph (Fujitsu Infra-Eye 160). The same practice was repeated immediately after the dynamic *qigong* practice.

Results: The skin temperatures of the palm and fingers elevated after the start of the *qigong* exercise. Transmission of *qi* to the peripheries reached the maximum in 3-4 min., the temperature was as high as 4°C. They returned to the original level within a few minutes after the cessasion of the exercise.

Soon after the start of *qi* emission towards Laogong (P 8) area, the palmar temperature of the recipient began to rise and the maximum rise up to 4° C was reached in 4-5 min. Occasionally, the skin temperature of the recipient's palm became higher than that of the master's fingertips. A trend was noted that the skin temperature of a trained recipient elevated more readily than that of an untrained recipient. The skin temperature of the recipient lowered to the original level in several mintues after *qi* emissfon was discontinued. *Qi* emission towards the Hegu (LI4) area was less effective than that towards the Laoqong area, and only a rise of 1-2°C in its vicinity was observed.

The skin temperature of the hands of the *qigong* master showed a considerable rise after the practice of the dynamic *qigong* was completed. Howerver, the effects of the exercise as well as that of *qi* emission were similar to those before the dynamic *qigong* practice.

Discussion: The inner energy, *qi*, is said to be accumulated at the fingertips by the practice of *qigong* and emitted to the hand of the recipient by the practice of *qi* emission, but the entity of the emitted *qi* has not been clarified. It may be possibly to assume that *qi* comprises electromagnetic waves including ample far-infrared spectra. It should be considered, however, that radiant heat dissipation from the recipient's hand may be blocked by the master's fingers and the recipient may be unconsciously practicing *qi* transmission to the hand by his (or her) mental concentration during the session.

Dynamic *qigong* showed no immediate effect on the efficacy of the *qigong* exercise as well as *qi* emission practice on the skin temperature. However, it may augment the efficacy of the *qigong* training.

A BIOENERGY STUDY OF THE CHINESE MERIDIAN SYSTEM IN PHYSIOLOGICAL CONDITION--AN OBSERVATION OF 483 HEALTHY HUMAN SUBJECTS

Julia J. Tsuei, Chieh Chung, Frederick M. K. Lam, Jr. and Ming-pi Mi

(Center for East-West Medicine, University of Hawaii at Manoa, Honolulu, Hawaii, U. S. A.)

The electric and magnetic nature of the human body has long been recognized by traditional Chinese medical practitioners. It has been proved by a lot of researchers in their experiments. They find that the points known as "acupuncture points" have a lower electrical impedance and a higher electrical conductivity than the adjacent areas.

This paper intends to discuss the bioenergetic measurement of the normal population in different gender and age groups.

348 male and 135 female subjects of varying age were recruited.

To study the bioelectric activities of the body the principles of the electroacupuncture method according to Voll were used. With this method the authors selected two groups of points--whole-body acupuncture points and specific acupuncture points and compared the whole-body points with the the specific points to find out the key of biological energy.

As regards the influences of age and gender to the biological energy, it is very interesting to observe that the values of the whole-body measurement points in males were higher than that in the females and, by using the regression study the relationship with age was found to be linear in males but of significant in three-out-of-four measurements in females. Since this means that the measurement value decreases with an increase in age, it fits the general observation of the difference between genders in vitality and activity; with an increase in age it fits the general observation of the differece between genders in vitality and activity; with higher age, the energy of the males decreases, but in the females it is less obvious. On the other hand, there is no significant relationship in gender and age in measurement of the specific points. This further indicates that the two groups of points are measuring two levels of biological energy of the body; the whole-body points may present the general biological energy and the specific points are expressing the bioenergy of a specific organ. It may be that the bioenergetic activity of a specific organ is expressed through this measurement by changing the conductivity and the permselectivity of the specific points on the skin.

It is hoped by the authors that these findings would be important for considerations in medical diagnosis.

EFFECTS OF *QIGONG* ON CEREBRAL BLOOD FLOW (CBF) AND EXTREMITIC BLOOD FLOW(EBF)

(Zhao Baofeng Beidaihe *Qigong* Rehabititation Hospital, Hebei, China)

In order to probe some characteristic physiological changes on the human body under the *qigong* state, and to probe the length of the time the practiser of *qigong* must need according to this data, the CBF, EBF etc. were checked on 25 patients who practised *qigong* exercises to compare with 10 patients in the control group. During this experiment, we got initial significant results.

Out of the 25 patients, 10 practise *Zhoutiangong*, 5 internal *qigong*, , 5 *Xuminggong*, 5 *Fenxineryonggong*. They did the *qigong* exercises four times daily, one hour for each. At the same time, they must do *Daoyinxing qigong* to prevent deviation, each time for half an hour.

Before the *qigong* exercise, each patient was examed of CBF, stroke volume (SV), upper limb blood flow (ULBF), lower limb blood flow (LLBF) and breathing frequency (BF). Then they did the exercise under the guide of a *qigong* master. Two months later, the percentage of each item under the *qigong* state and normal physiological state was calculated. The control group was examed and calculated in the same way.

Through observation there was no marked difference in CBF, ULBF, LLBF and BF in 5 minutes or 10 minutes after the *qigong* state either in the *qigong* group or in the control group.

Two months after the *qigong* exercise, the BF, CBF in the *qigong* group decreased by 26 percent, 3.9 percent respectively. The BF and CBF in the control group decreased by 3.9, 1.6 percent respectively ($P<0.01$). There was remarked difference on statistics. This shows that the slowed CBF and decreased BF are two important items in the *qigong* state.

Although the BF and CBF have droped remarkably 5 minutes under the *qigong* state, the BF and CBF have increased 3.2 percent and 0.2 percent respectively 10 minutes earlier. This indicates that these people are in the primary stage, conforming to the ancient saying "the primary stage needs 100 days in *Xiaozhoutian*". In other words, the *qigong* practisers who are at the beginning stage at least do the *qigong* exercise for two months.

Clinically, 10 out of the *qigong* group suffered from different chronic disease. After two months of practising *Zhoutiangong*, they all recovered to some extent. 2 out of 10 were cured, 7 were on the mend. Only one patient failed. This tells us that the *Zhoutiangong* is effective to some chronic disease.

A CLINICAL AND LABORATORY STUDY OF THE EFFECT OF *QIGONG* ANAESTHESIA ON THYROIDECTOMY

Lin Houshen

(Shanghai *Qigong* Institute, Shanghai, China)

Qigong anaesthesia (hereafter called QA) has recently presented satisfactory results in the resection of thyriod gland tumour and operations on tongue cysts. It has been shown by experiments that QA has sedative and analgesic effects.

The cilnical results are obvious. Once when I was emitting my *qi* from the centre of my palm to treat a patient of stomach cancer, I found coincidentely that his pain was relieved immediately. This hints that the emitted *qi* has a certain effect of relieving pain. With the same kind *qi* I treated a patient of schizophrenia when he went to sleep within less than five minutes sitting on the bench. This indicates the emitted *qi* has the sedative effect. The above phenomena in the clinic inspired the assumption to make use of *qigong* as an anaesthetic in performing the resection of thyroid gland tumour and cyst.

The cilnical applications of QA have won success. From May to June in 1980, 34 cases of resection of the thyroid gland tumour and cyst were successfully operated on under QA with the assistance of the Shanghai No 8 People's Hospital, the affiliated Shuguang Hospital and Longhua Hospital attached of the Shanghai College of Traditional Chinese Medicine, the Zhongsan Hospital and the E. N. T. Hospital the Shanghai Medical University, and the Hefei No 1 People's Hospital. Judged by the Anaesthetic Effect Standards stipulated at the National Conference of Acupuncture Anaethesia, 17 cases reached grade I; 14 cases grade II; 3 cases grade III. Grade I and II accouted for 91.1%, showing that QA had fairly good effects in surgery.

Experiments have to be done for further study. I emitted my *qi* from the centre of my palm to a rabbit about 10 cm away, aiming at a certain acupuncture point. As the rabbit received my *qi*, its cellular electric pulse changed greatly. Meanwhile the temperature on the tip of its nose raised 3°C. I emitted my *qi* through the centre of my palm which was about one metre away form a liquid crystal board and turned its colour from black to blue. Experimenting on a thermal imaging system, I emitted the same *qi* from about 1 metre away. The photos produced by this system showed that there was a ring of light around Laogong (P 8) in the centre of my palm, and the skin temperature at Laogong (P 8) increased 2.8°C. Emitting my *qi* to colonies of fluorescent germs about 15 cm away, I made the germs give out

68% more light. My palm was put in front of a low temperature infrared tester about 1 metre away when *qi* was emitted from Laogong (P 8). The instrument showed that this is a kind of infrared magnetic wave modulated by low frequency. I issued my *qi* for 30 patients when they were treated. Meanwhile, a control group who did not receive QA was estabilshed to observe the effect of QA on the pain threshold. There existed great difference in the pain threshold between the patients who had accepted QA and those who had not. The L-EK determination was also performed before and after QA, showing a significant post GA increase in the L-EK content. The average rate raised per person was that in one case, before and after the giving of QA, blood samples had been taken to rule out the possibility of the influence of other factors such as surgical stimulus, L-EK still raised 30%. From the foresaid example we can see the emitted *qi* can promote recepients' L-EK to release, so to elicit the analgesic effect. As to the different influences of QA and drug anaesthesia over NK cells, we compared the immune activity of NC cells in 4 QA cases with that in 4 cases receiving drug anaesthesia. It was found that in the QA group, the NC immune activity was weaker before QA than in the QA process. In the drug anaesthesic group, however, the finding was just the opposite. This indicates that QA is an unharmful anaesthesia.

Three *qigong* doctors' ATP and energy were determined before and after QA. It was found that QA resulted in tremendous reduction of ATP, their contents implying that QA performance was a strong energy consumption process.

QA, as a trial following the experiment of acupunctural anaesthesia, has shown certain clinical results. Our experiments have perliminarily explored its material basis and analgesic mechanism and laid a foundation for further study.

A RESEARCH ON "ANTI-AGING" EFFECT OF *QIGONG*

Wang Chongxing, Xu Dinghai, Qian Yusheng and Kuang Ankun

(Shanghai Institute of Hypertension, Shanghai, China)

Substantial data have shown that with the increase of age, the organism degrades gradually and aging causes diseases, which in turn accelerates the aging process, forming a vicious cycle. It is advisable in the anti-aging research to combine intimately the anti-aging methods with the procedures for prevention and treatment of the geriatric disesaes. Since 1958 We have focused on a research of *qigong* for the prevention and treatment of geriatric diseases

and anti-aging process. Here is a preliminary report.

1, 204 hypertension patients were randomly divided into the *qigong* group (*qigong* with small dosage of antihypertensive drugs, N=104) and the control group (with small dosage of antihypertensive drugs only, N=100), there is a comparability in age, sex, occupation, duration and stage of disease, blood pressure levels, program and directions for drug administration between two groups. After a period of 20 years, follow-up results were as follows: (1). The effective rates in the *qigong* and the control groups were 85.00-90.20% and 66.67--69.07% respctively ($P<0.05$--0.001). (2) During the period of 20 years, accumulative mortality rate in the *qigong* group was 17.31%, its stroke mortality rate was 11.54%, while in the control group, they were 32.00% and 23.00% respectively. Both rates in the *qigong* group were much lower than that in the control group ($P<0.05$--0.001). (3) 20 years follow-up showed that the blood pressure levels gradually rised in the control group, while it was relatively stable in the *qigong* group (4) When hypertension was controlled, various accompanying geriatic diseases (e.g. coronary heart disease and diabetes) and aging manifestation were relieved. These results indicate that *qigong* is an effective measure for preventing and treating geriatric diseases, and anti-aging process.

2. With the application of the biocybernetical principle and method of a computer analysis, the EEG of 220 subjects was made. All the subjects were divided into four groups: 83 healthy adults, 42 healthy aged, 33 hypertensive patients practising *qigong* and 62 hypertensive patients who didn't practise *qigong*. Analysis indexes included height and width of low frequcency power spectrum, high power spectrum of Q band, frequcency shift of power spectrum peak of α band and amplitude smoothing of transfer function. Experiment showed that the incidence of abnormal indexes in the aged group was higher than that in the adult group, while the incidence of abnormal indexes in the hypertensive group was the highest in the aged group. In the hypertensive group, the incidence of abnormal indexes of EEG information was 40.3%, 48.4%, 19.4% and 41.9% respectively, while in the *qigong* group, they were 27.3%, 30.0%, 0% and 33.3%, respectively. The above results indicate that *qigong* plays a major role in the improvement of the brain function of the hypertensive aged patients.

3. Abnormality of sex hormones was an important cause in disesaes and aging process.

(1) The concentration of estradiol and estradiol (E2) /testosterone (T) ratio in the plasma of 70 male patients with hypertension was higher than those of the healthy male subjects. These patients were allocated to the *qigong* (N-42) and control groups (N=28). After one year treatment, E levels, E2/T ratio in plasma of patients in the *qigong* group

decreased 22.41±4.14 (pg/ml) and 4.83±1.28 (x 10^{-3}) respectively, whereas there was no significant change in the control group.

(2) Female aging process was associated with failure of the ovarian function manifasted by decreased estradiol and testosterone levels.

The levels of sex hormones in plasma were measured in 22 menopaused femele patients with hypertension. After one year treatment, the decreased concentration of E2 and T was elevated and values determined were 51.6 ± 3.5 (pg / ml) and 37.2 ± 2.2 (ng / dl) respectively.

These results suggest that *qigong* can regulate the abnormal sex hormones though the patterns in males and females are somewhat opposite. *Qigong* can nourish the essence of life, reinforce the kidney and delay aging process.

4. From the theroy of TCM, premature aging is mainly due to the imbalance of *yin* and *yang* . According to the physiological function and the nature of two-direction regulation of cAMP and cGMP, there is an interioar relation between cyclic nucleotides changes and *yin* and *yan* deficiency. The level of plasma cAMP in the *yin*-deficiency group was elevated, while in the *yang*-deficiency group the level of plasma cGMP was elevated and cAMP/CGMP ratio was decreased.

70 hypertensive patients were diveded into *yin*-deficiency (N = 32) and *yang*-deficiency (N=38) types based on traditional Chinese medical classification. Each of the two types was subdivided into the *qigong* and control group. After one year of *qigong* practice, the elevated cAMP level tended to decrease in the *yin*-deficiency patients, while the elevated cGMP also tended to decrease and the lowered cAMP/cGMP ratio tended to rise in the *yang*-deficiency patients, whereas, a significant change could be seen in the two control groups. These results suggest that *qigong* can correct both *yin* deficiency and *yang* deficiency syndromes and provide a scientific basis for the theories of tradictional Chinese medicine.

The above study indicates that *qigong* is an effective measure in preventing, treating geriatric diseases and delay the aging process.

A BENEFICIAL EFFECT OF *QIGONG* ON IMPROVING THE HEART FUNCTION AND RELIEVING MULTIPLE CARDIOVASCULAR RISK FACTORS

Wang Chongxing, Xu Dinghai, Qian Yuesheng and Huang Meiling

(Shanghai Institute of Hypertension, Shanghai, China)

Hyrertension is a common disease among the middle-aged and elderly people. It is also one of the important risk factors for coronary heart disease (GHD). In order to study the effectiveness of *qigong* therapy in treating CHD, comparison of clinical and experimental study of 120 cases of hypertension incorporated with CHD was performed. The paper presents the results of a preliminary study of this subject.

1, 120 cases of hypertension with CHD who had consistently taken antihypertensive drugs were divided randomly into the *qigong* group (*qigong* with small dosage of routine antihypertensive drug N=60) and the control group (with routine antihypertensive drug N=60 only). There was a comparability in age, sex, course, blood pressure, retinopathy, ECG manfestation, as well as administration of antihypertensive drug. After one year treatment, in the *qigong* group blood pressure in 86.7% cases went down, 62.6% showed relief of clinical symptoms. ECG manifesation improved in 52.6% cases, while in the control group, they were 65.0%, 34.8% and 22.2% respctively ($P<0.05$—0.001). The result suggests that *qigong* is effective to hypertention with CHD.

2. Systolic time interval (STI) was measured in 30 hypertensive patients with coronary heart disease. Before practising *qigong*, the mean cardiac output (CO) was decreased, but the mean total peripheral resistance (TPR) and ratio of PEF / LVP were increased. After practising *qigong* for one year, the observated results showed that CO was increased, TPR was decreased, and the ratio of FEF/LVEFP tended to be normal. Ultrasonic cardiogram (UCG) was also performed on 30 patients. Before practising *qigong*, the Ejection Fraction (EF) and mean velocity of circumferential fiber lengthening (mvcf) was decreased. After one year's *qigong* practice, the EF and mvcf tended to be increased.

The results mentioned above indicate that *qigong* has a regulatory effect on haemodynamic alteration as well as on improvement of the left ventricular function.

3. Before and after 6 months practice of *qigong*, plasma Dopamine-β-Hydroxylase activity (DBH) was measured in 20 hypertensive patients. Before treatment mean plasma DBH

activity was 19.67±1.45Iμ, after 6 months of practising *qigong*, mean plasma DBH activity was 18.27 ± 50Iμ. ($P < 0.05$). It suggests that *qigong* can reduce the excitability of sympathetic nervous activity.

4. Before and after *qigong* practice for 6 months, blood viscosity and platelet aggregate were measured in 30 hypertensive patients. After 6 months of practising *qigong*, plasma TC and Ch concentration were decreased, while plasma HDL-c level was increased significantly.

6. Plsama testosterone (T) and estrediol (F2) were measured by radio-immunoassay in 58 male patinets with hypertension. These patients were divided into the *qigong* group ($N = 34$) and the control group ($N = 24$). After treatment (one year), the result was quite different between the two groups, indicating that *qigong* has a definite regulatory effect on abnomal sex hormones.

According to our past and present investigations, we believe that *qigong* plays a major role in improving the heart function and relieving the mutiple cardiovascular risk factors and is an effectice measure for preventing and treating CHD.

CHANGES OF CEREBRAL BLOOD FLOW AND MICROCIRCULATION UNDER THE *QIGONG* STATE

Chu Weizhong et al.

(Central Laboratory of Shanghai *Qigong* Institute, Shanghai, China)

In this paper the effect of a quiet mind (or mood stillness) and breath holding on cerebral blood flow and microcirculation is reported and the *qigong* mechanism is discussed on the basis of the relation between *qi* and blood.

1. Material:

115 patients suffering from different chronic diseases participated in this test. Among them there were 55 men and 60 women, aged from 27–29. They learnt the *qigong* exercise and became well cooperated during the examination. In addition, the microcirculation of 5 gunia pigs and 2 mice were also examined.

2. Method:

(1)State of relaxation and stillness.

We observed: A. Cerebral blood flow with an instrument of impedance electrogram (bridge type) and amplitude of differentiation of electrical impedance. B. Registered

fingertip's pulsation with a physiological recorder. C. The microcirculation of the nail's capillary with a 80× anatomical microscope under a reflected cold light source.

(2)State of breath holding.

A. When the patients were entering the deep and slow breathing state, we again examined the cerebral blood flow. B. we examined the microcirculation of the meninx in laboratory animals during breath holding in the simulated *qigong* state.

3. Results:

(1)State of relaxation and stillness.

A. Cerebral blood flow: 12 cases were examined with the bridge type and 15 were examined with differentiation, the amplitude obviously decreased in all patients, from 0. 143 ± 0. 05Ω to 0. 123 ± 0. 056Ω ($P < 0.05$) and from 9. 75mm to 8. 63mm ($P < 0.001$) respectively. 16 cases of the control group had very slight change from 0. 160 ± 0. 05Ω to 0. 150 ± 0. 05Ω ($P < 0.05$) . B. Fingertip pulsation: 34 cases were examined 6. 8--11 minutes after the *qigong* state, the pulsation increased from 9. 86 ± 4. 28mm to 15. 75 ± 7. 3mm ($P < 0.001$), and then gradually returned to the level before the *qigong* state. C. Nail's microcirculation: Total 26 cases were examined, in which 7 cases' capillary loops of the nail became more clear, the number of capillary loops in 2 cases increased, the length of loops increased in 8 cases and the speed of blood flow increased in 12 cases, from 315. 6 ± 220. 0μ/sec. to 512. 5±254. 6μ/sec. ($P < 0.001$).

(2)Breath holding state.

A. Cerebral blood flow: In 49 cases with breath holding for 30 seconds, the impedance amplitude increased from 0. 154 ± 0. 06Ω to 0. 170 ± 0. 07Ω ($P < 0.05$); in 20 cases with deep breathing, the amplitude dectreased form 0. 187±0. 05Ω to 0. 165±0. 05Ω ($P < 0.05$). B. Microcirculation of meninges in laboratory animals in simulated breath holding for 30 sec. showed vasodilatation and increased blood flow. But the breath holding lasted for more than 30 sec. , the blood flow gradually decreased from 300μ/sec. to 100μ/sec. and blood stream became sluggish and finally stopped;

4. Discussion:

(1) When patients entering the relaxation and stillness state, the cerebral blood flow was decreased and the peripheral circulation was improved.

(2) When patients were in the state of breath holding for 30 sec. , the cerebral blood flow was decreased (same to that of the laboratory animal) . The optional time for breath holding was 15-20 sec.

(3) The above is due to the changes of *qi* and blood in the *gigong* state. The mechanism is

to be explored.

A STUDY OF TREATMENT OF SENSORINEURAL HEARING LOSS BY QIGONG

Zhu Jiru and Pei Xirong

(ENT Hospital, Shanghai Medicine University, Shangnai *Qigong* Association, Shanghai, China)

42 cases (76 ears) were treated by the *qigong* therapy in our hospital from 1985-1986. They had been treated by Westen medicine or tradifional Chinese medicine with failure. Among them 34 cases were bilateral deafness, 8 were unilateral deafness. 30 cases were men, 12 were women. The average age was 43.5 years old (from 20-70) and the average course of deafness was 7.2 years (from 3 months—15 years).

Pattern: *Wudang qigong* was practised. It included three parts: the quiescent, dynamic accessoy *qigong* exercises. The first one consisted of two forms: the *Wuji* form and *Taiji* form; the second consisted of twelve movements; the third consisted of five movements. The patients did the exercises collectively for one hour from 6-7 o'clock in the morming. The practice lasted for 2 months and in this period no medication was given to improve hearing.

Criteria of effect: We used the average value of the air conduction of the speech frequency (500, 1000, 2000 Hz) as the criterion of hearing . For elusion of errors we adopted the same audiometry (DZ-IB type electric audiometer), technician, time (8-9 A.M.) and method of examination. Examination was done before and after the course of treatment. For those who decided to do the exercise for 3 months, anotner audiometry was conducted in the middle when the term ended. At least 10dB hearing increase was considered effective.

Therapeutic effect: Among 76 ears effectiveness was found in 18 ears (the effective rate was 23.7%), among which, the hearing of 6 ears increased more than 15dB (7.9%). Among the 42 patients, 28 (54 ears) had tinnitus, which decreased subjectively in different degrees to 29 ears (53.7%) .

Types of deafness and therapeutic effect: There are six types of deafness: Sudden deafness, drug toxic deafness, senile deafness, noise deafness, deafness due to multiple causes and others. The last one includes hereditary deafness (2 cases, 4 ears), deafness after radiotherapy for nasopharyngeal carcinoma (1 case, 2 ears), deafness after brain concussion (1 case, 2 ears). According to the treatment *qigong* therapy was ineffective to the hereditary

deafness, poor effect to the drug toxic deafness and noise deafness, but it had better effect on the senile deafness, 2 cases of which (4 ears) after doing *qigong* exercises for one and a half month, had a decrease of speech frequency of air conduction for 7-10dB in the first one and a half months for *qigong* practice, but in another one and a half months, the hearing didn't continue to decrease. We assume that the *qigong* therapy may prevent the development of senile deafness.

Types of deafness and therapeutic effect

Types of deafness	Cases	Ears	Hearing increased at least 10 dB	
			Ears	%
Sudden deafness	12	18	4	22.2
Drug toxic deafness	11	21	4	14.3
Senile deafness	9	18	6	33.3
Noise deafness	3	6	1	16.7
Deafness due to multiples cause	3	5	1	20.0
Others	4	8	2	25.0
Total	42	76	18	23.7

Duration of the *qigong* exercise and the therapeutic effect:

The duration of the *qigong* exercise varies from one month (13 cases) to 2 months (9 cases) and 3 months (20 cases). The therapeutic effect was nearly the same for different duration. We don't know if prolonged practice can increase hearing.

Among the 20 cases (38 ears) which did the *qigong* exercise for 3 months, the average value of the speech frequency of air conduction increased less than 5 dB in 5 ears (13.2%), but at the low frequency (25 Hz), the hearing increased 10-15dB (13dB on an average), at the high frequency (4000Hz), the hearing increase over 5dB was never seen (hearing decrease 1 dB on an average). The increase of hearing at low frequency was an accidental phenomenon. The cause remains to be explored. No side-effect was found in the exercise.

FURTHER EXPLORATION OF THE MECHANISM OF *QIGONG* IN TREATING BRONCHIAL ASTHMA AND CHRONIC BRONCHITIS WITH THE AID OF SEVERAL NEW TESTING METHODS

Huang Hua, Shen Bin, Shang Kezhong
(Shanghai No. 6 People's Hospital, Shanghai, China)

Since 1958 we have used a combined treatment for bronchial asthma with Western and traditional Chinese medicine, in which *qigong* takes a main role. From 1970's we extended this combined treatment to chronic bronchitis. On the basis of a comparatively good clinical effect, its mechanism has been further explored. In order to make more detailed clarification, we have used three new testing methods in the past three years to test the amplitude of diaphragmatic movement (by time distance or DT) and its form, the $TcPO_2$ and $TcPCO_2$ and the variation of pulsating pressure of the fingertip arterioles (P. P. F.) before and after the *qigong* exercises. All showed significant difference. Here is the report summary:

1. Ventilatory movement of the right hemi-diaphragm studied by video-fluorography correlated with *qigong*: 24 cases skilled in the *qigong* exercises were observed. Among them, 11 cases did the relaxation *qigong* exercises, 13 did the "small *qi* cycle exercise". Results of the video-fluorograpgy showed the average value of the sum (DD) of distance travelled during upward and downward movements of the diaphragm before the relaxation *qigong* was 54.6mm $\pm$ 14.8mm; while that measured in performing of the relaxation *qigong* was 72.6mm $\pm$ 23.6mm, the statistical comparison of DD before and during the *qigong* exercises showed $T=2.96$ ($P<0.05$). For the small *qi* cycle exercises the average value of DD before the performance was 46.3mm $\pm$ 24.7mm; while during the *qigong* exercises the average value was 95.4 $\pm$ 57.4mm. Statistcal comparison of DD before and during the small *qi* cycle exercises showed $T=3.68$ ($P<0.01$). Observation of the difference of the movement of amplitude in the anterior, middle and posterior part of the diaphragm simultaneously : 1/3 of the anterior was the smallest, 1/3 of the middle the largest and 1/3 of the posterior lies in between the two. There was no sigificant difference before and during the *qigong* exercises. We observed the time distance of the diaphragmatic movement (the distance moved in a fixed time period, DT mm/min.), and discovered that in the middle stage of DT of the small *qi* cycle *qigong* there was one or more short standstill and a little fluctuation of DT (reverse movement in the course of respiratory cycle) in persons practising the small *qi* cycle exercise.

By video recording, an exact measurement was made of the DT. The statistical analysis of the values before and during the relaxation *qigong* showed $T = 2.23$ ($P < 0.05$), whereas the values before and during the small *qi* cycle exerciese showed $T = 3.68$ ($P < 0.01$). The expansion of DD leads to a decreased respiration frequency. This was more evident in the small *qi* cycle exercise. The frequency of respiration per minute reduced to 2-3 times. $P < 0.001$ was found before and during the two forms of *qigong*. Prolongation of DT, reduction of respiration frequency and reduction of total quantity of diaphragmatic movement showed that during the *qigong* exercise the status of exhaustion nature of energy metabolism would be transformed to a status of energy storage. In terms of the disputed paradoxical abdominal respiration it was proved by the appearance of the reverse movement of diaphragm seen in the video recording. The X-ray diaphragm video recording gave better observation of the diaphragmatic movement than the ultrasound technique; thus a new testing method to explore the mechanism of the clinical effect and special status has been found.

2. $TcPO_2$ and $TcPO_2$ measurement: 30 cases in total were measured. Among them 22 had better *qigong* training. After exercises their $TcPO_2$ all decreased ($T = 5.45$ $P < 0.001$). 8 cases did not have good *qigong* training. Their TcPO and $TcPO_2$ before and during the *qigong* exercise showed no sigificant difference ($P < 0.05$). Before *qigong* exercises the $TcPO_2$ value was lower than normal and increased to the normal value after *qigong* exercises. It showed that *qigong* exercises would change the body status, from that of "energy exhausting (oxygen exhausting)" to "energy storing" ($TcPO_2$).

3. Testing by P. P. F. :

It was measured under the pressure 40mmHg, 50mmHg and 60mmHg. P. P. F. showed changes before and during *qigong* exercises. There were 10 cases tested under 40mmHg pressure, 9 cases under 50mmHg and 7 cases under 60mmHg. After *qigong* exercises P. P. F. increased to some extent in each case, but all within the normal range. P value was < 0.05--0.01. The fact explains the theory of "blood is commanded by *qi*" in traditional Chinsese medicine. *Qigong* exercises may improve the blood circulation through the regulation of *qi* and blood of the human body.

4. Discussion:

According to the results of the three new testing methods, together with the experimental observation of the various biophysical phenomena in the past, we think that the mechanism of the curative effect of *qigong* in treating bronchial asthma and chronic bronchitis may be explained as follows:

(1) *Qigong* can regulate the function of cerebral cotrex and vegetative nerve system.

(2) *Qigong* can improve the function of respiration.

(3) *Qigong* can regulate *qi* and blood, *ying* and *yang* of the human body.

The X-ray video recording of diaphragm movement, $TcPO_2$ test and P. P. F. test provide further evidence for the last two hypothesized mechanisms.

A STUDY OF THE EFFECT OF THE EMITTED *QI* COMBINED WITH SEIF-PRACTICE OF *QIGONG* IN TREATING PARALYSIS

Huang Meiguang

(The General Hospital of PLA, Beijing, China)

43 cases of paralysis, 19 cases of hemiplegia and 24 of paraplegia were treated by the emitted *qi* combined with self-practice of *qigong*.

Method:

1. *Qigong* masters emitted their qi from Laogong (P 8) and Shixuan (Extra 10) towards the running course of the meridians of the patient 2-3 times a day.

2. *Qigong* masters used his emitted *qi* to massage points of the patient once every other day.

3. Under the instruction of a master and according to the condition of the myodynamia the patient did the *qigong* exercise 1-2 times a day to restore the function.

Result:

1. Relief of symptoms.

The mental status, sleep, appetite, local perspiration (limbs), speaking ability, etc. were all obviously improved.

2. Changes of myodynamia.

The myodynamia of the paralytic limbs was improved in most cases (35/34) from 0-2 degree to 3-5 degree, which means the ability of performing active movement. Some of the cases were completely recovered.

3. Walking.

Before treatment 37 of the 43 paralytic patients had needed support in walking. After treatment 23 cases could walk without any help. Only 20 cases were still dependent on crutches. But some patients previously used wheel chairs now could walk with crutches, and those who originally walked with a pair of crutches now use only one crutch.

4. Managing of dally ilfe.

Before treatment 36 of the 43 cases could not manage their own daily life. After treatment 34 were capable of taking care of themselves.

In Comparison with the indices before and after treatment, the difference was statistically significant.

Judged by the indices of rehabilitation commonly used, the effect of treatment was excellent in 10 cases (23.25%), good in 20 cases (46.5%), fine in 10 cases (23.25%), bad in 3 cases (6,99%). The total effective rate was 93.01%. The markedly effective rate was 69.76%.

OBSERVATIONS OF THE THERAPEUTIC EFFECT ON MYOPIA OF TEENAGERS PRACTISING "RELAXING AND QUIESCENT *QIGONG FOR EYES*"

Wu Binjiang, Jiao Guorui and Zhang Honglin

(Institute of Acupuncture and Moxibustion, China Academy of Traditional Chinese Medicine, Beijing, China)

"The Relaxing and Quiescent *qigong* for Eyes" designed by our research room has been used to treat 241 pupiles with myopia (421 eyes in total) in the Dongzhimen High School, Beijing, and satisfactory result was obtained.

Before the treatment, all the pupils had had myopic and hyperopic examinations, optometry after mydriasis and fundus examination. Then diagnosis of myopia was given. Furthermore, identification was made between pseudo-myopia and myopia.

The patients were divided at random into two groups: the treating guoup and the control group. The former practised "Relaxing and Quiescent *qigong* for Eyes" and the latter did the setting-up exercises of eyes.

Criteria of effect: (1) Marked effect: Vision improved by three lines; (2) Effectiveness: Vision improved more than one line; (3) Unchanged: Vision improved less than one line; (4) Failure: Vision decreased more than one line.

Results: after 2-month treatment in the treating group the marked effect was 25% of the total, the effectiveness was 61.8%, the unchanged was 13.1% and failure was 0%. The total effectiveness reached 86.8% and the total effectiveness for true myopia was 82%. In comparing with the control group, there was great difference ($P<0.01$). The therapeutic effect of the treating group was apparently higher than that of the control group. There was

no marked difference of the therapeutic effect in different age group. Effectiveness was in direct ratio with the duration of practice of *qigong*. This treatment was not evidently effective for the refraction change of those with simple myopia (<3.0D).

This *qigong* exercise is easy to learn with no untoward effect. It is an exercise to adjust the local and the whole body.

Clinical results show that "The Relaxing and Quiescent *Qigong* for Eyes" has satisfactory therapeutic effect in treating myopia, but the mechanism of the treatment needs further study.

A CLINICAL OBSERVATION OF *QIGONG* AS A THERAPEUTIC AID FOR ADVANCED CANCER PATIENTS

Sun Quizhi and Zhao Li

(Kuangan Men Hospital, China Academy of Traditional Chinese Medicine, Beijing, China)

One hundred and twenty-three cases of advanced cancer treated simultaneously with drugs and *qigong* has been reported in this paper. These were in-patients of our Department during the past 5 years. Among them there were 60 males and 63 females, the youngest was 20 years old, the average age was 47 years old. These patients were diagnozed pathologically as malignant cancer, 70 cases were in the III stage, 53 cases in the IV stage, of which, cancer of stomach accounted for 42.23%, cancer of the large intestine 31.70%, mastocarcinoma 11.29%, and cancer of the esophagus and cardial carcinoma 8.1%.

The 123 patients were divider into two groups. The observation group including 97 cases treated with drugs and *qigong* exercises, the control group, which consisted of 30 cases, was treated by drugs alone. Similar drug was given to the two groups. Each patient who received the therapy of drugs and *qigong* did the *qigong* exercise for over 2 hours a day, 3 months as a course, the longest might be up to 6 months. Symptoms, signs, body weight and immunological indices, etc. were recorded before and after treatment. The results were as follows:

1. Amelioration of general symptoms: 81.7% of the patients regained strength, 63% improved appetite, 33.3% were free from diarrhea or irregular defecation in the observation group, while the rates of the patients in the control group were 10%, 10% and 6%

respectively. The difference between the two groups is significant ($P<0.01$).

2. Body weight: In the observation group, 50.54% of the patients' body weight increased more than 3 kg, and 5.4% of the patients' body weight decreased more than 3 kg. In the control group, the patients' body weight increased or decreased by 3 kg and more, accounting for 13.33% and 30% respectively. The difference between the two groups is marked.

3. Phagocytosis of macrophages: In the observation group, the phagocytic rate of macrophages of the patients was $34.68\pm8.90\%$ before the therapy, and it became $46.98\pm8.20\%$ after the treatment, increasing by 12.31%; the phagocytic indices of macrophages were 0.45 ± 0.108 and 0.63 ± 0.130 respectively before and after the combined therapy. In the control group the phagocytic rate did not elevate, but decreased by 7.87%, the phagocytic indices were 0.63 ± 0.183 and 0.50 ± 0.138 respectively before and after the drug therapy alone. There is a marked difference between the two groups.

4. In addition, it has been observed that the erythrocyte sedimentation of 23 out of 93 patients, and the hepatic function of 20 out of them in the observation group have turned to normal, while there were only 3 cases whose erythrocyte sedimentation, and 2 cases whose hepatic function have turned to normal in the control group. The difference between the two groups is significant.

To sum up , it suggests that the *qigong* therapy is helpful to some extent to ameliorating the symptoms, improving appetite, strengthening constitution and increasing the ability of self-cure. *Qigong* can regulate the mind, heart, *qi* and blood so as to get rid of pessimism and eliminate the evil factors, therefore it is really an effective, simple, easy and no side-effect supplementary treatment.

Because limited cases were observed and the time of observation was shorter, it is necessary to do further study.

A CASE OF CEREBROATROPHY CURED BY *QIGOING*

Zhao Guang

(Xiyuan Hospital, China Academy of Traditional Chinese Medicine, Bejing, China)

Xie Qigang

(Beijing Normal University, Bejing, China)

Cerebroatrophy is a difficult disease with symptoms of dizziness, inert thinking, stupid

facial expression, feeling top heavy and motion impairment.

Case analysis: Xie Shijun, male, 79 yeas old, teacher. He felt dizzy, slow in thinking, top heavy, motion impairment, etc. He gradually lost his ability of reading and work. He was always dozing off, and seldom, if ever, liked to talk to anyone. He had been treated by modern medicine and traditional Chinese medicine with failure.

On January 4, 1987, the patient started to follow my advice and do the "*Quan Zhen Gong*" twice a day in the morning and evening. He sat still and relaxed the whole body, expecting or thinking of something like a small ball stirring in the abdomen all around. Each time it would take him half an hour or so to do the exercise.

On February 5, he went to the hospital for a C. T. examination, which determined his trouble to be cerebroatrophy. Having sufficient confidence, he made up his mind to follow the *qigong* therapy insistently and ceaselessly. He did four times of *qigong* exercise daily, two in the morning and two in the evening. His mental energy seemed to be coming back and to increase. He did not sleep so often and so much as before, he could walk about in the house.

On April 9, he began to receive the emitted qi from me. Immediately after the treatment he was able to walk about a little.

From July 25, acting upon my advice the patient ceased to come to the hospital but to do the exercise at home, because he was much better. The patient resumed his self-exercising under the care of the university's *qigong* cum psychology therapy service group.

Now quite a different picture may be presented here about the former invalid. He has completely come to. He lives and works in normal way. He is mentally active again and has a spirited complexion. He can walk upstairs and downstairs by himself and walk without a stick., quite a different man from the invalid that he was.

On March 30, 1988, the hospital submitted the patient to another C. T. examination. It was confirmed that his disease had gone off. The back-to-health state was such that his cerebrum was better conditioned than that of a man of the same age who had not had cerebroatrophy ever.

A CLINICAL OBSERVATION ON THE LIVER AND GALL STONES TREATED WITH *QIGONG*.

Li Jinzheng
(Bejiing Institute of TCM, Bejing, China)
Liu hekun
(Shenyang Institute of TCM, Shenyang, China)

There were only a few reports concerning with *qigong* treatment of lithiasis in recent years. But with the development of ultrasonoscopic methods, the detection rate of this common disease is rising. As there is an obvious effect with Western and Chinese pharmacotherapy, we gave systematical *qigong* treatment to 15 cases who did not respond to Chinese and Western pharmacotherapy. Each case was treated with *qigong* for 2-3 courses. The average number of treatments was 20-25 times. Different effects were found after treatment.

According to a common criterion to determine the effects, among the 15 cases, 7 cases were cured (47.6%), the number of effective cases was 6 (40.0%), and that of non-effective cases was 2 (13.4%), the total effective rate being 86.6%.

Analysis:

1. Site: (1) Of 4 cases of hepatolithiasis, 3 were cured, and the number of effective cases was 1. (2) The 2 cases of choledocholithiasis both were cured. (3) Of 9 cases of cholecystolithiasis, 2 were cured, the number of effective cases was 5, and that of non-effective cases was 2. The results showed that the therapeutic effect in patients with cholecystolithiasis was not so good as that in patients with hepatolithiasis or choledocholithiasis.

2. Number and size of stones: The number of cured, effective and non-effective cases in patients with stones larger than 1.0cm in diameter was 4, 2 and 1 respectively, whereas that in patients with stones smaller than 1.0cm in diameter was 3, 4 and 1 respectively. So when the diameter of the stone is larger than 1.0cm, the effective rate is smaller.

3. Age: According to the age the patients were divided into 3 groups, i.e., under 30, 30-50 and 50-60. The number of cured, effective and non-effective cases were 3 : 0 : 0 in the first group, 2 : 4 : 1 in the second group, and 2 : 2 : 1 in the third group. This suggests that the curative rate is higher in young patients than in old patients, and that it is concerned with

body sensitivity.

The results of the obervation showed that the function of the emitted *qi* and *qigong* may be anti-inflammatory, spasmolysis, anti-stone and stone-dispelling without side-effects. This is a new way of combining Western with tradtional Chinese medicine and is worthy of further resarch.

THE ROLE OF *QIGONG* AND *TAIJIQUAN* IN RESPIRATORY REHABILITATION

Sun Yinxing et al.
(Sino-Japan Friendship Hospital, Beijing, China)

The cardiac and pulmonary functions diminished gradually with age. The respiratory diseases such as chronic bronchitis, bronchial asthma, corpulmonale, etc. seriously impair the health of the people. The incidence of chronic obstructive pulmonary diseases and occupational pulmonary diseases is increasing due to cigarette smoking and air pollution. The respiratory rehabilitation is one of the tasks of the rehabilitation professionals.

Qigong and Taijiquan are the important parts of traditional Chinese medicine.

14 outapatients were divided into *qigong* and *Taijiquan* groups at their own will. There were 13 men and 1 woman, from 58 to 72 by age (mean 64.29 ± 1.97 years). All of the patients suffered from the cardiac or pulmonary disease. 11 of them smoked for more than 20 years.

A thorough medical history, physical examination and laboratory tests such as ECG, UCG, blood-lipid and lung function tests were worked out in order to establish definite diagnosis and to rule out contraindications. Then, they were taught *qigong* and *Taijiquan*, 3 times a week. After 3.5 months patients can do the exercise by themselves.

18 months later, the lung function tests were repeated with the same pulmometer (Chestac-65 made in Japan).

After 18 months of exercise, the lung function tests were markedly improved.

The vital capacity (VC) of 14 patients increased by 3.31% on an average ($P<0.05$). The total lung capacity (TLC) of 14 patients increased by 7.34% ($P>0.05$). TLC of 6 patients were abnormal before the exercise and 4 of them became normal after the exercise. 4 of the 14 cases increased by more than 15%. The forced vital capacity (FVC) of all patients

improved by an increase of 16.11% on an average ($P<0.001$).

These results show that both *qigong* and *Taijiquan* are beneficial to respiratory rehabilitation.

A CLINICAL STUDY OF CHOLELITHIASIS TREATED BY *QIGONG* AND EAR-POINT THERAPIES IN 40 CASES

Ma Shuan

(Dongzhimen Hospital, Beijing College of Tradifional Chinese Medicine, Beijing, China)

Among the 40 cases, 13 were males and 27 females. Ages were between 41 and 60, 7 cases were 61^{+}, 3 cases were 40^{-}.

1. Sandy gallstone (Non-operation).

2. Diameter of the gallstone was $1^{\pm}$ cm and the patients refused operation.

3. Patients were treated by Western and Chinese medicine for 3-6 months without success.

4. Patients were treated by ear-point therapy with failure.

Method:

1. 10 cases were treated by the ear-point therapy as the control group (G. I) and 30 cases were treated by the *qigong* and ear-point therapies (G II).

2. G II did the *qigong* exercise two-three times a day, 50 minute each.

3. The doctor emitted his *qi* to the patients simutaneously to promote the flow of *qi* and blood of the patients.

Criterion of cure:

(1) Marked effect: Discharge of stone $1g^{+}$, symptoms removed.

(2) Effect: Discharge of stone $1g^{-}$, symptoms removed or relieved, yet relapse seen.

(3) Failure: No discharge of stone and symptoms remained.

Effect of treatment:

Among the 30 cases, 21 were markedly effective, 9 were effective. The total treatments were 486 times and the total discharged stones weighed 357.92g (0.73g./time on the average).

In the control group all of the cases were effective, The total treatment reached 130 times, and the total dischairged stones weighed 14.38g. (0.11g./time on the average).

Discussion:

1. The *qigong* and ear-point therapies do not use any drug or operation. It is good for treating 0.5 cm diameter stones and sandy stone. The curative effect is not superior to Chinese and Western medication. Greasy food and high portein can be taken in the treatment course,

2. Diagnosed gallstone with B-ultrasonic is different from clinical observation. B-ultrasonic's result is only for reference.

3. The cases of gallstone in females are more than that in males, which is considered to be related to females' climacteric. The development form of the gallstone is connected with the cholesterol content and endocrine disorders.

OBSERVATIONS OF THE CURATIVE EFFECT IN 103 CASES OF CHRONIC ATROPHIC GASTRITIS (CAG) TREATED WITH *DAOYING* (INDUCING) *OR TUINA* (RELEASING/RECEIVING) THERAPY

(Research Group on *Qigong* Science,
Institute for Industry Health, the National Mechanical Industry Commission, Xi'an, Shanxi Province, China)

Chronic atrophic gastritis (CAG) is a common yet difficult illness. In our experiment, *Daoying* and *Tuina* therapy was applied to 103 cases. Among them 58 were males and 45 females in an average age of 43. The average duration of disease was 7.8 years.

The cases had been identified by gastroscopy and biopsy before admission based on the diagnostic criterion set on the Chongqing Symposium in 1982. *Daoying-Tuina* exercises (dynamic-quiescent) were done 4 times a day, an hour each. 79 days made a course and no medication for gastrosis was given.

31 Cases were checked with gastroscopy and biopsy, 30 cases with electrogram and 34 cases with immunity detection by the end for the treatment course. Analysis was worked out by comparison both in oneself and with each other.

Criterion of effect:

Marked effect: Disapperance of abdominal distending pain, anorexia, belching, diarrhea, disappearance or relief of lesions, atrophic gastritis turning to superficial gastritis, or severe atrophic gastritis turning to mild.

Effectiveness: Symptoms relieved, lesions lessened, atrophy of gland lightened for one grade.

Failure: No change

Results:

The therapy appeared markedly effective in 72 cases (69.9%). The effective cases were 28 (27.2%). There were 3 failures. The total effectiveness was 97.1%. In gastroscopy and pathology examination, the rate was 35.5%, 29.0% (total: 64.5%); 48.4%, 38.7% (total: 87.1%) respectively.

Electrogastrogram check: Frequency before meals: Before therapy: 2.32 ± 0.58; after therapy: 2.57 ± 0.39 ($P < 0.05$). Amplitude before meals: Before therapy: 34.33 ± 18.65; after therapy: 57.5 ± 37.15 ($P < 0.01$). Frequency After meals: Before therapy: 2.69 ± 0.43; aften therapy: 2.68 ± 0.35 ($P > 0.05$). Amplitude after meals: Before therapy: 54.17 ± 35.38; after therapy: 83.67 ± 61.78 ($P < 0.01$).

Immunology examinatin: E-rose knot: Before therapy: $51.3 \pm 8.4\%$; after therapy: $55.3 \pm 7.7\%$ ($P < 0.05$). Lymphocyto transformation rate: Before therapy: $51.8 \pm 7.3\%$; after therapy: $54.3 \pm 7.5\%$ ($P > 0.05$). IgG and IgA decreased after the therapy for those increased before therapy.

It is believed that treatment of CAG with *qigong* has not yet been documented in China. Our total effective rate is 97.1%. The effective rates of Zhang Jingren, Xu Zicheng and Xian Yuenian in treatment of CAG with herbs were 88.5%, 97.5% & 93.1% respectively. Our total effective rate in pathology examination was 87.1%, lower than 73.1%, 61.4%and 71.7% reported by the three authors mentioned above.

It seems to show that *Daoching-Tuina* exrcises would improve the stomach function of those suffering from CAG, improve or adjust the cellular and humoral immunity. The mechanism of the therapy was also discussed in the paper.

THE BIDIRECTIONAL INFLUENCE ON THE ELECTROGASTRIC ACTIVITY IN MAN

Feng Yangzheng, Qin Chao, Yu Youmin,
Xie Shanling and Guan Songjiang
(Institute for Industrial Health of National Mechanical Imdustry Committee, Xi'an
(Xi'an Medical University, Xi'an, China)

A traditional sychosomatic therapy known as *Daoying-Tuina* originated from Shaanxi province. It was applied to 59 cases with chronic atrophic gastritis and gastroduodenal ulcer. The patients were divided into two groups according to their surface electrogastrogram: higher amplitude (>180μv) and frequency (>3.5 per minute); lower amplitude (<80μv) and frequency (<2.5 per minute). It was obsersved that the indexes of the first group tended to come down and that to go up in the second group after 71±4 days of practice of the exercise. In addition, it was found that the changes of electrogastrogram in an empty stomach of the *qigong* masters after practice lasted for 1.5—2.5 hours, longer than the un-*qigong* subjects (30—40 minutes). This study showed that the exercise has a bi-direcdtional regulation effect on the electrogastric activity in man. The possible mechanism of this effect is discussed too. (See tables 1,2,3)

Table 1. Changes of electrogsatrogram at pre-and post-treatment with the exercise.

Groups	Course of treatment	Case	Pre-meal	Post-meal
			Frequency amplitude (times/min.) (μv)	Frequency amplitude (times/min.) (μv)
Chronic Atrophic Gastritis	Pre-	24	2.23±0.25 41.63±16.56	2.58±0.23 64.39±24.13
	Post-	24	2.61±0.24 75.34±27.23	2.82±0.35 95.71±31.56
Gastro-Duodenal Ulcer	Pre-	16	3.32±0.26 273.54±30.41	3.56±0.28 301.34±54.2
	Post-	16	3.11±0.22 196.43±41.38	3.28±0.24 238.82±67.6

Table 2. Changes of higher or lower amplitude groups in pre- and post-treatment with the exereise

Groups	Cases	Pro-meal amplitude(μv)		Post-meal amplitude (μv)	
		Pre-treatment	Post-	Pre-treatment	Post-
Higher Amplitude Group	12	312.53±55.18	220.21±49.54	363.29±58.55	253.72±53.44
Lower Amplitude Group	26	45.71±20.25	83.64±26.32	67.34±16.28	107.32±30.41

Table 3. Changes of higher or lower frequency groups in pre- and post-treatment with the exercise

groups	case	Pro-meal frequency(times/min)		Post-meal frequency(times/min)	
		Pre-treatment	Post-	Pre-treatment	Post-
higher frequency group	10	3.61±0.08	3.10±0.15	3.73±0.11	3.25±0.16
lower frequency group	21	2.18±0.16	2.54±0.21	2.54±0.19	2.96±0.24

THE BI-DIRECTIONAL ADJUSTMENT OF BLOOD PRESSURE AND HEART RATE BY *DAOYIN-TUINA* ON THE ARTERIEAL BLOOD AND HEART RATE

Qin Chao

(Xi'an Medical University, Xi'an, China)

Feng Yangzheng and Yu Youmin

(Institute for Industrial Health of National Mechinery Industry Committee, Xi'an, China)

Xie Shanling and Guan Songjiang

(Shaanxi Association of *Qingong*, Xi'an, China)

Daoyin-tuina is a traditional sychosomatic therapy originated from Shaanxi province, China. This therapy has been found to be highly successful in the treatment of cardiovascular diseases. we have observed the effect of it on the rheoencephalogram and finger tip plulsate plethysmogram of the patients. In this paper, the changes of areterial blood pressure (ABP) and heart rate (HR) of 38 subjects with hypertension, hypotension and nomotension have been recorded in the course of its training in 54 ± 4.2 days. The results showed the blood pressure in the hypertension group tended to come down greatly, that of the hypotension to go up , and that of the nomotension to be no significant changes after the course of treatment (See Table 1) . Before and after the *qingong* exercise the higher ABP or the faster HR group tended to come down, the lower ABP or the slower HR group tended to go up. This study suggests that there is a bi-directional adjustment of of it on ABP and HR. The possible mechanism of this effect was discussed too.

Table 1. Changes of ABP in pre- and post-treatment with the exercise.

Groups	Case	Pre-(mm Hg)	Post-(mm Hg)
Hypertension	13	$180.5 \pm 24.7/105.9 \pm 15.1$	$162 \pm 22.1/99 \pm 11.9$
Hypotension	3	$88.7 \pm 7.3/56.2 \pm 6.8$	$89.3 \pm 8.1/61.9 \pm 7.2$
Nomotension	22	$116.9 \pm 15.3/73.4 \pm 7.5$	$116.6 \pm 13.4/72 \pm 6.15$

THE ORAL-FACIAL SCAR SOFTENED BY QIGONG THERAPY

Ma Dingxing

(Stomatological Hospital, 4th. Military Medical College, Xi'an, China)

Scars, pimples and scleroma, especially in the oral-facial region, caused by inflammation, trauma and surgical operation, not only affect apperance but also physiogical function. They are difficult medical problems since medication and reoperation have no effect.

The author has softened the scar tissues by means of *qingong* therapy with apparent effect in recent years.

Qingong pattern: Natural *qingong* .

Method: Emitted qi trement was given for 6-10 min. a day, 3-5 days made a course

Result:

1. Scar tissue softened
2. Pimple smaller
3. Scleroma flatter and softer
4. Color from white to red
5. Mouth opening degree wider
6. Facial muscle functions easier

The best therapeutic effect appeared in 10 min. after treatment, the slowest in 3 to 5 days.

Case Report:

Case 1: Jiong, male, 7 yrs. old. His left nasal wing and upper lip were damaged by a traffic accident 3 months ago. After the wound healed, a scar tissue sized 1.8×1.0×0.5cm could be seen at the left lip and nose region, thus resulting in limitation of the left lip and nasal wing movement. The boy was admitted on Oct. 10, 1987 and treated with the *qingong* therapy for 10 min. As a result, the scar tissue became flatter and softer, freer movement of the lip and nose was apparently seen, and the facial appearance was beffer.

Case 2: Song, male, 45 yrs. old, suffering from squamous cell carcinoma at the soft palate. After surgical operation, he complained of a hard and painful scar, which made speaking, swllowing and mouth opening quite difficult for 1 month. On Nov. 20, 1987, on physical examination: there was a 3.8×1.5×0.5cm sized band-shaped reddish and hard scar at the soft palate; the mouth opening was 2cm. By means of the *qingong* therapy for 4 days,

the scar tissue became smaller and softer day by day; the pain disappeared gradually; the mouth could open as wide as 3. 5cm.

Case 3: Zhang, female, 26 yrs. old, there was a broad-bean-sized scar at the right cheek for 2 months caused by a traffic accident. On Dec. 13, 1987, it was found that the scar felt hard and not movable. During the first *qigong* therapy, the scar became softer in 5 min. and smaller and movable in 10 min.

Case 4: Cheng, male, 30 yrs. old, his lower lip had been damaged 5 months ago. The scar adhered to the mucosa of the oral vestibule and alveola, causing the movement of the lower lip very difficult. After 3 times of the *qigong* therapy, the scar was softened and thinner day by day, the lower lip could move freer.

Case 5: Wang, female, 24 yrs. old, her haemangioma of the right cheek had been removed and skin-graft performed 1 year before. On Jan. 20, 1988, it was found that there was a round-shaped, hard red scar at the edge of the grafted skin, 3mm higher than the normal skin. The movement of the right nasal wing and lips became difficult. After 5 times of the *qigong* therapy, the scar tissue became flatter and softer gradually, the movement of the nasal wing and lips was apparently freer.

Case 6: Li, female, 40 yrs. old, on Jan. 22, 1988, it was found that there was a scleroma at her left cheek following a submasseteric infection, and her mouth could only open 0. 5cm wide. After 3 times of the *qigong* therapy, the mouth could open 2. 5cm.

As reported above, it is shown that the *qigong* therapy has a softening effect on the oral-facial scar caused by inflammation, trauma and surgical operation.

AN OBSERVATION ON THE RESULTS OF DRUG AND *QIGONG* THERAPY FOR CHRONIC RESPIRATORY DISEASES

Li Ziran

(Research Institute of Tradtional Chinese Medicien, Tianjin College of TCM, Tianjin, China)

Liu Fangying (Tianjin Thorax Surgery Hospital, Tianjin, China)

Zhou Renyeng

This paper deals with the clinical observation and mechanism of the incurable chronic respiratory diseases, such as chronic bronchitis, asthma, pulmonary emphysema and cor pulmonale, treated by drugs and *qigong* exercise. Better results have beem obtained. In

contrast to the group treated with drugs only, a remarkable difference can be noted (the course of disease and other conditions of both groups are similar). The statistically trustworthy data from 30 cases are as follows (the course of treatment was all for 3 months).

Table 1. Rate of Effectiveness

Group	Case	Temporary effectiveness	Marked effectiveness	Improvement	Failure
Combined therapy G	20	5(25%)	8(40%)	7(35%)	0
Drug G	10	2(20%)	3(30%)	4(40%)	1(10%)

1. Analysis of symptoms:

In comparison with the two groups, the rate of effectiveness is approximate, but more symptoms disappeared in the group treated with the combined therapy and the condition was better than the control too.

Table 2

Symptom	Cough		Expectoration of phlegm		Asthma	
	Combined therapy G	Drug G	B-group	Drug group	B-group	Drug group
Disapperarnce	16(80%)	4(40%)	8(40%)	2(20%)	7(35%)	3(30%)
Improve-ment	3(15%)	5(50%)	9(45%)	6(60%)	10(50%)	5(50%)
No Change	1(5%)	1(10%)	3(15%)	2(20%)	3(15%)	2(20%)

2. Alternation of signs:

The improvement of the group treated by the combined therapy was more significant than the control in every aspect of signs. After having practised the exercise, the patient felt his condition greatly improved than before. This suggests a clear difference statistically, as shown in table 3.

Generai condifion (appetite, sleep, spirit, energy)

	Combined Therapry G	Dnug G
Marked Improvement	18(90%)	2(20%)
Improment	2(10%)	6(60%)
No Change	0	2(20%)

Table 3

Items	Breathing freq(time/m.)		H. R(time/m.)	
Group				
	Before treatment	After Treament	Before treament	After treament
Combined G. therapy	19.3	6.6	89.1	73
Drug G	20.1	18.2	89	87.4

Items	Rates			Mediastinum muscle motoricity(cm)%			
Group	Disappear-ance	Decrease	No change	Before treatment		After treatment	
Combined therepy G.	15(75%)	(15%)	2(10%)	L	R	R	L
				2.18	2.07	5.94	5.62
Driug G.	4(40%)	5(50%)	1(10%)			3.3	2.5

The result shows that the various indices of the function of immunity and lungs and the blood mucosity of the lab before and after the exercise have been improved distinctively.

Table 4

	Phagocytose of WBC	Blood mucosity over normal	VC	Test of load of motion	
				HR	Breathing time/m.
Before	52.6%	19	2578	24	5
After	77.8%	5	3008.3	7.47	2.64
P value	0.01	1.3 P<0.01 (dropping down)		<0.01	<0.01

As mentioned above, symptoms, such as cough, expectoration of phlegm and asthma, are not only controlled in the group treated with the combined therapy, but the body strength is fundamentally enhanced, immunity increased, the function of the heart and lungs improved; the lab test and other conditions are apparently improved. The method of combined treatment has much more special effect upon the disappearance of symptoms , improving the function of the heart and lungs, the general condition and prevention of the patients from relapse. Specific exercise is for a particular individual. Good result would be achieved and the course of treatment would be shortened. The mechanism of the treatment has been under discussion, but the observation from this group in the clinical experiment does prove that the *qigong* exereise has a significant effect on alternating the status of neencephalon, reviving the body's potential energy, developing the store capacity of pulmonum alveoli, changing the type of energy metabolism and affecting the biochemical processes. The blood mucosity may be alternated, the body resistance increased and *qi* reinforced. On the other hand , this method may be served as a factor to affect the physiological efficiency, to extend the contents of thorax, the amplitude of motion, to increase the movability of diaphragmatic muscle and improve the function of lungs.

A GROUP OBSERVATION AND EXPERIMENTAL RESEARCH ON THE PREVENTION AND TREATMENT OF HYPERTENSION BY *QIGONG*

Li Ziran, Li Lixiang and Zhang Boli

(Research Institue of Traditional Chinese Medicine, Tianjin College of TCM, Tianjin, China)

This paper deals with the observation of curative effect and the primary probe of the mechanism concerning the treatment of primary hypertension by *qigong* exercise with the assistance of biological feedback instrument. A total of 929 cases were observed in contrast, in which, 639 cases were put under the group of the *qigong* therapy. Its percentage of effectiveness was 85.13% and that with marked effectiveness was 76.678%, far exceeding that of the control group. Thus the lowering of blood pressure by the *qigong* therapy has manifested the following distinctive merits:

1. The lowering effect of blood pressure was quick and lasting, and the general symptoms were distinctively relieved. The short term course of treatment for this group was eight weeks. the average range of the step-down of blood pressure was from 23.14mm Hg to 14.08 mm Hg. Besides, for some cases, the blood pressure could be lowered by 12 to 20 mm Hg after one practice of the exereise. Furthermore, the lowering effect of diastolic pressure was especially significant. In concurrence with the lowering of blood pressure by the *qigong* exercise, the physical quality of patients, such as appetite, sleep, spirit and physical status were improved markedly. Other chronic diseases were also cured to some extent. According to the long term tracing visit (1 to 3 years), the percentage of blood pressure stability of those patients insisting on doing the *qigong* exercises was 97.7% and rarely with relapse. The status of those interrupting the exercises was inferior.

2. The effect of treatment might be enhanced if stress is laid on doing the exercises according to analysis of syndromes, In accordance with the pathogenesis of hypertension, the quiescent pattern of exercises was used to calm the liver and benefit the kidney . Besides, the root cause and symptoms were both considered, and the quiescent dynamic patterns of exercise were combined, so satisfactory effect of treatment was attained. If the instrumental treatment is supplemented in the initial course of exercises, the effect of treatment would be furthermore enhanced and the course of treatment would be shortened.

3. The lowering of blood pressure by the *qigong* exercise possesses distinctive social and

economical benefit. From the viewpoint of the guiding ideology, the direction of prevention and cure, and the means of medical treatment, the lowering of blood pressure by the *qigong* exercise suit the tendency of development of modern medicine and it is beneficial to the change of medical model, promoting the alteration of individual treatment to community prevention, and the turning of model of biological medicine to the model of psychological-social-biological medicine. The approaches of this research is based on the a coordination of the three level structure of prevention and treatment with the various medical bases. The enforcement of community prevention in the form of organizing the *qigong* exercise classes is not only beneficial to giving full play of the enthusiasm of the medical staff at various levels, increasing the quantity of prevention and treatment but also help to close the ties between the medical staff and patients, and promote their psychological and mental health. Thus, the psychosomatic disorders could be prevented and cured. Furthermore, the lowering of blood pressure by the *qigong* exercise might cut considerably the medical expenses, evade the side-effect of drugs and raise the rate of attendence and labour productivity, so its economical benefit is also rather significant.

In the course of clinical treatment, with the exception of observing the system of blood pressure, for a part of patients measurements of blood bio-chemistry (cholesterol, triglyeride, lipoprotein of low density, etc.), microcirculation, blood rheology, index of immunology, resistance value of meridian points, and skin temperature were made, and the type of disposition was tested. The physiology effect of the lowering of blood pressure by instrument and the *qigong* exercise and its mechanism was discussed. The results show that, the various laboratory indices before and after the *qigong* treatment have been changed distinctively and the majority of statistical treatment possesses significant meaning ($P<0.01$). This implies that the *qigong* exercises have remarkable regulative effect on the central nervous system, vegetative nervous system, physiology, bio-chemistry, metabolism, endocrine, immunological system of the human body and its system of meridians in traditional Chinese medicine. It shows that in respect of the treatment and prevention of hypertension, various chronic diseases and mental and physical sickness, there lies a vast area for scientific exploration.

OBSERVATIONS ON THE CURATIVE EFFECTS OF THE *QIGONG* EXERCISE-"SELF-ADJUSTMENT THERAPY" IN HYPERTENSION

Jing Guinian

(Hongqiao Hospital of TCM, Tianjin, China)

The author has systematically observed the short-term effects and follow-up cases of patients suffering from hypertension stage II treated by *qigong* exercises. The data are listed as follows:

1. Subjects under observations:

125 cases of primary hypertension stage II patients were chosen. They were characterized by long course of disease with frequent attacks and no satisfactory results had ever been seen after various drugs given.

In this experiment, the patients were divided into 2 groups: the *qigong* expercise group (self-adijustment *qigong* therapy group) and the medicinal control group, as shown in the following table:

Item \ Group	*Qigong* exercise group	Medicinal control group
No. of cases	64	61
Sex male/female (person)	43/21	40/21
Average age (year)	57. 6	56. 6
Average course of disease(year)	11. 6	12. 8
Blood pressure(mmHg)		
Systolic(average)	175. 84	168. 68
Diastolic(avarage)	99. 75	101. 79

The *qigong* exercise group performed mainly the "relaxation *qigong*" and "depressurizing *qigong*", which were done one hour collectively and one hour individually every day.

Patients in the medicinal control group took cow-bezoar bolus to reduce blood pressure,

one bolus each time, two times a day.

2. Observations on curative effects after the experiment started for 2 months: Results of the depressurizing effects showed the overall effective rate of blood pressure depression in the 64 cases in the *qigong*·exercise guoup was 85.94%, of which symptoms ameliorated totalled up to 95.8%. In the 61 cases of the medicinal control guoup, the overall effective rate of blood pressure depression was 36.62%, of which symptoms ameliorated totalled 60.05%. The depressurizing range in the *qigong* exercise group showed the average descent of systolic pressure was 23.14 mmHg and that of the diastolic pressure 14.08 mmHg (P value$<$0.01) The difference was obvious.

Variations of blood-fat before and after treatment: In the *qigong* exercise group, there were slight increases with TC, HDL-C and LDL-C, but TG decreased. In the medicinal control group, all TC,TA and LDL-C decreased but HDL-C increased slightly.

Results of much outstanding significance were found by examining the immune globulin for all the cases in the two groups. They showed that in the *qigong* exercise group IgG decreased obviously and T-lymphocytoesterase increased evidently in all the patients after they had practised the self-adjustment *qigong* exercise for two months.

3. Long-term investigation:

The auethor has carried out a follow-up study at a regular interval on the blood pressure status of 30 patients practising the self-adjustment *qigong* exercise for 3 years. The patients' average systolic pressure maintained constantly around 130.18mmHg, while the diastolic pressure 84.14 mmHg; the IgG was 15.28, IgA 1.78 and IgM 1.04; the T-lymphocytoesterase was 60.6 and together with blood-fat were all maintained within the normal value of that of Tianjin Municipality. Besides, symptoms of hypertension were basically diminished. It was found from the data recorded during the long-term visit for 3 years that 66.6% among the cases did not have any of the following symptoms such as aching, distending, dizziness in the head, tightness and stiffness in the neck , feeling top-heavy and thin-stemmed, being irritable and fidgety, or suffering from insomnia and amnesia. Occasionally, some of the above symptoms might occur in 33.4% of the patients due to an emotional fluctuation or climatic variations, nevertheless, none of the reappeared symptoms lasted over 2 weeks.

4. Analysis and discussion:

The author holds that the factual results of the *qigong* depressurizing effect is prompt with an evident bodily amelioration for quite a long time and with recurrence only on rare occasions. It is not obtained from external passive factors such as drugs, mainly because the

practitioners have mastered a complete set of *qigong* exercises, which mobilizes their own potentiality, implements the path for self-adjustment and self-regulation to reduce blood pressure and eliminate symptoms, therefore the efficacy is stablized. Otherwise, the blood pressure will rise again when the practice is given up half way.

The next point is about the method of the *qigong* practice. It is advisable for hypertension patients to choose a set of exercise which is , in principle, performed with fully relaxation of the body, high tranquility in mind. As a matter of fact, the more the relaxation, the deeper the quietness getting into, and the better the effect achieved. Moreover, the *qigong* depressurizing function performs obvious economic and social benefits, and will also get rid of medicinal by-effects and drug-resisting problems.

The self-adjustment therapy, in addition, is also adventageous to the alternations of medical patterns, in other words, the transformation of biomedical models to psychological, social and biomedical models, which will mobilize and bring the initiative of both doctors and patients into full play, gives free rein to the function of the patients' internal causes, promoting their mental and psychological health and finally overcomes the obstinate chronic diseases. Therefore, viewing from the significance of the self-adjustment and natural therapy , it is not simply a question of social benefit but an aim of further importance, that is , during the course of *qigong* practise, patients can mould their temperament, cultivate their morality and calm the seven emotions in attaining the state of beaming and buoyant in spirit, which will nearly prevent any occurrence of diseases.

EFFECTS OF *QIGONG* ON THE PROSTACYCLIN—THROMBOXANE BALANCE IN PATIENTS WITH CORONARY HEART DISEASES

Zhou Shifang et al

(Nanjing Medical College, Nanjing, China)

Twenty male coronary heart disease (CHD) patients were divided into two groups at random: *qigong* therapy group (mean age 62.6±1.63 years old) and placebo group (mean age 61.4±0.90 years old) . The diagnosis of CHD was based on the history of typical angina pectoris and myocardial infarction combined with ECG findings and other laboratory analysis. Another 10 apparently healthy male subjects of similar age (54.7±1.16 years old) were studied as the control to compare with the laboratory findings.

Method:

In order to rule out the influence of the effects of movement, quiescent *qigong* exercise was selected. The exercise was similar to the ralaxation *qigong*, and was done collectively in the morning. Then the patients did the exercise separately at least 2-3 times a day, lasting for about 30-45 min. each.

In the placebo group starch was used. The control healthy subjects did not enter any treatment program but the course of placebo was 2 to 3 months.

Measurement:

All of the subjects received the graded submaximal exercise test. Before and after the test, blood was drawn from both arms' antecubital vein with minimal occlusion. The blood samples were analyzed by radioimmunioassay to measure 6-K-P, the stable metabolite of prostacyclin (PGI2) and thromboxane B2 (TXB2) and the stable metabolite of thromboxane A2 (TXA2) . Two weeks before experiment, all subjects had not taken any drugs known to interfere with the analysis of prostaglandins, such as aspirin, indomethacin, etc.. The determination of plasma 6-K-P and TXB2 levels of all CHD patients were done again after a period of treatment.

Results:

1. Before the exercise, the plasma 6-K-P level and 6-K-P / TXB2 ratio of all CHD patients were significantly lower than those of healthy subjects ($P<0.01$). These agreed that atherosclerotic plague formation damaged the histologic and function integrity of the endothelium of the vessels in CHD patients, reduced production of PGI2 at the injured site, causing the balance of PGI2-TXA2 to imbalance, and then made the condition from bad to worse. But the plasma TXB2 level didn't show any difference between CHD patients and the normal subjects. This might be explained by the different stage of diseases, most of the CHD patients in our experiment were chronic and stable ones.

2. Neither CHD patients nor healthy subjects had any changes of plasma 6-K-P, TXB2 and 6-K-P / TXB2 ratio after the submaximal exercise. Although we would not exclude the possibility of different response to different exercise and intensity, one conclusion could be drawn that submaxinal exercise did not induce a PGI2-TXA2 imbalance in most chronic stable CHD patients.

3. *Qigong* training for one course significantly increased the plasma 6-K-P level ($P<0.05$) and 6-K-P / TXB2 ratio ($P<0.01$), while in the placebo group, there was no alternation of these indices after the course, and so these values as compared with the *qigong* group, were significantly different. We suggested that during practice of the quiescent *qigong* exercise, the patients minds were in total concentration and the whole body should be highly

relaxed, causing the patients to minimize the stress reaction. In the *qigong* state, the oxygen consumption was reduced, thus improving the oxygen supply to the tissues. In addition, the possible control and regulatory effects of *qigong* on the neuro-humoral system and the ability of synthesis of PGI2 of the endothelium of vessel should be improved, then the imbalance of PGI2 -TxB2 in CHD patients could be ameliorated.

These findings confirmed the value of the *qigong* therapy in rehabilitation program for CHD patients.

A PRELIMINARY REPORT ON THE EFFECT OF SELF-CONTROL *QIGONG* ON DIABETES MELLITUS.

Gl Wu, Zl Wang, Fr Sung and Yy Wang

(Jinling Hospital, Nanjing, China.)

This report demonstrates the effect of self-control *qigong* on some biochemical profiles in Type 2 diabetes mellitus. Ten moderate-advanced Type 2 diabetics (7 males and 3 females) were chosen in the study. As soon as the stability of the blood glucose level was obtained after a few days' diet control and rest, the exercise of self-control *qigong* was taught to the patients and practised twice daily (in the morning and afternoon), 30 min. each time. On the O, 10th and 20th days, a steamed bread meal test (SBMT) was performed. In this test, routinely, 100 g best quality flour made steamed bread was taken; fasting blood sample and the blood samples at 1 h and 2 h after the meal were sent for determination of glucose and insulin. In the present study, on mornings of the above-mentioned days, fasting blood samples were sent for determination of cholesterol, trnglyceride, HDL-cholesterol, lactic acid, pyruvic acid and glycosyl hemoglobin in addition to glucose and insulin. Blood samples at 1 h and 2 h after intake of the bread meal were sent only for determination of glucose and insulin.

The results showed that on Day 0, SBMT demonstrated a diabetic curve with blood glucose level higher at 2 h than fasting and at 1 h . On days 10 and 20, Blood glucose levels at 1 h were not altered, but they significantly decreased at 2 h as compared with that on Day 0 ($P<0.05$), as shown in Table 1. The same condition was with insulin levels (See Table 2) . The concentrations of cholesterol and triglyceride became lower at 1 h and 2 h , while

that of HDL-cholesterol became higher (Table 3). Concentrations of lactic acid and pyruvic acid were markedly lowered ($P<0.05$) as seen in Table 4. There was no change regarding HbA1 levels.

The self-control *qigong* is a pattern of dynamic *qigong*, in which motion of the body as well as peace of mind are required, the latter being particularly emphasized and attained by concentrative attention to the surroundings or to the practiser's own umbilicus, and also by regulation of the patient's own breath. We are of the opinion that the self-control *qigong* is an important beneficial adjunct treatment for diabetes.

Whether the self-control *qigong* has any advantage over ordinary physical exercise is as yet unclear and remains to be clarified.

Table 1. Changes of blood glucose levels using SBMT during self-control walking *qigong* in diabetes mellitus

	Fasting	1H	2H
DAY 0	174.1±65.87△	268.8±64.83	286.6±84.44
DAY 10	152.0±66.67	269.6±73.59	244.1±63.59 *
DAY 20	163.4±67.10	274.1±53.41	252.2±77.53

△mg/dl * $P<0.05$, compared with data on Day O.

Table 2. Changes of plasma insulin levels using SBMT during self-control *qigong* in diabetes mellitus

	Fasting	1H	2H
DAY 0	23.8±13.74	39.75±25.93	52.0±29.53
DAY 10	16.4±13.13	46.2±32.49	32.4±23.12
DAY 20	14.15±5.17 *	49.9±36.00	44.3±36.93

△uU/ml * $P<0.05$, compared with data on Day O.

Table 3. Changes of blood lipids in 20 days' self-control *qigong* in diabetes mellitus

	Cholesterol△	Triglyceride△	HDL-CH△
DAY 0	217.3±50.34	326.5±661.63	58.6±10.0
DAY 10	211.7±31.03	153.7±150.02	64.7±9.53
DAY 20	209.0±35.69	143.3±117.38	66.8±15.18

△ mg/dl

Table 4. Changes of blood pyruvic acid and lactic acid during 20 days' self-control *qigong* in diabetes mellitus

	Pyruvic Acid	Latic Acid
DAY 0	1.485±0.39	15.85±4.37
DAY 10	1.179±0.36 *	11.13±4.35 *
DAY 20	1.263±0.31 *	10.47±4.83 *

△mg/dl * $P<0.05$, compared with data on Day O.

ON THE ANTI-TUMOR MECHANISM OF CHINESE *QIGONG*

Wang Junmei

(Teaching Hospital of Nanjing College of Traditional Chinese Medicine, Nanjing, China)

Qigong, the precious heritage of traditional Chinese medicine, is a branch of science enabling people to strengthen the body constitution, eliminate diseases and extend life expectancy. Through the human conscious initiatives, it induces the body to perform self-regulation and stabilization so as to let the internal body acquire a relative tranquillity, attain the cure of diseases and extend life expectancy. This article presents a study on the unique effect of *qigong* in helping patients survive some difficult diseases, especially a study over the anti-tumor mechanism of *qigong* on the basis of a selection of 104 cases of different cancer patients, e.g. esophagus cancer, stomach cancer, rectum cancer, lung cancer, adenocarcinoma of breast, etc. The duration of *qigong* practice in those patients ranged from 6

months to 2 years. Most of them kept on doing such exercises after their operations. Concerning cancer etiology, it is widely held that the antigen structure of the tumor cells is the place where carcinogen works. On the other hand, human immunity against tumor is mainly performed by the cell immune function in the body. Patients were therefore divided into two groups to observe the changing status before and after the *qigong* therapy.

1. 46 cases of different cancer patients were selected for studying the content variations of specific types of protein in the body before and after the *qigong* therapy. The indexes observed include:

4 AAG; 2 AAT; and 3 CER.

2. 58 cases of different cancer patients were selected for studying the cell immunc function in the body before and after the *qigong* therapy. LAI and ANAE which indicate the specificimmune reactions were observed.

1	Normal	Pre-treatment	Post-treatment	Statistic index
AAG	40.7mg%±10.57	48.94mg%±8.47	36.64mg%±15.42	P<0.01
AAT	187.6mg%±15.9	204.4mg%±61.44	179.32mg%±47.71	P<0.01
CER	21.62mg±2.98	29.26mg%±7.68	34.4mg%±12.44	P>0.05
2				
LAI	42.0%±9.76	75.27%±12.26	62.4%±9.53	P<0.01
ANAE	68.8%±10.28	39.44%±2.877	47.13%±4.37	P<0.05

The above indicates that the specific protein content in Group 1 all presented different changes after the *qigong* therapy, among which the changes over AAT, AAG before and after the treatment were more apparent. And the result of the changes of the immune functions of cells in Group 2 indicates that the *qigong* therapy not noly reinforced the T-cell function , but also performed a two-way immune regulation according to the different steps of immune disorder.

Conclusion:

1. Both the etiology and inducing mechanism of tumor are still under study at the prsesnt time. However, it is certain that the antigen related to tumors is composed of cells and the product of cell metabolism, the affected cell memrbane contains some antigens that do not possess strictly formulated particular embryos. During the embryonic period, the genes in the chromosomes of cells are very active, producing many types of antigens. After birth, the

control genes are inhibited and have no more production. Once there is a canceronus change in the cell, howrver, they become active again. They will drop off from the cell membrane, as a kind of dissoluable antigen, to be dissolved into the serum, being of sugar protein and mucoglobulin in nature. AAT, AAG and CER, all of which are kinds of sugar protein and mucoglobulin, are the acute reactants in the serum. They will obviously increase in the case of malignant tumor. The decrease of AAT and AAG indicates that the *qigong* therapy is very significant in the control, alleviation, improvement and rehabilitation of diseases.

2. *Qi* that is often quoted in Chinese *qigong* therapy refers to the vital energy in traditional Chinese medicine. It is the motive power of human life. It may change the metabolism in the body, accelerate cell generation, activate the vital energy in the body, and obtain a cure of the disease. The changes of the specific protein reported in this article indicates that the regulation of sugar protein and mucoglobulin due to the *qigong* therapy is beneficial to the alleviation of diseases.

3. The anti-tumor mechanism of the human body is mainly performed by the immune function of the cells. Therefore, LAI and ANAE were specifically studied in this article. It indicated a decline of LAI and increase of ANAE after the *qigong* therapy. This explains that the *qigong* therapy performs a two-way immune regulation according to the different steps of immune disorder, in addition to regulation of the contents of specific protein in the body and controlling the abrupt changes of cells. At the same time, it helps prove that through stimulating the human conscious initiative, the *qigong* therapy does adjust *yin* and *yang* , *qi* and blood in the body, strengthen the anti-pathogenic *qi* , dispel pathogenic factors, improve the patient's constitution, and bring the disease under control. This is virtually the key point for the extension of life expectancy of patients.

SPONTANEOUS DYNAMIC *QIGONG* (SDQ) (INVOLUNTARY MOTION *QIGONG* AND PSYCHOLOGICAL MEDICINE

Wu Caiyun and Xu Peixi

(Suzhou Medical College, Jiangsu province, China)

Qigong is closely related to psychological medicine from both theoretical and practical points of view. Research on *qigong* may lead us to have a better understanding of the

mysteries involved in linking the mind and the body of an individual. *Qingong* has been used in treatment of certain neurological and psychological diseases. It is a training including self-control, self-support, relaxation and biofeedback. Hence it is possible that a thorough investigation of *qigong* would shed light on the role of *qigong* in psychological medicine.

Qigong is generally classified into two groups, quiescent *qigong* and dynamic *qigong* exercises. In addition, dynamic *qigong* has a spontaneous type--spontaneous dynamic *qigong* (SDQ). However, the interpretation and evaluation of SDQ vary with different researchers. Some considered SDQ as a modified form of *qigong*, whereas some considered it as an integral part of *qigong*. For example, *Hexiangzhuang Qigong* consists of quiescent dynamic and spontaneous *qigong*.

It was estimated in 1983 that approximately 45 million people in China were practising *Hexiangzhuang Qigong*. During the process of practice, various spontaneous motions occurred in 90% of the people. The spontaneous (involuntary) motions were marked by automatic, primitive and reflective features. It sometimes was accompanied by emotional changes—crying, laughing, shouting or dancing etc. Therefore, people once doubted whether these changes were the symptoms of hysteria.

We have investigated the effect of spontaneous *qigong* on medical psychology. The results indicate that spontaneous *qigong* and hysteria are two different phenomena and belong to different concepts.

In 1984, in parks and sportsground we examined the personality--introversion or extroversion type, and MMPI of 48 *qignog* trainees and of 40 instructors in the *Hexiangzhuang Qigong* training class. The results showed that the introversion type personality accounted for 67%. Among the 48 *qigong* trainees (32 males, 16 females), the average age was 50.3 years old, ranging from 12 to 73, and 69% of them graduated from high school or above. Involuntary (spontaneous) motions were found to occur in 93% of these individuals (90% of the males, 100% of the females) during practice. All of the *qigong* trainees expressed that they were able to control their own mind. Among the 40 instructors (32 males, 8 females), 50% of them had received eduation at high school levels or above, and 62.5% were government officials and scientific researchers.

Total validity and T value in clinical scale of MMPI were distributed in normal range. Therefore, it appeared to be convincing that neither the *qignog* trainees nor the instructors represented a special group of population who were prone to hysteria. Not being self-centered, emotional or suggestible, all *qigong* trainees had a definite aim before doing the exercise. They were perfectly conscious during the process of practice. The will-power seems to play a

major role in initiation, control and completion of the *qigong* exercise.

In most cases hysteria attacks suddenly, and patients exhibit a functional disorder of sensory motor and of autonomic nerves or transient mental abnormality. Hysteria has characteristic symptoms which are produced and disappeared with suggestions. Most cases occur in females aged from 16 to 30. Hysteria is usually due to acute or continuous mental stress. These patients often have peculiar personality. According to epidemiological data, foreign morbidity of hysteria is 0.5%, whereas hysteria incidence in Baoding City, (Hebei province, China) is 0.16%.

The difference between SDQ and hysteria

	SDQ	Hysteria
Age	50	16 to 30
Education level	high school (60%)	illiterate(52%)
Sex	more for males(70%)	more for females
Personality	2/3 for introvert MMPI in normal range	more for extrovert, 67% for T value high in 1,3,7 clinical scale
Cause	on increasing health and medical wish	73.4% of mental stress
Mechanism of motion	"breathing scatter pathogenic focus"	suggestion
Incidence	93.8%	0.3%
Aim	active, will dominating over	passive, avoiding reality
Nature of motion	physiological	pathological
Emotion	relaxation, quiescence	emotional
Consciousness	clear	unclear
Ending	spontaneous	involving suggestion
Time	several ten minutes	up to hours or days
After SDQ	comfortable, fresh	tired, somnolent

It would hamper the development of *qigong*, if SDQ is mistakenly identified as hysteria. In this paper we examined the mental disturbance of 5 cases--3 hysteria and 2 schizophrenia after

the *qigong* excercise. At present all of the *qignog* schools have emphasized that people with hysterical trait or with history of psychosis are not suitable to practise *qigong* . Based on this information, we were led to hypothesis that *qigong* may potentiate hysteria and schizophrenia.

The present study demonstrated that the relaxing and calming state achieved during the *qigong* excercise is different from common sleep, hypnosis, artificial hibernation or twilight state. It is a fresh and functional state of the human body, and it may activate conscious activity, thereby making certain qualitative changes at the conscious level. Such changes may link conscious activity with the internal environment of the human body and thus transform the unconscious processes into conscious ones. SDQ may regulate the mental activity by amplifying the expression of automatic reflex and primitive rhythmical actions. These actions belong to the range of unconsciousness and depressed potentiality.

There are many similarities between the idea of consciousness--unconsciousness and the consciousness level in the psychoanalysis theory. The expression of hysteria is a symbolic manifestation of unconscious thinking process. The unconscious wish of hysteria is fulfilled in part through practising *qigong* .

Bleuler suggestes that the primary disorder of schizophrenia is the incoordination between thought and affection, and that the link of ideas becomes loose (incoherent idealization). It is possible that *qigong* may further loose the already loose chain of ideas. In view of the possibility that *qigong* may potentiate hysteria and schizophrenia, it is evident that *qigong* can regulate unconsciousness. By studying these phenomena *qigong* can bring potential power and unconsciousness into full play. We trust that it is possible to gain a better insights into the pathogenesis, prevention and treatment of mental diseases.

EFFECTS OF "VITAL GATE" *QIGONG* ON MALIGNANT TUMOUR

Luo Sen, Tong Tianmin, et al.

(Zhejing Institute of Traditional Chinese Medicine, Hangzhou *Qigong* Hospital, Hangzhou, China.)

Under the observation in this experiment were 80 patients, with 17 kinds of malignant tumours, including nasopharyngeal carcinoma, breast cancer, lung cancer and gastric carcinoma, their diagnosis was confirmed by cytological and radiological examinations. Within this group, 48 were male and 32 females. Most of them had been operated on before

hospitalization. They were at their I or II stage of the diseases and received radiation or chemotherapy before. These patients were randomly divided into three groups. 30 of them, as the first group, received *qigong* treatment, the second group, composed of 25 cases, were treated with chemotherapy. And another 25 received chemotherapy combined with *qigong* exercises learned was called in this experiment "Vital Gate" *Qigong*, instructed by Luo Sen. Group II were treated by routine drugs. Group III were treated with antimetabolites together with *qigong* exercises. The parameters adopted included WBC and RBC count, serum hemoglobin and platelet count in blood before and after treatment. T-lymphocyte conversion test (H^3 -TdRLT) and urine excretion of 17-hydroxy steroids withing 24 hours before and after the last week of *qigong* therapy in some of the patients. The total period of observation lasted 60 days. Results are reported as follows.

1. Group I developed a significant rise in their WBC, RBC count and serum hemoglobin after treatment ($P<0.01$). Group II presented a significant lowering ($P<0.01$). Group III showed an obvious elevation of serum hemoglobin, RBC and platelet count ($P<0.005$-0.01). Their WBC remained at the same level as before the treatment ($P>0.05$).

2. T-lymphocyte conversion test in Group I also gave a significant rise ($P<0.05$). It was seen to be maintained at the original level in Group III. No significant change was noted ($P>0.05$).

3. 5 cases of nasopharyngeal carcinoma, after 50 days of *qigong* exercises, exhibited an obvious lowering in their urine excretion of 17-hydroxy steroids ($P<0.05$).

This experiment proves that this kind of *qigong* exercise, by exciting the circulation of *qi* along meridians and modulating the functions of blood circulation, immune response and endocrine tissues, can minimize the toxic side-effects of chemotherapy and enhance energy supply of the body. This practice is effective in treatment of cancer and supported by confirmed scientific experiment.

A CLINICAL STUDY OF *QIGONG* BASED ON DIFFERENTIATION OF SYNDROMES(LEFT VENTRICULAR FUNCTION IN 74 CASES)

Li Zequan and Liu Lubong

(Guangzhou College of Traditional Chinese Medicine, Guangzhou, China)

This is a clinical study based on differentiation of syndromes, by using the left ventricular systolic function as the criterion to evaluate the effectiveness of *qigong* treatment.

1. Subjects: Among 74 cases 57 were males and 17 females by an average age of 61 ± 5.6. The aged group includes 47 cases with an average age of 65.3 ± 3.9. There were 60 cases in the control group of the same age.
2. Differentiation of syndromes and criteria.
3. *Qigong* patterns: The patients were trained with different types of *qigong*. According to the theory of differentiation of syndromes deficiency syndrome was treated by the reinforcing method, excess syndrome was treated by the reducing method, heat syndrome was treated by the cooling method, *yin* was treated in the *yang* syndrome, etc. For example, kidney strengthening type *qigong* is for *yin* deficiency patients and *qi* generating type *qigong* is for *yang* deficiency patients.
4. Criteria: Left ventricular systolic function was measured in the morning by a Model RM-6000 Poligram. 8 indices were recorded, but here we only give a report of LVET PEP/ and PEP, LVET.
5. Results: The effects of the *qigong* treatment on PEP/LVET:

Discussion:

PEP/LVET is a reliable criterion in evaluation of the function of the left ventricle. The shortened LVET and prolonged PEP can be seen when cardiac function is affected. So, the ratio of PEP/LVET may sensitively indicate the changes of the cardiac function.

The results showed that after 3 months *qigong* training, PEP/LVET in the aged group, in the cardivascular disease group and even in some abnormal cases were lower than that in the control or before *qigong* training. It suggested that the left ventricular systolic function was improved.

The normal range of PEP/LVET is 0.295--0.345. PEP/LVET above 0.38 is a symble of cardiac disease. This index in our lab was 0.39. In this study, the mean PEP/LVET in all groups were higher than the normal. After the *qigong* treatment, the mean lowered to 0.35.

In *yin* deficiency group and the group of *qi* and *yin* deficiency it was 0. 345. PEP/LVET in the group of deficiency complicated by excess syndrome lowered sharply from 0. 419 to 0. 37.

Changes of PEP/LVET before and after the *qigong* exercise (X+SD)

Group	Cases	Before	After
Aged	47	0. 386±0. 008 * *	0. 356±0. 007 # #
Abnormal cardiac function	23	0. 434±0. 008 * *	0. 380±0. 009 # #
Cardivascular diseases	32	0. 404±0. 01 * *	0. 380±0. 009 # #
Yin deficiency	28	0. 374±0. 007 * *	0. 341±0. 006 #
Qi and *yin* deficiency	22	0. 370±0. 01	0. 340±0. 009 #
Deficiency complicated by excess	22	0. 419±0. 01 * *	0. 375±0. 01 # △
Total	74	0. 370±0. 008 * *	0. 350±0. 006 #
Aged control	60	0. 346±0. 004	

(a) Before the *qigong* treatment, PEP/LVET was higher than that of the control, indicating the pathological state of the groups (* $P<0.05$, * * $P<0.01$)

(b) After the *qigong* treatment, the difference of PEP/LVET between the pathological groups and control group was not significant. (△ $P>0.05$), showing the improvement of the cardiac function.

(c) The comparison between the condition before and after the *qigong* treatment showed that PEP/LVET was significantly modified (# $P<0.05$ # # $P<0.01$).

All of these results indicate that the *qigong* treatment based on differentiation of syndromes is helpful to the cardiac function. The *yin* deficiency group got the best result and the group of deficiency complicated by excess got the second best effect.

A CLINICAL STUDY OF THE TAOIST METHOD FOR KEEPING GOOD HEALTH AND LONGEVITY ON THE EVOKED CEREBRAL POTENTIALS IN PATIENTS WITH SENILE CEREBRAL ARTERIOSCLEROSIS (AN ANALYSIS OF 40 CASES)

Cheng Kezhong, Zhu Ruifen, Zhu Jiayan, Ma Yumei
Tang Zhanfu, Jing Xinwen, Peng Xiaoju and Cheng Xiushan
(Affiliated Hospital, Shandong Medical University, Shandong province, China)
Yue Wenhao
(Shandong Medical University, Shandong province, China)

The method for keeping good health and longevity is one of the *qigong* advantages through the clinical practice over 2000 years. But experimental studies are lacking. The evoked cerebral potential is one of the new objective parameters in the study of the cerebral function. Thirty male patients (60-70 years old) of a *qigong* exercise group, who were diagnosed as having cerebral arteriosclerosis by specialists and 10 controls (60-72 years old) were involved in this study. The somatosensory evoked potentials (SEP) and visual evoked potentials (VEP) were detected. The results revealed that before doing the *qigong* exercise the incubation periods of the N_3 wave of SEP and N_1, P_2, and N_2 waves of VEP were longer than those of the controls ($P<0.05$ and $P<0.01$ respectively). This indicated that the cortical pathways of SEP and VEP were damaged by cerebral arteriosclerosis.

In the *qigong* exercise group, after practising for 6 months, the incubation periods of the P_3 wave of SEP and N_1, P_2 and N_2 waves of VEP markedly shortened than those before practice. The differences were statistically significant ($P<0.01$). However, the amplitudes showed no marked difference ($P>0.05$). The authors had randomly selected 15 patients from the 30 patients with cerebral arteriosclerosis of the *qigong* exercise group. Before and immediately after practice their SEP and VEP were detected. The amplitudes had physiological differences but the differences were not significant ($P>0.05$). After enfering the calm state, the incubation periods of all the waves of SEP and VEP had changes. The incubation periods of N_1, P_2 and N_2 waves showed marked difference before and after practice ($P<0.001$). This indicated that the practice could improve the degree of myelinization and functional state of the visual pathway. In the 30 patients the incubation periods of all the waves of the SEP, except N_3 wave of the SEP which was longer than normal, showed no significant difference

from those of the controls. This suggested that the changes of SEP pathway were less marked than those of VEP pathway.

During practice the influences on VEP by the calm state and the posturing state were immediately detected, revealing that the incubation periods of N_1, P_2 and N_2 waves of VEP shortened and the differences were significant ($P<0.01$). This indicated that the calm state could immediately improve the state of cortical VEP pathway. As for SEP, the incubation periods of P_1, N_1, P_2 and N_2 waves showed a move-up, delay and no change. Especially the N_3 waves moved up significantly. This indicated that the calm state and the posturing state could promote the excitability of various cortical areas of the SEP pathway, revealing the shortening of the incubation periods or lower their excitability, revealing the delay or no change of the incubation period.

The experimental study indicates that the Taoist method for keeping good health and longevity can improve the cerebral visual pathway.

AN EXPERIMENTAL RESEARCH OF PREVENTION AND TREATMENT OF MYOPIA BY "VISION IMPROVEMENT *QIGONG* EXERCISE"

Lu Shicai, Liu Zhenwu and Li Zhensheng

(Henan College of Traditional Chinese Medicine, Henan province, China)

Bi Lianhua, Chan Jiafu, Cui Ruanlin and Fu Qinglan

(Anti-Epidemic Centers of Henan Province, Xin Xiang City, Gi Yuan County, Pingdingshan City, Henan province, China)

Myopia is a disorder of higher incidence in teen-agers. Although various treatments have been adopted by the scholars at home and abroad with some effect, yet up to now the spreading tendency of the problem has not been controlled. We have designed the "vision improvement *qigong* exercise" according to the theories of traditional Chinese and modern medicine. At first it pays great attention to improve the whole-body quality, strengthen the function of the heart, liver, kidney and regulate the meridian system. At the same time it takes notice of eyes' pathological changes, by relieving the spasm of ciliary muscles and improving blood circulation. The exercise is divided into 9 movements and takes 10-12 minutes for the whole process. The 9 movements include: 1. Standing quietly and relaxing for 1 minute; 2. Stretching the body to regulate the meridian system; 3. Swinging arms and

turning eyes for 6 times; 4. Massaging the eyes with the thenar for 3 times; 5. Massaging 6 points with the middle finger; 6. Gazing into the distance from further to nearer, and vice versa for 6 times; 7. Massaging the head and the face for 3 times; 8. Pushing out and gazing into the palms for 6 times; 9. Ending the exercise.

Since 1982 we have conducted tests for preventing and treating myopia in 1712 secondary school students in Zhengzhou, Jiyuan and Pingdingshan. These students were divided into two groups randomly: the treatment group and the control group doing "setting-up exercises of eyes". Under the same condition, the tests of vision and diopter were given before and after the treatment, and evaluation of effectiveness was made after treatment.

The total effective rate for Group I was 67.67%. The improvement rate was 73.21% for functional myopia—a main type in teen-ager myopia. The highest effective was 94.44% and the incidence of myopia dropped to 11.94%. Through three months' treatment for 65 myopias at Pingdingshan high school, No. 1, the diopter declined to 0.4678D averagely. All these experimental results proved the curative efffect of the treatment group superior to that of the control group.

Results from many districts demonstrate that the exercise is effective not only to functional myopia and mild myopia but also to true and serious myopia. On the other hand, it is helpful to normal eyes.

THE EFFECT OF *QIGONG* EXERCISE (QUIESCENT AND DYNAMIC FORMS) ON THREE INDEXES OF PATIENTS WITH ABNORMAL CARDIOVASCULAR FUNCTION

Zhang Rulin, Wang Hexuan and Yan Yulan

(Xinxiang Medical College, Henan province, China)

In order to search for the effect of *qigong* exercise (quiescent dynamic forms) on patients with cardiovacular diseases, thirty-three patients were observed before and after the *qigong* exercise.

Material and Method:

1. Material

The subjects were thirty-three middle-aged and old persons with cardiovascular diseases. Among them, twenty-five were males and the rest were females. Ten persons' age was from fifty to sixty and twenty people's from sixty to seventy. Three persons' above seventy. All of

them had abnormal blood pressure, electrocardiogram and vectorcardiogram.

2. Method

Before doing the *qigong* exercise, patients were checked up and their blood pressure, rheoencephalogram and vectorcardiogram were recorded for further study. Then they did exercises from 8-9 o'clock in the morning every day, ten to fifteen minutes for quiescent exercise and then 15 minutes for *Taijigong* and *Taiji* sword-playing. Their exercise was done again in the afternoon. Three months later, their blood pressure, rheoencephalogram and vectorcardiogram were examined again. After statistical analysis, we found great changes took place before and after the exercise.

3. Instrument

Instrument of rheoencephalgram: JX74-4

Instrument of electrocardiovascular: XQ-1A

Instrument of vectorcardiogram: MVC-40A

Result:

1. The effect on blood pressure

Item	n	εx	εx^2	$\bar{x}$	S	$S_{\bar{x}}$	T	P
Systolic pressure	33	−325	4283	−9.84	5.126	0.93	10.53	<0.001
Diastolic pressure	33	−94	2986	−2.84	4.834	0.99	3.37	<0.05

From the above, we can see that after three months of the *qigong* exercise, the blood pressure is lowered evidently. There is great difference between the two periods.

2. The effect on wave shape of rheoencephalogram

Item	Steep and straight wave	Tripeak wave	Inclined wave	Turning wave	Flating wave
Before the exercies	5	7	8	42	4
After the exercise	9	10	5	38	4

From the above, we can see that after doing the exercise for three months, the inclined wave and turning wave in seven cases turned into the steep straight wave and tripeak wave.

3. The effect on vectorcardiogram

The effect on the moving time of QRS cycle

n	εx	ε^2	$\overline{x}$	S	$S\overline{X}$	T	P
33	72.5	743.75	219	4.27	0.24	2.96	<0.05

The author also made the experiment of the effect on the rheoencephalogram's dicrotic wave, the effect on the rising time, the effect on the wave amplitude, the effect on the speed of flow and the volume of flow and the effect on the difference of the wave amplitude between the two sides. The P value of them was less than 0.05.

The experiment of the effect on the amplitude of vibration of QRS cycle, the effect on the long and wide specific value of T cycle, the effect on QRS–T cycle specific value with instrument of vectorcardiogram were also done. There was great difference between the two periods.

Discussion:

We compared thirty patients' blood pressure, rheoencephalgram, vectorcardiogram before and after the exercise. The result handled by statistics showed great difference between the two periods. For example, blood pressure lowered, the wave shape of rheoencephalogram dicrotic pulse became better. The amplitude increased and the rising time shortened, the speed of flow volume increased. The difference in percentage of the two sides of amplitude became less and the running time of vectorcardiogram reduced. The amplitude of vectorcardiogram of all sides increased and the specific value between QRS cycle and T cycle reduced.

It shows that the *qigong* exercise has obvious curative effect on cardiovascular diseases. But its mechanism is still unknown. However, according to the theory of *qigong* the author assumes:

1. The *qigong* exercise can dredge the meridian system, regulate the function of *qi* and blood, keep balance of *ying-yang*.

2. The integrated relationship between nature and the human being. Traditional Chinese medicine holds that the human body is a miniature universe, but it does not exist alone, and is closely connected with nature. The activities of human beings in the open air may promote the exchange of information between them and nature, stablize the control system of life and restore health.

3. The *qigong* exercise can adjust the balance of the central nervous system, improve the function of the blood vessels in regulation of it. As a result disorders of blood supply can be

removed, the intensity of the blood vessel is reduced, when the elasticity of the blood vessels is strengthened the volume of blood flow is increased, which is a cure to cardiovascular diseases. But the mechanism needs a further study.

AN ANALYSIS OF 51 CASES WITH CHD TREATED BY *QIGONG*

Sun Jiwang, Yuan Rui and Yang Cuifeng

(Gansu, China)

Coronary heart disease (CHD) is a common and frequently encountered disease. The authors have attempted to treat it by the *qigong* exercise for two years. The result is reported as follows.

Among the 51 patients 40 were males, 11, females; 49 were the kind of anginal and 2, prolonged myocardial infarction. Diagnosis was convinced by symptoms and electrocardiography. Their age were from 51 to 75 and the average treating course was 8 years.

After 20 to 60 days' practising of the exercise collectively or individually under the guidance of *qigong* teachers, all the 51 patients could make *qi* circulate through the Du Meridian.

The exercise was done as follows:

1. Paying attention to the heart area while expirating;
2. Leading *qi* travel towards Dantian (below umbilicus);
3. Keeping *qi* in Dantian;
4. Never using any other method to aid or support when *qi* begins to circulate naturally;
5. Generating by preservation of *qi*.

At the end of the third step, i. e., when it travels through Mingmen (Du 4) to Xinshu (B 15), *qi* produced impulse to the heart. Thus, foci started to react, Reoccurrence of the disease became frequent, but the condition is less severe than before, e. g. angina pectoris did not severely attack but a slight pain. The patients should then be encouraged to continue practising the exercise. When *qi* circulated, patients felt healthy than ever and their intellectual and remembering faculties restored. At this time, they must confined to the exercise.

The effective rate in treating anginal symptoms is 100%. Marked effective is 29 of 51, improvement 22, and that of electrocardiography is 94.12% or 27 and 21 cases, failure in 3 cases.

CHD is caused by weak heart *yang* , stagnancy of *qi* and blood stasis, which result in pain.

According to traditional Chinese medicine, the fundamental principle of the exercise is to invigorate the functions of the heart, adjust *qi* and blood, increase blood circulation, cleanse stagnation and relieve pain. The purpose is "to eliminate the root cause while treating the disease."

The authors believe that patients shouldn't take any drugs including nitroglycerin before and after the *qigong* exercise. This is convincingly an effective method to treat CHD.

A STUDY ON *QI* AND SUPERPOWER

Hsi-ming Wu (Study and Experiment in Taiwan, China)

1. Preface

In January 1986, the author found a hot energy generated in the whole body and acquired some special talented skills. Since then the author healed many incurable patients who had been abandoned by many doctors of Western and Chinese medicine. In September of the same year, the author started studying *qi* and superpower and offering a course on "SM or Chinese Superpower Meditation". After two years' study and experiment, the author found that either inner or emitted *qi* not only could be used to cure diseases for oneself or others, but also improve one's physical constitution and produce very peculiar supernatural ability. This paper will give you an insight of my study and experiment for the past two years.

2. Superpower

The scientific theory of "Superpower" is quite reasonably established, and its practice is available and feasible. The developed countries, such as the USA and USSR, have invested much human resource, materials and finance for the purpose of development and study. Both of them have acquired remarkable achievements. Although "Superpower" has not yet been accepted by the population, it will become one of the main trends of knowledge in the coming 21st century. Up to this moment, it has not been widely accepted by the public owing to various reasons.

3. *Qi* and Superpower

Superpower is not always generated by *qigong* training, but it can be acquired through

qigong training for some time. So, there is a close relationship between *qi* and Superpower. *Qi* is a kind of biological energy and the *qigong* exercise is very popular among the Chinese people.

4. Inner *qi* and the emitted *qi*

After practicing *qigong* , one may cultivate his inner *qi* . The inner *qi* cures the trainees' own illnesses and the emitted *qi* can help to heal others' diseases. *Qi* emission is very difficult to be trained, but "SM or Chinese Superpower Meditation" can help the trainees not only to acquire the ability of emitting their *qi* to cure others' diseases, but also to produce more peculiar abilities. They can emitted *qi* to a body of people. (The author has made an experiment of giving his emitted *qi* to a thousand peoplle at the same time).

5. *Qi* generation without mind control

In more upgrade phase, *qi* energy can generate an uninterrupted hot energy felt by anyone around. The author has such capacity.

6. Side-effects of the *qigong* exercise and superpower in the *qigong* exercise

Side-effects may result from the *qigong* exercise. However, the practice and study of "*qi* -energy" is very helpful to human beings. So it should not stop training just because of a little trouble. It should be settled by wisdom.

7. Examples of anti-aging effect of the superpower meditation

There are many actual cases of anti-aging effect of the Chinese Superpower Meditation. It really can be proved that training of *qigong* has effect.

8. The Self-healing effect of the superpower meditation & healing by the emitted *qi* of the instructors

About one thousand pupils have been successfully trained by the Chinese Superpower Meditation, 90 percent of the trainess who had taken the whole course have acquired the talent of curing his own diseases within two years. In this section the author would testify the actual curing cases, i. e. gastro-enteritis, liver ailment, renal disease, fever and cold, insomnia, skin disease, brain and neurologic disorders, baby crying in the midnight, cancers, ear, nose and throat syndromes, urogenital disorders, blood pressure disorders, cardiovascular disorders, rectification of the deviation of training, strengthening of physical constitution and etc. of 17 categories.

9. The result of superpower acquired from the Chinese superpower meditation training

The training has made some pupils acquire peculiar talent such as emitting their *qi* , diagnosis with fingertips, remote transmition of *qi* , spiritual response, preperception, *qi* emission to a group of people, operation of will-power and etc.

10. Conclusion

According to our study and experiment in the past two years, we have come to the conclusions as follows:

1. We can assure that the training of *qigong* has a positive, miraculous and undeniable effect in strengthening physical constitution and curing of diseases.
2. We should pay attention to whether any deviation in *qigong* training may happen. So, we should attend the class and learn from the qualified tutors and avoid self-teaching through books.
3. The training of *qigong* should be based upon scientific and objective basis without mingling with the colors of superstition.
4. In the process of training, pupils should not expect good result within a short period. Otherwise, it will offense the rule of training.
5. It can be assured that the training of *qigong* can produce superpower but it should be stated on the scientific and objective basis.
6. The world-wide development of training of *qigong* will benefit the health of human beings.
7. The science of *qigong* and Superpower will be the main trend of the 21st century and may become a new knowledge and power of human beings.

SEX EXISTS TOGETHER WITH LIFE—— A STUDY OF *QIGONG* IN TREATMENT OF IMPOTENCE AND ITS WONDERFVL EFFICACY

Huang Chengmo

(Director, Unique Cultural Features Service of Inner Strength Skill, Taiwan, China)

1. Correction of sexual concept

Sexual desire is a part of human nature. It is pure and natural and connected with the sacred mission of continuing the family line by producing a male heir. Just as one theologist says, God is almighty. If tabooing sex, God would not have created the wonderful sexual organs for males and females and all owned them to have sexual intercourse. Therefore, his maxim is "for all things created by God without feeling ashamed, people should not be afraid of talking about it." Based on this principle, I would like to discuss this important but relaxed topic with serious attitude.

2. Three big sexual troubles of human beings

(1) It's unable to break through sexual concept; (2) Sexual efficacy is not strong; (3) Venereal diseases are rampant. The sexual concept has been improved because of the strengthening of the sex education. The conventional sexual diseases like gonorrhea and syphilis, etc. have been controlled because of the invention of antibiotics and development of medical sciense and technology. But weak sexual function still cannot be solved by Chinese and Western medicine.

3. Normal sexual life can increase happiness and prolong life.

As the common saying puts, "When the *yin* and the *yang* are in harmony, the fertilizing rain descends, and it's a sign of long life when the old is still romantic." According to my study, the normal sexual life has the following advantages:

1) Sexual love can promote the human body's hormone balance to prevent aging.

2) Desirable sexual life is a symbol of good health.

3) Sexual life is a good remedy to prevent and treat heart ailment because it can release mental depression and pressure.

4) Good sexual life can increase the sentiment and harmony of a marriage life.

5) Making love is a kind of good exercise.

6) Making love can relieve life boredom and prevent suicide.

7) Sexual love can make life optimistic, active and struggling with success — the intelligent and brave Solomon King said, happiness is the good mental medicine, but strong liquor can devitalize bone; he only loved beauties but not strong liquor.

8) Sexual love can increase happiness and longevity which has been proved in medical sciense that a married person can have a long life, but an unmarried person dies early. Therefore, one poet said, "We nust love, or die."

4. the cause of impotence and the treating efficacy of *qigong*

There are complicated reasons for male's sexual weakness like impotence and immature ejection. They include mental and physiological disturbances, related to cultural characteristics and family background, especially the sexual companion's indifference and uncooperative impact. Up to now, there has been no effective therapy in Chinese and Western medicine. The Western medicine places emphasis on mental haunting and on psychoanalysis, but it's helpless. The Chinese medicine holds they are caused by deficiency in the kidney and advises to noursh the heart and soothe the nerves thus tonics are given, but it is only little helpful for those with weak physical make-up. Only the *qigong* therapy together with the mental and physiological treatment has 100% efficacy. It has experienced more than 30 years since 1947

when I started to treat impotence with the *qigong* therapy in Taiwan. Now I can guarantee to refund if it's ineffective. The approaches are as follows: (1) Using *qi* flow in the *qigong* therapy and the contracted movement of sexual gland nerve to strengthen the control of the spincter muscle in the private part, and to promote endocrine sexual gland nerves by stimulation of the male's ketones, and increase confidence. 2) Massage is applied to promote metabolism, strengthen blood circulation, reinforce sexual ability, and also increase the nervous function of the brain and kidney to successfully eliminate headache, blurred vision, lowback pain, impotence and immature ejection.

5. conclusion

The youth's sperm barrier is insecure and sensitive to eject easily. The middle-aged and old men cannot raise up firmly with too little power to do thing as they wish. Only receiving my simple training of *qigong* exercise, they can get remarkable effcet. Please believe me: "the silkworm will not exhaust its silk until it dies, and the candle's tear will not dry until it has been burned into ashes. Take a good care of your youth, and then your sexual ability can be maintained until death. It's absolutely correct that sex exists together with life."

THE PRESENT CONDITION OF *QIGONG* IN JAPAN

Mashanori Yamamoto

(Japan *Qigong* Academy)

In the long history of exchange with China the Japanese have learned a lot from the Chinese people, including Buddhism, architecture, painting, calligraphy, acupuncture and culinary art. Recently modern science has been introduced to China from Japan. It is necessary for the prosperity and welfare of both sides in any times. Now, we are learning *qigong* science from the Chinese people.

Countries in Asia used to have a better understanding of *qi*, but in Japan *qi* has only been a part of *Wu-shu* or martial arts and Buddhism, and there is no existence of medical *qigong*. Chinese *qigong* has its unique exercise patterns and it may promote health and exert self-cure effect after practice, which has epoch-making significance.

It is known to all that everyone concerns health in Japan and there is an enthusiasm of health-preservation among the masses. Patients used to consult doctors of Western medicine, but a lot of difficult cases cannot be cured. People having doubts of Western medicine begin

to seek help from alternative medicine. Since people have more spare time and income it is certain that they try every way to improve their health. For example, the young prefer to take Western physical exercise therapy—a dynamic pattern and the quiescent pattern including breathing exercise, meditation and Zen. Since 1970 some people began to practise *qigong* exercise, but the popularity of *qigong* only started from 1985 when the mass media, such as TV, newspapers and journals actively worked on it. Because there had never such a word as *qigong* in Japan, it is necessary to wait for sometime to allow people to have an understanding of *qigong* . In the past three years there has been constant increase of people learning *qigong* exercises. When we compare the number of people learning *qigong* this year with that of the previous year we will find an enormous increase in number. In the days to come, we should clarify the mechanism of *qigong* to the masses, telling them why *qigong* exercise can prolong life and cure diseases. For the purpose of winning popularity of *qigong* among people, I believe that when it is expounded on scientific basis and free from mistery *qigong* must be universally popular among the people, and this will be a world trend.

It is significant to convene the First World Conference for Academic Exchange of Medical *Qigong* . A few months ago an international symposium of *qigong* science was held in Shanghai. There will be an international symposium of " *Qi* and Human Society" to be held in Tokyo this November to celebrate the tenth anniversary of the sign of the Japanese-Chinese Peace and Friendship Treaty, for which a Chinese delegation of 15 members will be sent. Wide-ranging topics, such as " *qi* and psychosomatic medicine", " *qi* and physical culture and martial arts", "effects and application of medical *qigong* ", "scientific measurement of *qi* " and " *qi* and religion, philosophy and art" will be discussed on the meeting. The Japanese participants are scholars who are of great attainments in *qigong* and other sciences, and work in the forefront of these fields.

In recent years *qigong* has begun to be popular alongside the increased concern about *qi* in the world. People used to understand *qigong* by personal experience, but now an epoch of scientific understanding of *qigong* has begun. *Qigong* science emerged in China has spread to the world and taken roots internationally. It is expected that *qigong* as a new branch of science in the 21st century will make great contributions to the human health and social development.

THE ACTUAL ANALYSIS OF *QI* BY KINSHINDAN-HO (THE MUSCULAR-DIAGNOSING THERAPY METHOD) AND THE MANIPULATIVE TREATMENT OF IT

Kono, Tadao, Hoshino, Minoru, Yamabe, Yoshihiko

(Association of Muscular-Diagnosing Therapy of JAPAN)

If we give the definition of the medical treatment of *qigong* as the therapy by the practical use of *qi* , I can say with much confidence that the Jing Luo (meridians) therapy by accupunture is also the same therapy. The KinShindan-Ho, a kind of acupuncture I have originated may be regarded as the new *qigong* systematized as a method of medical treatment.

Until now, we have various applications of magnetism used in medical instruments or other healing products and methods because of its healthy usefulness or some kind of medical effects. But science has not proposed any complete explanation as to why and how the magnetism appears or affects the case of treatment. This is the very similar circumstance about the essential recognition of *qi* , so called whether "inner *qi* " or "emitted *qi* ", that is lacking the physical reality with scientific substantiation.

As it is beliveed that in proportion as the magnetic force increases the efficacy will rise, there is a remarkable tendency to use stronger magnetic tablets to put on the affected part for treatment. On the other hand, we know the tendency that the capacity of inner *qi* is one of the most important conditions of a *qigong* doctor. It is interest but questionable for me as to whether this tendency has missed the mark.

At any rate, it is no use to say that to build the relationship filled with confidence between doctors and patients and to make a self-effort of patients to realize the earlier cure are the most important and indispensable conditions, for *qi* makes the full use of the real ability when the *qi* of a doctor forms in response to that of patients, that is not one way effective from the doctor's side on the wide concept of treatment with *qi* .

On our point of view, the efficacy is not in proportion to the magnetic force (numerical value of gauss), though there is no question that the magnetism of tablet we use for stimulation or relaxation operates physically to living objects. I could get the same efficacy I expected when I used a tablet of both 800 gauss and 160 gauss.

From this result, we can guess it is neccessary for patients to take magnetism as an information, enough to promote the circulation of inner *qi* , not magnetism itself.

If magnetism itself makes an important contribution to efficacy to meridians, there leaves

no room for the manipulative treatment of KinShindan-Ho, on which we use no apparatus.

We may discuss if our manipulative treatment should be comprised in the category of the emitted *qi* treatment.

But it is sure that hands and fingers can radiate something in common between magnetism and *qi*. Until today, we have come to proof that hands and fingers show the 'nature' which correspond to magnetic poles, though it is needless to say that hands and fingers are not magnets in that they cannot attract iron or any other metals.

I give it the name as "Finger Magnet", for it does the part of our magnetic apparatus for diagnosis.

We introduce, as follows, the law and the way (proceeding order) and use of the manipulative teatment of the KinShindan-Ho. And we pick up certain relations with a treatment of the emitted *qi* to consider or dispute.

1. A subject lies in a face up position to take an abdominal diagnosis.
   A manipulator pushes in at the points of abdominal diagnosis by the tip of the mid-finger and to guess extraordinariness of meridians, asking a subject if he feels pain or not.
2. A manipulator examines if extraordinary tensions appear by an operation of touching diagnosis on diagnostic muscles which are counterpart to each meridian.
3. A manipulator gives a conclusion of abnormality of a meridian by the symptoms of both pain of a point of abdominal diagnosis and tensions of diagnostic muscles of the common relative meridian.
4. The abnormal meridians are classified into four groups; *yin* meridians of hand, *yin* meridians of foot, *yang* meridians of hand and *yang* meridians of foot.
   A manipulator selects only one meridian from each group for the meridian to treat, so we appoint the four meridians to treat.
5. A manipulator decides the side to treat, either right or left and selects only one point from the probable points.
6. A manipulator stimulates the healing point in the case of weakness or relaxes, the healing point in the case of excessiveness on each meridian.

Now we have to show the precondition when we assign the N or S pole role to each hand and fingers. Right hand of man; S (minus) -pole to palm, S-pole to thumb, N (plus) -pole to forefinger and S-pole to middle finger. Left hand of man; N-pole to palm, N-pole to thumb, S-pole to forefinger and N-pole to middle finger.

Woman's are exchanged from the right to left of those of man.

We can therefore do the mainipulative therapy by using this force. A manipulator examines if the extraordinary tensions of diagnostic muscles will disappear, while he puts his fingers gently and lightly on the point of abdomen by the other hand, this manipulation is the way to decide the weakness or excersiveness.

For example, a male manipulator makes muscular diagnosis on the left hand if there is a reaction, when he touches the point of the abdomen by the forefinger of his right hand (N-pole role). If there is a reaction, it shows weakness of the meridian.

Next, we give the name N (plus) -S (minus) ring that is a finger ring made of the tip of the thumb and the tip of forefinger or middle finger:

Man's N-ring is made of the right thumb and the forefinger and of the left thumb and the middle finger. Man's S-ring is made of the right thumb and the middle finger and of the left thumb and the forefinger. Woman's are exchanged from the right to left of those of man. Using these law, when manipulators and patients make a mutual aid, they can know the weakness or excessiveness clearly, accurately, and more rapidly than ordinary cases.

This is to say:

1. For example, a male manipulator, left N-ring, pushing on into a point of the abdomen by the tip of the middle finger of the right hand, if there is a vanishing reaction of pain, this is a sign of weakness.
2. Left N-ring of a patient, straightening the elbow joint and turning the forearm inward, while a menipulator takes diagnosis on the points of the abdomen or diagnose muscles, if they get a vanishing reaction, it shows the weakness of the left side of *yin* meridian of foot.

   Left S-ring of a patient, the rest of the same proceeding condition, it shows the excessiveness of the left side of *yin* meridian of foot. The case of the right N-ring of a patient is to show weakness of the right.
3. Left N-ring of a patient, straightening the elbow joint and turning the forearm outward, while a manipulator takes disagnosis on points of the abdomen or diagnoses muscles, if they get a vanishing reaction, it shows the weakness of the left side of the *yang* meridian of foot. The followings are the same as above.
4. Left N-ring of a patient, right angle bending the elbow joint and turning the forearm inward, while the manipulator makes a diagnosis as above; if they get a vanishing reaction, it shows the weakness of the left side of the *yin* meridian of hand.

   The followings are the same as above.

5. Left N-ring of a patient, right angle bending the elbow joint and turning the forearm outward, while the manipulator makes a diagnosis as above; if they get a vanishing reaction, it shows the weakness of the left side of the *yang* meridian of hand.

The followings are the same as above.

Now we believe you understand the whole system of the manipulative treatment, especially about the cooperative way between patients and manipulators on the diagnosing process. By the way, on these process of finger magnet, from beginning to the decision of the side to treat, the manipulator uses a gentle touching method on the points. But on the points to treat, the manipulator may use a hard touching method for the stimulation or relaxation. In this case, each pole role turns to opposite nature. That is to say, when male manipulators use a hard touching method, the finger magnets play the role of woman's ones of gentle touching method. Female manipulator's finger magnets have the contrast to man's.

Now I will show the alternative treatment of our own method. When a male manipulator wants to make the stimulation to the point to treat, you may touch or set your left palm (2 inches down the Pericardium Meridian of Laogong (P 8), near the root of the middle finger) afloat facing to skin until 3 cm above it. If you set your palm more than 3 cm, you may relax to the point. In this method, there is no need to use psycho-attention. The right palm makes the opposite phenomena to the above. A female manipulator's palms play the opposite role.

I don't believe that the law of the KinShindan-Ho has universal validity through the generality of the emitted *qi* treatment, for it seems there are some considerable differences between them. For the cases of treatment with the emitted *qi*, it is important to harmonize the radiation to breathing and with the psycho-attention. Otherwise, as the emitted *qi* treatment does not have a system to decide weakness or excessiveness of meridians in its own scale, neither have a general method to stimulate or relax on the points. Though we easily find something in common between the manipulative treatment of the KinShindan-Ho and the radiation treatment of the emitted *qi*, for example, by which we get remarkable efficacy without any apparatus. As I am not a doctor of *qigong* but only an acupuncturist, I have not been trained to radiate *qi*. But when I explain our manipulation, I dare say *qi* plays a great part in our conception of treatment; i. e. the *qi* of the hands of a manipulator's is counterpart of that of the patient's body surface. We want profitable suggestions from the Chinese *qigong* doctors.

A TREATMNET METHOD TOWARDS FUNCTIONAL DISEASES OF THE KNEEJOINT

Shigeo Nakagawa

(Kansai *Qigong* Society, Japan)

In Japan, from former times, headache, lumbago, and having a stiff shoulder have been the most common and daily pains. But with the progress of means of transportation and popularization of private used motorcars becoming too convenient, more and more persons are worried about a disease of knee joint. Recovering of this is not easy. Especially in case of high aged persons, they sometimes arrive to loss of walking function.

The averege life span of Japanese is now top of the world. But disease with pain in the aged will increase in near future.

For such trouble like that, we need safe and easy home treatment, i. e to treat by the patients themselves or with their families and friends.

I studied Sotaido ("Body treatment method" designed by Dr. Hashimoto) 10 years ago, and 4 years after, in 1983, meeting with *qigong* . After that, I studied Sotaido and *qigong* for five years, and found various effective treatment methods.

Toward the kneejoint problem, it contains a method of moving-diagnosis (named "circle-diagnosis method" and etc.), press-diagnosis for finding out the diseased muscle, and treatment techniques.

Now I'll introduce these method as follows.

1. The function of the knee is not only to bend and straighten, but to turn, draw circles or twist like a screw. My "circle-diagnosis" is developed based on it. The patient lies and his legs are moved to draw circles. He is asked when he is most uncomfortable.

2. For knowing which muscle in the knee is diseased, the patient is asked to bend or extend his knee, and to find the most uncomfortable position, and the unusual point press tense muscle.

3. In many case, any muscle connecting the knee has bad influence on the kneejoint. When I find the inner conection another treatment is applied. It is a way to find unusual tension of the leg, and relax, regulate that unbalance point.

4. In treatment, the doctor touches the diseased point with one hand and emit his *qi* to let the patient move his knee from most uncomfortable posture to comfortable posture, after that, proper pressure is given by the other hand. The patient is advised to relax his body when he

breathes out. Repeat this 1 or 2 times.

AN IDEA OF INNER DIAGNOSTIC METHOD

Mashakashu Kazhuda (Japanese Oriental Medicine)

O-ring test has been developed by Dr. Keishou Omura. The strength of the O-ring formed by the thumb and index finger of the right hand of the subject is tested to decied if the drug held in the left hand is good or not for the subject's illness. From tests I have found that when the subject thinks of a drug in Yitang (Extra 1), the same purpose may be reached.

Method:

For example when the abdominal diagnosis tells there is a pain and distension in the chest region, the patient is instructed to touch his Qimen (Liv 14) with his left index finger and the O-ring test is conducted on the right hand.

Radix Bupleuri is good for pain and distension in the chest region. But for determination of the best prescription in which *Radix Bupleuri* is included, different ones are applied to Yintang (Extra 1). When the best one touches Yintang (Extra 1), the O-ring formed by the patient cannot be separated. By using this method, even no drugs are applied to, one can decide the best prescription.

It is thought that in the O-ring test the subject is influenced by electric field and magnetic field. Why does mental application of drugs produce the same effect? If the *qi* of the performer can affect the patient? No matter what reason it is, the above observation is presented to you for consideration.

AN OBSERVATION ON SKIN THERMOGRAPHY DURING *QIGONG* NEEDLING

Lin Maomei (Sino-Japanese Institute of *Qigong*, Nagoya, Japan)

No matter whether we are performing *qigong* needing, emitted *qi* therapy or psychotherapy with arousing of *qi* (vital energy), the exchange of *qi* between the performer and the patient, the solicitude and encouragement given by the performer to the patient and the respect and confidence shown by the patient to the performer can in various degrees lead to positive therapeutic effect physically and mentally. When I carry out the therapy of *qigong*

needling, I give full consideration to the entirety of the human body with respect to the mental and physical state, just as to the current principle of "wholistic therapy", which has been highly valued internationally.

For years, I have been in charge of a Sino-Japanese therapeutic clinic engaging mainly in acupuncture treatment and a Sino-Japanese Institute of *qigong* engaging mainly in *qigong* treatment in Japan. Since 1981, I have innovated a method of treatment which integrates acupuncture and *qigong* and carried out the clinical observation in this respect. My paper "The Integrated Application of *Qigong* and Acupuncture" was published in 1983 in a Japanese medical journal (Journal of All Japan Acupuncture Society) and met with attention and enthusiasm. As I have practiced *qigong*, especially the *qigong* mimicing a wild goose and shadow boxing for ten years, my patient will have a sense of comfort whenever my hand keeps close to the diseased part of his body. In 1986, I began to treat 66 patients with the method of *qigong* needling (during treatment the needle was held in the hand of the performer but not inserted into the body of the patient and sometimes two fingers were used instead of a needle to release *qi* externally). 60 of the 66 patients experienced the receiving of *qi*. Among them, 12 experienced a heat sensation, 10 a mobile sensation, 8 an electric current sensation, 6 a heavily pressed sensation, 4 alleviation of pain and distress and 20 other sensations such as needle pain or pulsation of blood vessels.

In order to obtain some scientific data, thermography was performed simultaneously during the treatment. The results are shown in the figures. During the *qigong* needling (the needle was held but not inserted) and finger needling (the middle finger was used instead of a needle and directed at a distance towards the acupuncture points Laogong (P 8), Hegu (LI 4) etc.). The skin temperature of the treated part was elevated to varying degrees. In general, the skin temperature rose one to two degrees. It is thus shown that *qigong* needling or finger needling has definitely produced effect.

It is not necessary to demand the patients to have experience of practicing *qigong* in order to be treated with the *qigong* needling. However, if the patient has this kind of experience and has confidence in the performer, the therapeutic effect would be better. A more important fact is that through my experience with the *qigong* needling and finger needling, I have perceived that the space between the performer and the patient was full of an invisible but effect producing substance. The exchange of *qi* and idea is, in fact, a kind of medical art carried out by the performer and the patient as well.

However, there are still some problems such as the therapeutic indications of the *qigong* needling and finger needling, the physical and mental state of the patient, the patient's

experience of practicing *qigong* , the effect of psychiac suggestion etc. awaiting for further observation and investigation.

NEW *QIGONG* —AN ESSENTIAL TOOL IN HEALING AND PREVENTION OF CANCER

Chung Siu Wong (Dawn Valley *Qigong* Health Center, U. S. A)

For the past 18 years, new *qigong* has been taught publicly and has proven its effectiveness in the prevention and treament of common chronic ailments, such as heart disease, hypertension, diabetes and inflammatory diseases. The effectiveness of this new *qigong* not only regards the healing of many chronic diseases, but also it is beneficial to the immune function of cancer patients in the early, middle, and last stages. This unexpected healing result has drawn the attention in many countries. Now, there are many cancer patients coming from different countries to receive *qigong* treatment.

New *qigong*'s major theoretical basis is traditional Chinese and Western medicine and physiology, especially the Chinese meridian doctrine by strengthening the immune function.

1. The internal reason for cancer is because the body is unable to adjust the seven emotions, the five *zang* and six *fu* organs; and the external reason for cancer is because of the changing of weather and improper diet. But the external reason is decided by the internal reason. The body becomes so weak that it loses the circulation of *qi* or life force and blood throughout the body. Obstructions of *qi* and blood can't be removed, and thus there is no way to balance *yin* and *yang* .

   Qigong can prevent and cure cancer. This is because the practice of *qigong* directly strengthens the body's *qi* and thereby strengthens the immune function. *Qigong* practice also regulates the metabolic function, the body's adaptation to the environmental influences, thereby maximizing the body's physiological functioning. Since *qigong* facilitates good circulation of *qi* and blood throughout the body, obstructions of *qi* and blood can be removed, and thereby increasing the power to resist cancer.
2. Bodily weakness or injury, environmental pollution or the weakness of the liver and kidney will gradually become cancerous. Practice of *qigong* is the best way to strengthen the body and prevent cancer.
3. The effectiveness for those who have practiced *qigong* for 6 to 9 months:

   1) Body strengthened, appetite increased and sleep improved, more energy and better

spirit, colds prevented and cured, chance of cancer decreased.

2) Regulating red and white blood cell: from abnormal to normal.

e. g. White blood cells from 1700 to 7800

Platelet from 51000 to 157000

Hemoglobin from 5. 2 gram to 14. 3 gram

3) Enabling a person to revitalize the basic energy which strengthens the entire body, healing headaches, spitting of blood and obstruction of the gullet.

4) Side-effects due to chemotherapy and radiation (vomiting, dizziness, headache, insomnia, loss of appetite, etc.) dramatically reduced.

5) Softening the lump and the subjective symtoms disappeared.

6) By practice of the New *Qigong* , not only cancer can be in alleviated, but also other diseases can be healed. It stimulates the flow of *qi* throughout the body.

The following statistics show in the treatment of various forms of cancer

(Report from a certain district)

Name of Cancer	No. of People	Effectiveness	Ineffectiveness
Breast Cancer	93	83. 6%	16. 4%
Lung Cancer	115	75. 1%	24. 9%
Colon Cancer	72	68. 2%	31. 8%
Nasopharyngeal Cancer	65	64. 4%	35. 6%

It is also effective with other cancers, such as, esophageal cancer, stomach cancer, rectal cancer, throat cancer, lymph cancer, primary liver cancer, leukemia, uterine cancer, ovary cancer, etc.

EFFECTS OF *QIGONG* ON PSYCHOSOMATIC AND OTHER EMOTIONALLY-ROOTED DISORDERS

Richard R. Pavek (U. S. A.)

SHEN, a specific form of *qigong* , has beneficial effect on psychosomatic and other emotionally-rooted disorders. A review of 25 selected cases show that *Shen qigong* is highly

effective in ending these disorders. The cases further demonstrate that there is a body-site relationship between the background emotions involved in these disorders and the organs or other body parts that have dysfunctioned.

The mechanism behind disorders such as the irritable bowel syndrome, premenstrual distress, chronic non-biologic psychogenic pain and migraine has been poorly understood. Many of these disorders have been labelled "psychosomatic", meaning that psychological or emotional factors are heavily involved in their etiology. However, while the transpersonal psychological factors that predispose one to these disorders have generally been determined, the precise, internal mechanism by which these external events convert to biological dysfunction has remained a mystery. Because of this, effective treatment methods for these disorders have remained elusive. At the *Shen* Therapy Institute we have found that applying specific *Shen qigong* protocols can result in positive, permanent improvement for a number of these disorders. Some of the disorders successfully treated with *Shen qigong* include menstrual and premenstrual distress, migraine, irritable bowel syndrome, eating disorders and chronic low back syndrome.

More specifically we find that:

1. Applying appropriate procedures of *Shen qigong* to patients suffering from premenstrual distress has resulted in nearly complete amelioration of the grosser and most debilitating symptoms in the majority of cases treated.

2. Applying *Shen qigong* procedures to over 40 patients suffering from migraine not only ended most episodes of the disorder but has revealed the psycho-emotional underpinnings in much of this condition, which had not previously been determined to be of psychosomatic origin. Many who had suffered from this complaint weekly or biweekly and received a short series of *Shen Qigong* treatments now report episode intervals of a year or more. In several of these cases no further migraines have occured.

3. *Shen qigong* treatments given to a large number of sufferers of unremitting chronic low back pain, both pre-surgery and post-surgery resulted in a high percentage of permanent reduction of pain, considerable improvement in range of motion and an increase in emotional well-being.

4. Additionally, we find *Shen qigong* procedures to be extremely useful to those who do not present psychosomatic symptoms. *Shen qigong* treatments have been found useful to patients

suffering from anxiety, depression, blocked grief and sleep disorders. *Shen qigong* is useful in accessing and releasing troubling suppressed and repressed emotion and, sometimes, memory of debilitating early life events. Release of these emotional factors has frequently led to positive behavioral changes.

Furthermore, we have demonstrated that *Shen qigong* procedures can be taught successfully to most health professionals and that the majority possess enough natural *qi* to be effective. Thus, *Shen qigong* gives evidence of being a uniquely useful therapeutic modality for a broad range of formerly difficult-to-treat disorders, specifically those disorders where repressed and/or suppressed emotional factors are involved.

These discoveries considerably extend the previously known range of *qigong* treatable disorders.

QIGONG AS A PUTATIVE TREATMENT FOR IMMUNO-DEFICIENCY SYNDROMES

Philip S. Lansky (U. S. A.)

This paper will explore the concept of immuno-deficiency syndromes in light of traditional Chinese medical theories. The Western concept of immune system capability will be related both to the concept of *wei chi* , i. e. the protective energy, as well as to the physical seat of the immune system, i. e. the marrow, as a specific inner "sea," an aspect of the energy system of the kidney. In light of this conception, the reality of AIDS, as well as such "softer" immuno-deficiency syndromes as the chronic picture associated with long standing Epstein Barr virus infections, will be related to specific treatment strategies involving *qigong* as well as adjunctive herbal treatment. The paper will also describe the author's clinical experience in teaching *qigong* to patients with AIDS and related syndromes. Finally, the entire matter of building up the body resistance therapy (i. e. *qigong* and herbs) for immunologic problems will be explored in the modern context of clinical psychoneuroimmunology, an interdisciplinary field gradually emerging in Western medicine.

INDIAN YOGIC PRANAYAM AND CHINESE *QIGONG* —A COMPARATIVE STUDY AND ITS APPLICATION IN TREATMENT OF ASTHMA

S. A. A. Ramaiah, M. A. (Sc.), A. A. (America)

(Babaji Yoga Holistic Hospital, Athanoor, India, and Faculty, Arizona Western College, U. S. A.)

Introduction----Historical Research----Yoga and Pranayam (Indian *Qigong*) practised from Cape Comorin (Kumari Munai) to Amarnath Himalayas since pre-historic times.

Pranic energy (*Shakthi*) *and Qi*: A comparative study----Three sources of energy----Air, sunlight and food with six tastes.

Asthma (*Kanai Noi*) ----Yoga Pathology----Deficiency of Pranic energy----Vivid description of the pathology of asthma and its aetiology.

Yogic Therapy for Asthma:

1. *Kriya* Dietotherapy----Avoid ice-cold material and use warm cooked food with *yang* pranic energy.

2. *Kriya* Holistic therapy----Use of sunlight and sun treatment (Jnayuru maruthuvam) to increase *yang* heat energy and kill the virus and germs; use of herbs in India and China for the treatment of Asthma

3. *Kriya Hatha* Yoga Treatment: Live demonstration of yogic techniques like Pranayam (Indian *Qigong*) etc:

1. Purna Shuddhi Pranayam.
2. Mooligai Pranayam.
3. Astham Pranayam----three types.
4. Matrika Pranayam
5. Adhara Vibareethakarani (Supported Topsy Turvy Pose)
6. Paathi Meenasanam with sleeping (Thooka) Pranayam.
7. Purna Save Shanthi Asanam and finally Pakka Vasa Shanthi (Idathu) Asanam (left side down) to increase *yang* energy.

Conclusion----Indian Pranayam and *qigong* are better than drugs with contraindications and drug dependency for the treatment of astham---HOLISTIC HEALITH FOR ALL BY 2000 A. D. THROUGH PRANAYAM AND *QIGONG* !

QIGONG SPIRAL TREATMENT--SUDARSANA RESEARCH BETWEEN 1978-1987

Vuokko Raakel Rahtu-Etiainen/Ming-Xi Hua (Finland)

Sudarsana---- *Qigong* treatment, is based on my experiments and studies concerning Indian *Qigong*-Yoga in different forms. It is most effective in a combination of Bhakti-Yoga and traditional Chinese medicine.

The *qigong* treatment I use is very easy to practise, although it has to be done properly both in technical ways and in the right mood of the patient and therapeutist.

In theory this treatment appears to be very difficult. But in right circumatances it is easy.

I use references, proofs to motivate my treatment from many directions. Here I will take up five of them.

1. Ayurveda, an Indian way to see the energy of a human being in big spiral-formed wheels, the Ayurvedic medicines are herbs with a living spiral energy.

2. Traditional Chinese medicine, with its *yin/yang*, five elements, diagnostics of eyes, tongue, 13 *zang/fu* pulses and 28 symptoms of the pulses, asking, listening, looking, palpation and observing the smell of the patient.

3. From the Western medicine I use anatomy, neurology and psychology and the function of the internal-secretion organs. I slao use the nursing science in my treatment.

4. Free studies by using available books about the function of the brain, the differences of the right and left hemisphere.

5. Through studies of the book Spiraali-Ympyra I have found proofs for my hypothesis, that anti-clockwise spiral treatment is materializing the energy in the body. The clockwise treatment relieves the body from muscle pains and contractions. Sudarsana *qigong* treatment is a way to adjust the internal strength in a human being and also is of high scientific value.

I divide my treatment into three sections:

1. the analytical phase
2. the technical performance
3. the Indian *qigong* phase

I consider that I and my students can turn a disturbing antisocial person to a social one

and that we can get the optimum health to an individual by an average of 2-3 treatments.

The following diseases have been cured by activating the self-healing system, such as glaucoma, pus running from the ears for 28 years, general neuraglia, headache and so on.

Observings:

The patient before the first treatment: The patient was often bloated, talked too much with many other complaints. During the first treatment most patients could not relax very nicely. Moxibustion is usually applied to the acupoints, warming or sometimes burning the acupoints. After and during the second treatment, the patients started trusting in the therapeutist and mostly had been recovered after that. After the third treatment, the patients felt deeper and deeper relaxation. Rememberance had become better.

The patients should keep good living habits and have to balance the time between work and rest and have to do systematical home-exercises properly taught by the therapeutist. More and more foreigners are interested in it.

When my students follow seriously a clean way of living then they can get optimum results in their treatments.

Women's energy is the best in healing because a woman is of earth-power, and when the body is touched, she works with earth.

QIGONG IN AUSTRALIA—— AN EFFECTIVE WEAPON AGAINST STRESS

Jack Lim (*Qigong* School of Australia, Australia)

Qigong has but a short history in Australia, and I am proud to say, my *Qigong* School of Australia has played a pioneering role in introducing *qigong* to Australia.

Besides generally contributing to improvement of health and well-being, *qigong* is becoming known in Australia as an efficient means to overcome stress.

The number of people suffering from stress in the Western world is enormous. The tempo of life is becoming ever faster, however, in order to survive, everyone must keep pace. Therefore there are very few indeed who do not feel this pressure, whether it be at home, at school or at the workplace and in the business world. We have had many students suffering from such symptoms as increased heart beat, physical exhaustion and insomnia while

some further suffered from peptic ulcers, high blood pressure and heart disease which are related to stress.

More than 50% of the *qigong* students had been suffering form stress. We carried out a study of 400 students who had been enduring such stress. They were from various fields and occupations; 18% of them were doctors, computer specialists, artists, business executives and lawyers etc, and this category had the most serious symptoms. 12% were students, 45% were workers and other employees, and the remaining 25% were housewieves or retirees.

In the teaching of *qigong*, it has been important to give detailed explanations as to how *qigong* works and to introduce the historical background to the art. This is to help the students have full confidence in *qigong* and persevere in practising. Dynamic *qigong* was integrated with quiescent *qigong*.

All the four hundred students in the survey reported marked improvement in their condition. There were 22 cases of high blood pressure among students at the time of their enrolment, and all have experienced gradual lowering, such that fifteen are no longer in need of any medication and all other cases have seen improvement.

Those who suffered from impaired sleep are now sleeping well. Student are more efficient in their learning and teachers are more relaxed, which has brought about a more cooperative and responsive class of students.

Conclusions:

We have therefore reached the conclusion that *qigong* is an effective means to combat stress, and its beneficial effect is enjoyed not only by those students directly learning and practishing *qigong*, but is also experienced indirectly by those who are in constant contact with those students. All these students feel profoundly grateful to the ancient Chinese sages who discovered and developed the art of *qigong* and to all the *qigong* masters and scientists in China today who are carrying on and developing this art of longevity bring well-being and happiness not only to the people of China but also to the people of the world.

THE USE OF THE EMITTED *QI* IN *QIGONG* AND ACUPUNCTURE IN THE TREATMENT OF FOOD ALLERGIES

Chu Chow (Canada *Qigong* Health Clinic)

Modern technological progress unfortunately has been accompanied by a number of new illnesses that did not exist before. Among them is the problem of food allergies. This is becoming a common problem difficult to cure. Western medicine does not yet have a cure and traditional Chinese medicine also finds this problem difficult to treat.

Many food allergy patients become progressively limited in the kinds of food they can eat. Often they are limited to two or three kinds of food for sustaining life. They lose weight, become severely depressed and become progressively weaker and weaker. Typically, these patients have a hungry and depressed physical appearance. Although there are no harmful side-effects from the use of Chinese herbal medicine in the treatment of this condition, improvement is minimal with herbs alone. Because of this, the writer decided to eliminate herbal medicine and use a combination of *qigong* and acupuncture for treatment. 52 food allergy patients were treated by the writer using these techniques. All but two showed some improvement in their condition. The details of the treatment procedures are as follows:

Procedures:

Of the 52 cases treated 10 were males and 42 were females. Their age ranged from 9 to 45 years. All had medical diagnosis of food allergy problems with a duration from 1 year to 25 years. All had been previously treated by Western medical techniques without success.

Treatment methods:

The major treatment consisted of *qigong* projection. This was supported by acupuncture techniques. Acupuncture was used mainly in the early stages of treatment and *qigong* was used in the later stages.

Acupuncture Points Used

1. Ganshu (UB 18), Pishu (UB 20)

Weishu (UB 21), Dachangshu (UB 25)
Feishu (UB 13), Fengchi (GB 20)

2. Yang ling quan (GB 34), Zusanli (St 36)
Shangjuxu (St 37), Lieque (Lu 7)
Hegu (LI 4)

Qigong Method:

During the early stages of *qigong* projection the patient was given relaxation instructions in a supine position with the eyes closed. The writer then emitted his *qi* from his palm to the above mentioned acupuncture points. When the patient's health improved his position was changed from a supine to a sitting position in a chair.

Treatment effects:

The following 4 categories were used to rate patients' progress:

1) Completely cured: The patient can eat any kind of food with no limitations.
2) Partially cured: The patient's allergic reactions are present but are much less severe.
3) Minimally cured: The patient's allergic reactions are present but they have improved slightly.
4) No improvement: There is no change in the patient's condition.

17 out of the 52 patients (32.69%) were in Category 1, showing partial recovery. 25 patients (48.08%) were in Category 2, showing partial recovery. 8 patients (15.38%) were in Category 3 with minimal recovery and 2 patients (3.85%) were in Category 4 with no improvement.

Discussion:

Food allergies can be due to a number of causative factors

1. They can be present at birth as a result of pre-natal or genetic abnormalities in one or both parents, however not all children in a family will have the same kinds of allergies.
2. Allergies can also be acquired after birth. Modern industrialization and agricultural mass production methods have resulted in wide spread pollution problems of air, water and food supplies. There is evidence that many people are adversely affected by residues of insecticides, herbicides, chemical fertilizers, chemical additives in food as well as growth hormones and antibiotics in meat supplies. Powerful new chemical

drugs used in Western medicine may also produce side-effects which can lead to allergies.

The immune system's defense mechanisms can be affected by environmental pollutants and become progressively weaker and weaker. Epidermal and other cells may be destroyed and as the immune system breaks down the person will gradually become allergic to substances which previously caused no difficulties.

c) The person's digestive system may not be fully functional. Undigested food materials may then accumulate in the lower intestines leading to auto-intoxication and allergies.

Whatever the specific cause is, however, the key factor appears to be a weakening of the body's natural defense mechanisms. This is consistent with the statements in the "Classic of Internal Medicine", which emphasizes that when the *qi* is weak in the body there will be illness. A person will be prone to illness when the *qi* level is low.

Treatment Recommendations:

Strengthening of the spleen, liver, stomach and lung systems is essential for treatment. The spleen and stomach systems provide general health for the body. By strengthening the *qi*, the liver system clears toxins from the body while the lung system strengthens skin cells and provides general protection for the body. Strengthening all of these systems together will improve the overall immune system.

Using the emitted *qi* of *qigong* in combination with acupuncture increases *qi*, which will help the function of the internal organs and improve the immune system. Gradually the intensity of allergic reactions will decrease and substances will cease to be allergens. The "Classic of Internal Medicine" stated that if the body is full of *qi*, diseases cannot invade. This is consistent with the field of modern wholistic medicine.

In conclusion it can be stated that food allergies can be successfully treated and also cured in many cases by using the techniques of the emitted *qi* and acupuncture.

INTRODUCTION OF *QIGONG* IN WEST GERMANY

Gisela Hildenbrand (West Germany)

The first detailed descriptions of "Therapeutic Gymnastics" and "Health Preservation

Exercises" used in TCM have been published by Dudgeon (1895), Hübotter (1929) and Maspero (1937). But this does not mean that *qigong* has been practised in those days. In the last 30 years, however, the interest of Western physicians in TCM has grown tremendously, especially acupuncture therapy is used now by many German doctors. From their visits to China, Germans received a deep impression of the Chinese people practising *Taijiguan* and *qigong* in the early morning hours. The statement that these exercises are not only for health preserving but also for treating severe diseases seemed to be surprising. Since *qigong* has its roots in the concept of TCM as well as ancient Chinese philosophy, it has been difficult for German physicians to understand what *qigong* is about. Some translated *qigong* just with "breathing exercises," some have been confused about the huge variety of *qigong* exercises. Fortunately the scientific exchange among the Chinese and German physicians made a big progress and so some German physicians have the opportunity to study with excellent *qigong* masters. Referring to the academic exchange there was the "Week of Chinese Medicine, Munich 1984", where Prof. Jiao Guorui gave excellent lectures and demonstrations on *qigong* therapy. In 1988 Prof. Jiao Guorui was invited to the University of Bonn for a 2 months research visit. During this time he gave lectures at the Universities of Colon, Bonn and Mainz. On the Medical Conference on Natural Healing about 70 German physicians practised the "15 postures of *Taiji*" developped by Prof. Jiao Guorui. Beside the "15 postures of *Taiji*" the most known *qigong* exercises in Germany are "8 Brocade exercises", "18 Exercises" and "Crane-*Qigong*". Certainly we are at the very beginning with the introduction of *qigong* to our medical system. But the first experiences with the application of *qigong* therapy are very encouraging.

There are some difficulties to apply *qigong* therapy to German patients. It is not easy for them to understand that an exercise which seems to be very simple, for example, "standing like a pile" can cure diseases. It is hard to believe that the same exercise can influence different diseases. It is difficult to practise *qigong* with the required persistence and patience not looking for quick results. But many patients who overcome the first difficulties gain confidence in *qigong* very quickly because they can experience the improvements in health and well-being. Some case reports of patients who suffered of chronic diseases (like stomach disorder, lumbago, constipation, asthma and neurasthenia) for many years show that the Western physicians can learn a great deal from the Chinese cultural heritage of *qigong* therapy.

A METHOD FOR *QI* FIELD DETECTION

Lu Zuyin and Wang Yaolan (Institute of High Energy Physics, Academia Sinica, Beijing, China)
Yan Xin (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

Recently, several *qigong* doctors assert that there exists a " *qi* field" among the *qigong* amateurs when they are doing *qigong* exercises or listening to a lecture given by a *qigong* doctor. Hence it is very interesting to detect the *qi* field by modern scientific means.

On Oct. 9, 1987, the famous *qigong* master Yan Xin was giving a lecture on *qigong* , Wang Yaolan, one of the authors, used 4 pieces of LiF thermoluminesence detector (TLD), a kind of radiation dosimeter, to try to detect the *qi* field. To our great surprise, the LiF TLD gave very strong reponses to Yan Xin's *qi* field.

TLD +	Dosage measured (mr)		
	Background of TLD	Three hours during the lecture	Control, three hours in the same hall during a film show
^{7}LiF(Mg, Ti)	3.9	51.0	9.5
^{6}LiF(M, Ti)	3.5	62.6	5.8

There were two isotopes of Li, ^{7}Li and ^{6}Li. Mg and Ti were impurities added to LiF crystal. ^{7}LiF TLD was sensitive to γ rays only and ^{6}LiF TLD was sensitive both to γ rays and thermal neutrons. The measured dosage was calibrated to 60Cor rays.

Since the size of the LiF TLD used is very small ($3\times3\times0.9$ mm), you can put them anywhere at will, and the electromagnetic field has no influence on its registration power. It is very appropriate to use them for *qi* field distribution measurment. In Octobher 1987, we measured the distribution of *qi* field during Yan Xin's lecture for four times. All gave remarkable results. The following is a typical example:

Date and place: Oct. 21, 1987, Hong Qi Jie Assembly Hall

Duration of measurement: $3\frac{1}{2}$ hours

The *qi* fields of two other *qigong* doctors are also measured.

Conclusions:

Left wing					Right wing					Distance from the rostrum (m)
Row	Seat no.	Dosage (mr)			Row	Seat no.	Dosage (mr)			
		R_7 (^{7}LiF)	R_6 (^{6}LiF)	R_6-R_7			R_7(^{7}LiF)	R_6(^{7}LiF)	R_6-R_7	
8	16	11.0	34.5	24.5	8	17	26.7	41.1	14.4	11.9
16	16	7.2	13.1	5.9	16	17	24.7	42.5	17.8	17.9
24	16	19.3	19.9	0.6	24	17	33.2	32.9	5.8	23.4
32	16				32	17	68.5	50.5	−18.0	28.8

1. LiF TLD gives strong reponses to the *qi* fields of Yan Xin and other two *qigong* doctors. It is expected that LiF TLD may be a convenient detector for the *qi* field distribution measurement.
2. The measurements give strong evidence that the *qi* field is an objective reality.
3. Many problems are left for further investigation, e. g. the components of the *qi* field detected by LiF TLD, the mechanism of registration of *qi* by LiF TLD, etc. .

THE STATISTICAL TREATMENT OF EXPERIMENTAL RESULTS IN *QIGONG* EXPERIMENT

Lu Zuyin and Li Tipei (Institute of High Energy Physics, Academia Sinica, Beijing, China)

From the statistical point of view, there are serious defects in most of the *qigong* experiments, viz, the defect arises from the small sample size of the experiment and the defect arises from the non-stable succeeding emission of *qi* through the whole experiment, so that it is not believed that valuable result can be obtained from such experiments.

But if we investigate the problem carefully, we will find that all the *qigong* experiments can be divided into two categories. Experiments designed for discovering new *qigong* effects belongs to the first category and the experiments designed for finding the laws of the effects belongs to the second. Up to now, most of the experiments are of the first category.

Two different methods of statistical treatment are related to these categories. The method of significance test is usually used for the teatment of the experimental result of the first category. According to the level of significance of the experimental event, one can easily discriminate the true *qigong* effect from the false appearence which arises from the background fluctuation.

Let μ be the average value measured of a physical quantity x. If x obeys the normal distribution $N(x; \mu, \sigma^2)$, where σ is the standard error of measurement. Now we have measured a value of x, x^*, which is significantly deviate from μ. If we denote the $\frac{|x^*-\mu|}{\sigma}$ as the "significance"S, then we can say that the "level of significance" of x^* is α

$= N(\Sigma = x; \mu, \sigma^2)$. The level of significance describes the probability of producing this unusual event by the background fluctuation only when there does not exist any condition to produce this unusual event. The lesser the level of significance, the higher the probability of existance a new phenomenon.

The significance test asks for a thorough knowledge of the background, but it does not ask for a big sample size of the events. A few events of sufficiently high significance (not neccessary of the same highness) is enough to us to assert that the new phenomenon exists with high level confidence.

This is the case what we meet in the *qigong* experiment.

As an example, the experiment ot the observation of the effect of *qi* on bovine thymus DNA is analysed.

The relation between S and α

S	1	2	3	4	5	6
α	0.32	0.046	2.6×10^{-3}	6.4×10^{-5}	5.8×10^{-7}	2.0×10^{-9}

THE EFFECT OF THE EMITTED QI ON THE POLARIZED PLANE OF A LASER BEAM

Yan Xin, (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)
Lu Zuyin, (Istitute of High Energy Physics, Academia Sinica, Beijing, China)
Yan Sixian and Li Shengping (Tsinghua University, Beijing, China)

The aim of this experiment is to observe the effect of *qi* on the orientation of the polarized plane of a laser beam emitted from an inner cavity He-Ne laser.

A plane glass which is placed 20 cm away from the laser. The angle between the normal of the glass plane and the laser beam is set equal to the Brewster angle of the glass (approx. 57°). At this angle only the component of the beam which is perpendicular to the ground (Ip) can be reflected by the glass. The reflected beam is accepted by a Si photocell. the photocurrent is recorded by an autobalancing recorder.

Another Si photocell is placed 10 cm away from the end of the laser tube to monitor the stability of the output intensity of the laser.

Let the angle between the polarized plane of the laser beam and the ground be θ. when the polarized plane rotates through an angle $\triangle\theta$ under the action of *qi*, the change of Ip is

then

$$\triangle Ip = 2I \sin\theta\cos\theta\triangle\theta$$

"I" is the beam intensity. From $\triangle Ip$, $\triangle\theta$ can be deduced.

During the experiment, nobody is allowed to stay in the lab. The door of the lab is locked and the apparatus works automatically.

From Dec. 1986 to Jan. 1987, two sets of experiments were done. In the first set, Yan Xin emitted his *qi* 7 km away from the laser lab; and the second set, 2000 km away.

Three apparent results were obtained in 7 km *qi* emission experiment. In the duration of 55 minutes of *qi* emission, the originally stable Ip showed fluctuations for 10 times. The fluctuation stopped when Yan Xin ceased his *qi* emitting.

Two apparent results were obtained in 2000 km *qi* emission experiment. Big fluctuation appeared after 20 minutes of *qi* emission. The fluctuation was modified by a series of ripples which we have never seen in any laser experiment before. This new phenomenon cannot be explained by any reasons other than the effect of *qi* .

These experiments give the evidence that the orientation of the polarized plane of the laser beam emitted from an inner cavity He-Ne laser, and hence the state of the laser can be affected by *qi* emitted from a long distance.

It should be pointed out that these experiments are of the *qigong* scientific research with remote *qi* emission.

THE EFFECT OF *QI* ON THE COUNTING RATE OF 241 AM RADIOACTIVITY

Yan Xin, (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)
Lu Zuyin, Zhang Tianbao, Wang Haidong and Zhu Runsheng
(Institute of High Energy Physics, Academia Sinica, Beijing, China)

A series of experiments studying the effects of *qi* on molecules was done successfully by us in 1987. Then we attempted to study the effect of *qi* on deeper level of the structure of matter, i. e. the nucleus. The radioactive nuclei were chosen as the subject of our investigation. It is well known that every radioactive nuclide has its inherent decay constant which cannot be affected by any external physical or chemical factors in general. So it is very interesting to observe whether it can be affected by *qi* or not.

Two radioactive sources of 241 Am (half life 458 years) of similar activity about 2H C were used in the experiment. One as the test sample and the other as the control. The γ-rays

of energy 59.6 keV emitted by 241 Am during its decay was detected by a germanium detector. The signals were sent to a 8000 channel buffer for on-line analysis. This spectrometer system is very stable, the drift of its gain is less than 0.06% in 24 hours.

In our experiment, the test sample is placed on a table in a room 10 meters away from the lab of the spectrometer. Yan Xin emitted his *qi* to the sample for 20 minutes, then the sample was brought to the lab and inserted into the sample socket for measurement by an experimenter who did not practice *qigong* .

6 runs of experiment with 40 times of *qi* emitting were conducted within half a year. Remarkable results were obtained. The third run gave a typical example. In this run, the test sample was treated by *qi* for 5 times. The measured counting rate of the sample after *qi* treatment was apparently less than the rate before the treatment. The maximum decreasing amplitude was 1.05%. The experiment error was only 0.12% (including the statistical error of counting measurement, 0.1% and the position error of source in socket, 0.07%), and the level of significance $\alpha < 2 \times 10^{-7}$. This result is of high confidence.

We have continue the measurement for several days and found that the counting rate of the test sample stably recovered its initial value before the *qi* treatment in 11 days the latest.

The most striking effect we observed is in the 4th run that the counting rate of the *qi* treated sample increased to 110% of the value before *qi* treatment.

It must be pointed out that in 4 runs of the experiment, Yan Xin emitted his *qi* at a distance.

These results are rather striking, but we must not draw a conclusion that decay constant of 241 Am is changed by *qi* in haste. Another germanium detector was used to measure the γ-rays emitted by the test sample in its backward direction. If the decay constant was changed, then the measured counting rates at the forward and the backward directions of the sample should change parallelly, but practically it was not the case, a phenomenon similar to an anisotropic emission of a polarized source was observed.

Evidently, this irregular phenomenon is worth further investigation.

A STUDY OF THE EFFECT OF THE EMITTED *QI* ON MOLECULES AT A DISTANCE OF 2000 KM

(I) EXAMINATION OF THE INFRARED THERMAL IMAGING SYSTEM ON TEMPERATURE RESPONSE OF THE EXPERIMENTAL SAMPLES

Meng Guirong, Li Shengping, Cui Yuanhao, Sun Mengyin,

Zhu Qunying (Tsinghua University, Beijing, China)

Yan Xin (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

In the course of studying the effect of the emitted *qi* of *qigong* on physiological saline, glucose solution, etc, we have observed that the thermal state of substance itself changed in addition to the queer changes of the molecular structure of the substance. To study the mechanism of the emitted *qi* thoroughly, we have simutaneously observed and tested the temperature response of the biochemical substance by using the Infrared Thermovision AGA780. Because the thermovision is a passive heat testing instrument of two-dimension and non-contact type, and it is of higher precision and sensitivity, it is thus an ideal heat testing equipment.

During the experiment, the thermovision and the sample were put separately into two adjacent rooms. Eight hours before the experiment, the sample had been prepared to reach the sufficient thermal stability and the initial temperature (^{t}orig.) had been tested. Then the *qigong* master emitted his *qi* to the sample at a remote distance for 40 minutes to 2 hours. After the *qi* emission, the final temperature of the sample (^{t}term.) was tested. In the course of testing, the 1010 type standard blackbody was used to calibrate the instrument's reading whenever necessary.

There are 12 experimental samples in all, which are listed in Table 1. Samples such as L-tryptophan, serum albumin and vitamine B_2 respond to the ultra-distant effect of the emitted *qi* with varying degrees of temperature response, the response range being from 1.5°C to 5.2°C.

Under normal circumstances, the aqueous solution of these substances is rather stable and so is the thermal state. Temperature responses to the effect of the emitted *qi* indicate that the structural changes of these substances are accompanied by the exothermic effect so that their own temperatures rise. Conversely, the temperature change of the substances verifies that

their micro-structures may also change.

Table 1

Number	Sample	Room temperature	^{t}orig °C	^{t}term °C	t(°C)
1	L-Tryptophon	13.50	13.50	17.30	3.80
2	Bovine serum albumin	13.50	13.50	17.40	3.90
3	Vitamin B2	13.50	13.50	17.40	3.90
4	Rhodamine	11.00	11.00	16.20	5.20
5	Rhodamine	11.00	11.00	16.20	5.20
6	Fluorescein	13.50	13.50	17.60	3.90
7	Cd solution	12.00	12.00	15.70	3.70
8	Cu solution	12.00	12.00	15.70	3.70
9	Ni solution	12.00	12.00	15.50	3.50
10	Zn solution	12.00	12.00	15.00	3.00
11	81204-1	16.50	16.50	18.20	1.70
12	Thymine	16.20	16.20	18.20	2.00

(II) AN EXAMINATION OF LASER FLUORESCENCE AND ULTRAVIOLET ON THE RHODAMIN DYESTUFF

Li Shengping, Meng Guirong, Cui Yuanhao, Sun Mengyin, Zhang Fushi, Tang Yingwu, Qiu Yong and Li Jinghong

(Tsinghua University, Beijing, China)

Yan Xin (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan perovince, China)

We have used three large analytical instruments--an infrared thermovision, an ultraviolet-light-visible spectrometer and a laser induced fluorescence instrument to examine the samples of Rhodamin dyestuff after the effect of the emitted *qi* 2000 km away.

Medicines and chemical reagents used in the experiment were Rhodamin 6G samples produced by the German MERCK Co. The molecular formula of spectroscopic purity is $C_{28}H_{31}ClN_2O_3$ with a weight of 478.028 g/mol.

The sample is aqueous solution of Rhodamin with a density of 10^{-6} mol/l.

The experimental location is inside a light-tight lab of the Chemistry Department, Tsinghua University.

The *qigong* master emitted his *qi* 2000 km away from the sample. The experiment was carried out four times in all and each time, each experiment was done repeatedly 4 to 6 times.

Before each experiment, we must do initial condition of the sample. After the stability of the sample was verified, the sample in the big container was put into six tubes, three of which were used as an experimental group and the other three as a contrast group.

The duration of each *qi* emission was thirty to forty minutes. The experimintal sample and the contrast sample must be examined randomly and alternately to ensure that the analyticcal instrument worked well.

Repeated experiments indicate that the effect of the emitted *qi* 2000 km away can really affect the molecular structure of the Rhodamin dyestaff to some extent.

Table 1 is the typical experimental results of infrared thermovision, laser fluoresecence and ultraviolet respectively in the experiment between Guangzhou and Beijing.

Table 1.

Temperature / Sample	Room temperature	^{t}orig	^{t}term	△t °C
1 #	11.0	11.0	16.2	5.2
2 #	11.0	11.0	16.2	5.2

(III) A LONG-TIME TRACKING EXAMINATION OF UV SPECTROSCOPY ON THE SOLUTION OF POTASSIUM DICHROMATE

Sun Mengyin, Li Shengping, Meng Guirong and Cui Yuanhao (Tsinghua University, Beijing, China)
Yan Xi (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

To further observe the action capability of 2000 km ultra-distance of the emitted *qi* on molecules, we have chosen the solution of patossium dichromate with stable chemical quality and examined the change of the sample under the action with an ultraviolet-visible spectrophotometer.

Before the experiment, relevant matters had been discussed with Yan Xin, the *qigong* master on telephone. On the afternoon of March 8, 1988, the $K_2Cr_2O_7$ aqueous solution of

$2x10^{-4}$ M was poured into two tubes. One tube was kept in the Analytic Centre of the Tainghua University as a contrast sample; the other, heat isolated, was sent to another lab 100 meters away and received the emitted *qi* produced by the master from Yunnan province. Then it was brought back to the Analytic Centre and examined together with the contrast sample and received tracking survey. For part of the result, see the following diagram, Table 1 and Table 2.

From the experimental results, we can see that the initial condition is very stable; within 70 hours 350 nm peak intensity fluctuated only 1.1 units. The standard deviation after surveyed 10 times was 0.38 ($s=0.38$). If the confidence probability $Pc=0.99$ and the allowable probabillity P_T-0.999 were adopted, the statistical allowable interval ($\bar{x} \pm ks$) of the individual survey value was able to be worked out as 56.4--61.8 by means of the essential parameters surveyed by the initial condition $n=10$, $\bar{x}=59.1$ and $s=0.374$, while the value of No. 6 sample wider action, which was 64.5, had obviously exceeded this interval and had significant difference with the initial condition. The intensity of the sample under action increased with the increase of the time peak intensity and the 350 nm peak intensity presented redshift to certain extent. This shows that the emitted *qi* has aome after-effects. Further study has yet to be carried out.

Table 1. Stabiltity of the Contrast Sample of
Patossium Dichromate within 70 Hours

Number		0_1	0_2	0_3	0_4	0_5	0_6	0_7	0_8
Survey time	March 8	14 : 07	14 : 09	14 : 11	14 : 44	14 : 48	14 : 50	17 : 42	
	March 9								9 : 03
	March 11								
Relative Absorption Intensity (350 nm)		59.1	59.1	59.1	58.5	58.7	58.7	59.0	59.5

Table 2. Survey Data of the Effect Sample of Patossium Dichromate within 60 Hours

Number		1	2	3	4	5	6
Survey time time	March 8	17 : 48	17 : 52	17 : 56			
	March 9				9 : 09	21 : 25	
	March 11						11 : 48
Relative Absorption Intensity (350 nm)		59.8	59.8	59.8	60.6	60.7	64.5

(IV) A LONG-TIME TRACKING EXAMINATION OF UV SPECTROSCOPY ON THE SAMPLE OF THE FLUORESCEIN DYESTUFF

Cui Yuanhao, Li Shengping, Meng Guirong,
Sun Mengyin and Yan Sixian (Tsinghua University, Beijing, China)
Yan Xin (Municipal Institute of Chinese Medicine of Chongqing, Sichuan province, China)

Fluorenscein is a kind of quite stable organic sample. In the experiment, an ultraviolet-visible light spectrophotmeter was used to examine and test the change of the fluoresce in sample before and after the action of the emitted *qi* . And a long-time tracking observation was carried out to see the characteristic of the sample's stablility.

The experimental sample was the analytical alcohol. The original solution used was an aqueous solution of 0.1 N, NaoH with a concentration of 10 mg/ml. Four hours before the experiment, the sample solution was examined and tested three times. The spectrum peaks of the ultraviolet absorption were overlapped, which proved that the background solution was stable and the test equipment was also reliable. Six test tubes were filled with the background solution—three of the tubes were put in another building which was 100 m away from the test equipment to receive the information of *qigong* , while the other three tubes were used as contrast samples.

Experimental Method: The *qigong* master acted on the experimental sample 2000 km away at an appointed time but he did not know the test method and site, which freed from the infulence of the original observation and test. The experimental sample was acted by the

emitted *qi* five times in all, and each lasted for 40 minutes. Between two experiments, the laboratory technician entered the sample room and put the sample which was in the thermos on the test equipment to be examined and tested, and then put it back to let it keep on receiving the information of *qigong* . After that, we made a 360 hour trace observation on both the experimental sample and the contrast sample.

Experimental Results:

Table 1 The Variation of the Absorption Intensity of Peak Values at 489 nm

Test time	Peak value of the experimental sample (ABS)	Variation rate	Peak value of the contrast sample (ABS)	Variation rate
3 : 00p. m. March 8	0. 73	2. 6%	0. 75	0%
5 : 25p. m. March 8	0. 72	4%	0. 75	0%
9 : 36p. m. March 9	0. 68	9. 3%	0. 74	1. 3%
11 : 00a. m. March 11	0. 64	14%	0. 73	2. 6%
9 : 30p. m. March 14	0. 56	25%	0. 73	2. 6%
4 : 45p. m. March 16	0. 52	30. 6%	0. 72	4%
8 : 50a. m. March 18	0. 49	34. 6%	0. 72	4%
11 : 00a. m. March 24	0. 39	48%	0. 71	5. 3%

Before the experiment, the background solution had been tested three times and each time the absorption intensity of the peak value was 0. 75.

Before the experiment, the absorption intensity of the background solution was repeatedly tested three times, and each time the absorption intensity was 0. 62 at 239 nm wavelength.

Table 2 Variation of the Absorption Intensity of the Peak Vaiues at 239 nm Wavelength

Test time	Absorption intensity of the peak value of the experienental sample (ABS)	Variation rate	Absorption intensity of the peak value of the contrast sample (ABS)	Variation rate
2 : 50p. m. March 8	0.65	4.8%	0.62	0%
5 : 20p. m. March 8	0.70	12.9%	0.63	1.6%
March 9	0.73	17.7%	0.63	1.6%
March 11	0.75	20.9%	0.63	1.6%
March 14	0.78	25.8%	0.63	1.65
March 16	0.86	38.7%	0.64	3.2%
March 18	0.87	40.3%	0.64	3.2%
March 24	0.90	45%	0.65	48%

(V) A TRACE EXAMINATION OF UV SPECTROSCOPY ON THE DNA SOLUTION OF FISH SPERMS

Sun Mengyin, Li Shengping, Meng Guirong and Cui Yuanhao (Tsinghua University, Beijing, China)

Yan Xin (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

DNA, an essential genetic substance, decides a series of life phenomena like the growth, reproduction, heredity, variation and transformation of an individual organism. Using an ultraviolet--visible spectrophotometer we examined the change of DNA molecule (s) of fish sperms after Yan Xin, the *qigong* master had emitted his *qi* from 2000 km away. Multi-experiments have shown that the effect of this ultra-distance exists. The folllowing reports the result of the experiment made on the afternoon of March 8, 1988.

Before the experiment, we had discussed the experimental arrangements on telephone with the *qigong* master far away in Yunnan province. On the afternoon of the 8th, the DNA solution was diluted to 20 mg/ml at the last moment and poured into two tubes. One tube was kept in the Analytic Centre Lab of the Tsinghua Univerrsity as the contrast sample; the other, preserved with heat, was sent to another Lab 100 meters away and was prepared to receive the emitting *qi* . When the *qi* emission was finished, the sample was immediately brought

back to the centre and examined together with the contrast sample for some time. For the experimental result, see Table 1 and Table 2.

Table 1 Stability of the Contrast Sample within 18. 5 Hours

Number		0_1	0_2	0_3	0_4	0_5	0_6	0_7	0_8	0_9
Survey time	March 8	14 : 18	14 : 22	14 : 24	14 : 31	14 : 34	14 : 36	18 : 04	18 : 39	
	March 9									8 : 45
Relative absorption intensity (256 nm)		34. 73	35. 2	34. 0	34. 1	34. 2	34. 7	34. 8	34. 8	34. 7

Table 2 Successive survey Results of the Sample under Action Within 15 Hours

Number		1	2	3	4	5	6	7
Survey time	March 8	18 : 10	18 : 15	18 : 20	18 : 30	18 : 34	18 : 45	
	March 9							8 : 52
Relative absorption intensity		35. 7	37. 4	38. 5	40. 6	42. 2	45. 0	52. 8

As a result, the contrast sample was very stable. The survey value within 18. 5 hr. only fluctuated 1. 2 units. If the confidence probability Pc-0. 99 and the allowable probability PT $=0.999$ were adopted, the statistical allowable interval ($\bar{x} \pm ks$) of some individual survey value could be worked out as 31. 4--37. 8 by means of the essential background parameters n-9, $\bar{x} = 34.6$ and $s = 0.426$. It's very clear in Table 2 that value of No. 3 has exceeded this allowable interval and the difference is very sharp. The absorption intensity of value of No. 7 has increased 53 per cent relative to the average background value. This is enough to show that the 2000 km ultra-distance of the emitted *qi* can affect the properties of DNA molecules. It has been observed that after the *qigong* master has stopped emission of *qi* , the colour-increasing effect can still last for a long time, which indicates that the emitted *qi* has some after-effects. The mechanism of the ultra-distance effect of the emitted *qi* and the effect of the emitted *qi* on DNA structure have yet to be further studied.

(Ⅵ) AN INVESTIGATION OF THE SAMPLE OF MIXTURE OF THE AGBR IUSH DYESTUFF BY EPR (ELECTRIC PARAMAGNETIC RESONANCE SPECTROMETER)

Li Shengping, Meng Guirong, Cui Yuanhao, Sun Mengyin, Guo Jinliang, Sha Jinguan and Yan Sixian
(Tsinghua University, Beijing, China)
Yan Xin (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

In this experiment, We used a ER 200/D electric paramagnetic resonance spectrometer (EPR).

The sample we used in this experiment was a powder mixture of AgBr.

It was necessary to check the empty tube of the sample before the experiment. Then, we took out the sample without exposure to light, about 10 g, from the container in which the sample material was kept (the container was in a refrigerator) and we divided the sample into four parts. Initially one was placed into a tube and checked by EPR, if no signals appeared, then we exposed the sample to room lights for ten seconds, again checked it. If signals appeared on the screen, it indicated that the original sample was effective. The other three parts were samples for the experiment. They were wrapped up with a piece of black paper, then sealed up with adhesive tape to ensure tightness and exclusiveness.

The experimental samples were placed in a darkroom of the Chemical Department, Tsinghua University. We kept them for thirty minutes before the experiment began. Each time, the emitted *qi* was given for 30-40 min. and we took the samples immediately after the cessation of *qi* emission. With the EPR we detected for its free radical and its structure.

The experiment was done on January, 26, 1988 in Beijing. The *qigong* master was in Guangzhou.

This experiment was repeated for several times and the result was very clear and definite.

From the experiment, we can see the remote applying of the emitted *qi* can excite the free radical of the samples and can be checked by EPR, the result is similar to the effect of the free radical being excited in the exposure to room light.

(Ⅶ) AN EXAMINATION OF ULTRAVIOLET AND ULTRARED THERMAL IMAGING SYSTEMS ON L-TRYPOTOPHAN SOLUTION

Meng Guirong, Li Shengping, Sun Mengyin and Cui Yuanhao (Tsinghua University, Beijing, China)

Yan Xin (Municipal Institute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

As known to all, protein is an important biological macromolecule in living bodies. There are 20 amino acids in protein and L-tryptophan is one of them. It is an essential element to make up protein. Studying the action of the emitted *qi* on tryptophan will directly help to reveal the mechanism of the emitted *qi* that removes diseases and strengthens health.

This experiment examined the ultraviolet dulling effect of L-tryptophan before and after the *qi* emission, using an ultraviolet-visible spectrometer. Temperature change was measured by a thermovision.

The experiment sample was PHII'S L-tryptophan aqueous solution with a density of 10 mg/ml. The samples were classified into the experiment group and the contrast group. To affirm the chemical stability of the samples under normal temperature, the background samples received two examinations at the interval of 13.5 hours, as shown in Table 1.

One hour before the action of the emitted *qi*, the initial temperature and the initial spectrum were examined. The *qigong* master emitted his *qi* at a long distance on the sample for about 40 minutes.

The experimental result is illustrated in Table 2. At the wave lengths 244 nm and 280 nm, there turned up the apparant increase of ultraviolet absorption intensity. The increasing rate was from 4 per cent to 55.9 per cent. see Table 1.

Usually, this phenomenon of "colour increasing effect" called in chemistry was impossible to turn up. Corresponding to variation of the molecular structure, the sample's temperature changed before and after the experiment. In both cases, it increased 2°C. This phenomenon shows that the variation of the molecular structure is exothemic.

Table 1 The Change of the Wave-Length Absorption Intensity of Two Samples

Wavelength	ABS 244 nm			ABS 280 nm			
Time / SAMPLE	Initial	Final	△ ABS Increasing Rate	Initial	Final	△ ABS IR	
I	0.085	0.110	0.025 29.4%	0.247	0.257	0.010	4%
II	0.085	0.133	0.048 55.9%	0.245	0.270	0.025	

Table 2 Temperature Variation of TWo Samples

TEMPERATURE / SAMPLES	Room temperature °C	$t_{initial}$ °C	t_{final} °C	△t °C
I	16.20	16.20	18.20	2.00
II	16.20	16.20	18.20	2.00

(VIII) AN OBSERVATION OF BOVINE SERUM ALBUMEN BY THE ULTRAVIOLET AND FLUORESCENCE SPECTROPHOTOMETER

Li Shengping, Sun Mengyin, Meng Guirong,
Cui Yuanhao (Tsinghua University, Beijing, China)
Yanxin (Municipal Institute of Traditional Chinese Medicine, Sichuan province, China)

In this experiment we used a ultraviolet-visible light spectrometer and a fluorescence spectrometer to check in parallel the sample of bovine plasme albumen solution acted by the emitted *qi* at a remote distance (about 2000 km away).

The sample was electrophoretically pure, and was diluted into water solution of a concentration of 0.5 ug/ml.

Checking conditions of the instruments:

Scanning speed of flourescence was 60 nm/min,

Charasteristic peak of EM spectrum was 340 nm

Ultraviolet-visible light spectrometer's absorption: ABS 0.5

Scanning time: 3 min/FS

Bandpass: 2. 0nm

Scanning range: 200-600nm

The bovine serum albumen was prepared and stored in a big container before hand. An hour before experiment we checked the initial conditions by using a fluorescence spectrometer and a ultraviolet spectrometer. After the samples was proved to be stable, the solution was distributed into six test-tubes, three formed the experimental group, the other three formed the contrast group.

Before the experiment began, the sample was placed on a square stool in a dedicated darkroom. Then it received the emitted *qi* for 30-40 min. for each time.

This experiment was repeated several times, the results were very clear and definite.

The experiment was done on Jan. 22, 1988.

From the experiment, it is easy to see that the differences of the position of the sample cause the differences of the test results of different samples. This kind of phenomena again indicate that the emitted *qi* is to some extent directional and regional.

(IX) AN INVESTIGATION OF THYMINE BY A RECORDING SPECTROPHOTOMETER AND A THERMOVISION

Meng Guirong, Li Shengping, Sun Mengyin, Cui Yuanhao (Tsinghua University, Beijing, China)

Yan Xin (Municipal Instititute of Traditional Chinese Medicine of Chongqing, Sichuan province, China)

Thymine is a very common thymine derivative. It is a kind of base which compounds DNA, and DNA is the carrier of genetic information. So thymine solution is a typical sample in research of the action of the emitted *qi* on matters.

In the experiment, we used an ultraviolet-visible spectrometer to check the ultraviolet absorption sepectrum of the samples, meanwhile we used a themovision to test the temperature change.

The experimental sample was water solution of thymine with aciolity PH11, concentration 10kg/ mm^3 . The sample was divided into two groups: the experimental group (2 tubes) and the contrast group (2 tubes) . In order to scientifically distinguish the true or fasle of the experimental phenomena, we selected the samples very strictly and dealt with them very carefully. In the process of the experiment (48 hours), we followed the track of

the ultraviolet absorption spectrum and checked them once every 14 hours (See Table 1). It indicated that the sample at ordinary temperature is very stable.

Experimental Method: The spectrum and temperature of the sample one hour before receiving the emitted *qi* was firstly tested. Then it received the emitted *qi* at a far distance for about one hour. Finally we checked the temperature of the sample which had received the emitted *qi* and checked its ultraviolet absorption spectrum.

The rate of increase of the two samples reached 24.2% and 11.5% respectively. At the point where the characteristic wavelength was 270 nm, the absorption intersite of the two samples reached 9.8% and 5.1% respectively. The corresponding temperature changes are listed in Table 1. The rate of increase of ultraviolet absorption intensity is called hyperchromic effect, it is because variation appears in a molecular structure.

Table 1 Tempereture Change of Two Samples

Temperature / Samples	room temperature t°C	t initial °C	t end °C	△t °C
I	16.20	16.20	18.20	2.00
II	16.20	16.20	18.20	2.00

(X) AN OBSERVATION BY AN ULTRAVIOLET SPECTRUM ABOUT YEAST RNA SOLUTION

Sun Mengyin, Li Shengping, Meng Guirong and Cui Yanghao (Tsinghua University, Beijing, China)
Yan Xin (Municipal Institute of Traditinal Chinese Medicine of Chongqing, Sichuan province, China)

RNA is a kind of importent biomacromolecule, which controls the synthesis of protein in organisms. In the Central Analysis Laboratory of the Tsinghua University, with a recording spectrophotometer we tested the variation of the yeast RNA solution before Yan Xin emitted his *qi* to it from Guangzhou (2000 km from Beijing).

The experiment was repeated many times and indicated that the emitted *qi* from 2000 km away could influence the properites of yeast RNA. Here we'll only report the experitment carried out on Jan. 24, 1988.

Before the experiment, we talked over with Yan Xin about the work on telephone.

The yeast RNA solution was diluted on site into 10 μg/ml and stored in two test tubes.

One was preserved in the Central Analysis Laboratory as the contrast sample, the other was stored in another lab (100 M away from the Central Lab) under constant temperature and it received the emitted *qi*. The *qigong* master emitted his *qi* for several times, each for about half an hour. Before receiving the emitted *qi*, the sample was sent to the Central Lab for testing and comparing with the sample at the same time. The experimental result was expressed in the follow diagram.

Number	0	1	2	3	max-min
The relative absoorption intensity	66. 5	65. 1	63. 0	61. 0	5. 5
Absorption A	0. 200	0. 195	0. 189	0. 183	0. 017
Measuring time hr	12 : 00	12 : 30	15 : 30	16 : 00	4

We had measured the initial conditions for many times in 8. 5 hr. The result indicated at 256 mm the point of maximum absorption, the value of minimum relative absorption in tensity is 65. 2, the range of fluctuation is 1. 3 unit. The graph here indicates the peak intensity of the sample after *qi* emission is reduced in comparison with the contrast sample, and the pochromic effect occured, but the point of peak doesn't change.

It needs further study about the structure of the remote distance effect of the emitted *qi* and the influence of RNA by it.

A QUANTITATIVE SURVEY OF SYSTEMATIC DEVIATIONS IN BROWNIAN MOVEMENT EXPERIMENT EFFECTED BY THE HUMAN MIND POWER

Wang Yonghuai, Zhou Lei, Xu Dong, Huang Junjie, Li Yan and Ge Zheng

In April of 1987, the Research Society of the Natural Mysteries of the Beijing University organised a series of lectures, in which Mr. Wang Yonghuai delivered a speech entitled "The Effects of Imaginative Faculty". In his speech, Mr. Wang suggested the idea of quantitatively measurament of the effect intensity of the human latent faculties (including *qigong* functions and peculiar functions) by a smooth stochastic process.

In physics, Brownian Movement is a classical and typical experiment of a smooth stochastic process. The random movement of small particles suspended in macroscopic static liquid, resulting from the impact of molecules in the surrounding fluid, conforms to the normal distribution:

$$\varphi(x)dx = \frac{1}{\sqrt{2\pi}\sigma} e^{\frac{-x^2}{2\sigma^2}} dx$$

Here, $\varphi(x)\,dx$ denotes the probability of the particles being displaced from x to x+dx in x direction (in a level direction) in the course of time, $\triangle t$-σ is a constant, determined by $\triangle t$, mass and radius of particles, viscosity and temperature of medium. According to Maxwell-Boltzman distribution function, we have $\sigma^2 \infty \frac{1}{T}$.

This paper presents the result of a typical experiment, which was carried out strictly under the normal procedure of the standard Brownian Movement experiment. It recorded a group of 500 data in case of Performer A or B's mind power interference and also a comparative group of data in absence of any mind power interference.

The result of the experiment showed that while the data of the comparative group were identical with the theoretical calculations, evident deviations from the theoretical calculations occurred in the data of the mind-power-interfered group—σ value changed by 24%. With the various other reasons for such deviations considered to the greatest extent, the statistical significance of $P<10\%$ still stands.

This demonstrates that the change of random distribution occurred in the mind-power-interfered group is not an accident but an orientated systematic deviation instead. In other words, the performer realized orientatedly a less than 10% probability in the course of his affecting the Brownian Movement.

Many *qigong* experiments acquired the statistical results containing very striking deviations, but this experiment proves only that deviations do exist, probably because 1. The quantity of samples in this experiment is relatively large; 2. The samples in this experiment are completely isolated, unlike other experiment, in which the effected objects form one system and thus enlarge the quantity of functions in its effects.

Since the law of the Brownian Movement has been fully investigated and the relevant mathematical tools have long been perfected, it is possible for us to search for a deeper insight with them into the mechanism of human latent faculties effects and eventually discover a measuring criterion (such as the ability to realize events of little probability) to quantitatively describe the effect-intensity of human latent faculties, so as to lay an experimental foundation of establishing a phenomenological model for the study of the human latent faculties effects.

MEASUREMENT AND ANALYSIS OF THE INFRASONIC WAVES FROM THE EMITTED *QI*

Niu Xin, Liu Guolong and Yu Zhiming

(Beijing College of Traditional Chinese Medicine, Beijing, China)

The theory of traditional Chinese medicine suggests that *qi* is one of the fundamental substances in human bodies. Modern scientific research of the essence of the emitted *qi* has yielded some positive results. In order to find out the relation between the emitted *qi* and infrasonic waves, to explore the mechanism of the emitted *qi*, to find out how a person generates and receives the emitted *qi*, to provide a quantitative physical scale for indicating the strength of the emitted *qi* for experimental studies of the effect of it, we measured and analyzed the infrasonic waves from the *qi* emitted by *qigong* masters.

The test which was done by an infrasonic testing system made in Denmark was conducted in a noiseproof room in the Institute of Sound and Electronics under the Ministry of Electronic Industry. The background noise in the room was lower than 30 dB (decibel). The microphone was hung in the air over Laogong (P 8), the distance being 2 ± 0.5cm with no contact.

Twenty-seven *qigong* masters were put to the test. Among them twenty-four were males and three were females. Their ages ranged from 20 to 53 years old. The period of practice of *qigong* ranged from 4 to 32 years. While on testing, the patterns of *qigong* were not restricted. Non-*qigong* masters were used as controls. The tests were done during the daytime. The tested persons lay on their backs in a noiseproof room, breathing quietly.

The experiment tested the release of the emitted *qi* at Laogong (P 8), Mingmen (Du 4), Baihui (Du 20), Dantian and Jianzhi. Special attention was paid to the test of Laogong (P 8).

1. The top frequency of the infrasonic waves from the tested *qigong* and non-*qigong* masters ranged from 8 to 12.5 Hz. In one case the frequency reached 16 Hz. In another two it reached 6 Hz.

2. The infrasonic waves from the *qigong* masters ranged from 45 to 76 dB and those from the non-masters, 45-50 dB. Comparison of the intensity of infrasonic waves during the *qigong* state and the non-*qigong* state before and after the emission of *qi* showed a statistically significant increase ($P<0.01$). The increase of wave intensity of the *qigong* masters compared

with that of the non-*qigong* masters was also obviously significant ($P<0.01$). The energy of the *qigong* masters was over 100 times higher than that of ordinary persons.

3. Different *qigong* patterns called for the exercisers to concentrate their minds on different acupoints and the testing results were different. When we tested the same *qigong* master at the same point, the intensity of the infransonic waves decreased with the increase of distance.

4. The masters who had practised *qigong* for many years and often emitted *qi* to treat patients had a higher intensity of infransonic waves, reaching over 70 dB. Those who started to practice *qigong* a short time before and mainly practised *Nei Yang Gong* had a lower intensity of the infrasonic waves (lower than 60 dB).

5. While on testing, some *qigong* masters in the Valsalva state, or non-*qigong* masters who simulated Valsalva, showed a higher intensity of the infrasonic waves.

Infrasonic and ultrasonic waves are all sound waves which cannot be detected by human ears. The frequency of infrasonic waves is below 20 Hz. Many natural phenomena and artificial actions may generate infrasonic waves. Human bodies may act as a source or a receptor of infrasonic waves giving rise to a biological effect. The infrasonic information we acquired from the measurement of the emitted *qi* makes it possible to study the effect of the emitted *qi*.

The Valsalva state in which a *qigong* master emits his *qi* is the breath-regulating state of *qigong* and also the state of emitted *qi* in the breath-holding exercise. Non-*qigong* masters who simulate the Valsalva state also send out more intense infrasonic waves. It shows that every person has infrasonic characteristics. A long period of practising *qigong* helps increase the radiative intensity of infrasonic waves. Entering the Valsalva state helps in the emission of *qi*. The *qi* emitted by masters who adopted *Song Jin Gong* (relaxed and quiescent pattern) had more intense infrasonic waves (reaching 72 dB). Thus, the mechanism of the emitted *qi* released by different exercise patterns is different.

We have found by a series of tests that very able *qigong* masters can keep the energy of infrasonic waves at a relatively high level (over 70 dB). So tests on infrasonic waves can be used to screen *qigong* masters.

The human body can generate and emit infrasonic waves. As far as acoustics is concerned, the most suitable resonant frequency of human tissues is within the range of infrasonic waves. It shows that the huaman body readily receives infrasonic waves. Infransonic waves are a strong, effective part of the emitted *qi* because of their quick, long-distance transmission, strong penetration and non-decreasing vibration. It is possible that

infrasonic waves themselves transmit the messages between the *qigong* masters and the subjects, or serve as a carrier.

THE EFFECT OF MIND-CONTROL IN *QIGONG* EXERCISE INVESTIGATED BY AN INFRARED THERMOVISION IMAGER

Du Luoyi

(China Medical *Qigong* Society, Beijing, China)

"Mind control is the core of the *qigong* exercise." "Mind can control the motion of *qi*" Although most of the *qigong* exercisers have an intimate knowledge of these points, there still lacks of the scientific evidence. In this paper the effect of mind-control was investigated by an infrared thermovision image.

1. Experimental design and instrument:

According to the phenomenon that *qigong* exercises can produce the infrared effect, the subjects were divided into five groups.

Group A. The *qigong* exercisers emitted *qi* from the head and face through mind-control.

Group B. Non- *qigong* exercisers emitted *qi* from the head and face through mind-control.

Group C. Hands of non-*qigong* exercisers in normal state were measured.

Group D. *Qigong* exercisers emitted *qi* from the hand through mind-control.

Group E. Non- *qigong* exercisers emitted *qi* from the hand by mind-control.

These five groups were measured in the same condition and by the same instrument. The purpose of the experiments is (1) Supply more evidence of the infrared effect produced during *qi* emission; (2) The *qi* adjustment by the *qigong* exercisers is stronger than by the non-*qigong* exercisers; (3) To measure if the non- *qigong* exercisers can emit *qi* or not. The Model AGA 780 Infrared Thermovision Imager which we used is an instrument with higher sensitivity, accuracy and resolution. When the room themperature is about 30° C the resolution of this infrared thermovision image is 0. 1°C. When the temperature of the subjects changes 0. 2° C, the colour of the screen will change to the adjacent colour in the colour criterion. The difference of temperature represented by the adjacent two colours can also be adjusted to 0. 5°C

Discussion.

1. *Qi* emission is no mystery. It is a general phenomenon in the *qigong* exercise.

2. The infrared effect in the process of *qi* emission can be modulated and self-controlled

	Number of Persons	Having Infrared Effect	%	Maximum Change of Temperature	Average Change of Temperture
Group A	21	21	100%	4°C	0. 709°C
Group B	14	0	0%	0°C	0°C
Group C	12	0	0%	0°C	0°C
Group D	20	20	100%	3°C	0. 891°C
Group E	12	2	16. 7%	0. 2°C	0. 03°C

by the mind.

3. Experienced *qigong* exercisers can control his *qi* emission from a definite part and time and diseases can be treated by the emitted *qi* .

4. *Qi* emission also has the effect of lowering temperature.

5. As concentrating their mind some non-*qigong* exercisers also can enter the elementary *qigong* state.

From the above, we can "touch" the *qi* which is considered "invisible" on the screen and from the temperature change. Through the comparison of the colour pictures before and after *qi* emission the temperature changes induced by the infrared effect of *qi* emission can be calculated. The results prove the effect of the mind-control of *qi* in the *qigong* exercises.

CHAOS AND FRACTAL OF THE HUMAN BODY IN THE *QIGONG* STATE----A COMPLEX THEORETICAL APPROACH TO *QIGONG*

Li Fuli

(University of Science and Technology of China, Hefei, China)

The human body is a complex system. In recent years we have studied the human body science by nonlinear science and the complexity theory. We have made three quantitative predictions on chaos and fractal structure of EEG and *qi* in the *qigong* state. New

experimental results coincide with the predictions. In this paper we will give a very brief review on this work and for the first time we will present the calculation results on chaos and fractal dimension of *qi* in the *qigong* state. We suggest that the theory of coincidence of the human body and heaven and the chaos resonance principle are the basis of *qigong* exercises and medical *qigong* , and the Chinese Qigong Medical Insrument is the only chaos technology for the moment in the world.

According to the "Five Element Theory" and the newest chaos theory we made the three predictions:

1. The human body has strange attractor behaviours.

2. Both *qi* and EEG are CHAOTIC signals.

3. In the *qigong* state the correlation dimension of *qi* and EEG will saturate at $n=5$, corresponding to "five" in the "Five Element Theory".

There are several evidences to support our predictions:

1. Professor Scott and his colleagues have shown that the correlation dimension of EEG saturates at $n=5$ for special cases.

2. Anhui Medical College has shown that the spectrum of subsound in the meridians of sheep has continuous spectrum at low frequency region. We are sure this is the chaos signal.

3. A group at the Zhejian University has shown that the correlation dimension of EEG at the *qigong* state saturates at $n=6$.

4. Two group in Shanghai and Northeast China have given evidences indicating the continuous spectrum of infrared radiation from *qigong* masters.

Recently we have studied the infrared signal from *qigong* masters. We have calculated the power spectrum, the phase diagram and the correlation dimension. The main procedures and results are as follows:

1. The *qigong* signal (infrared radiation for example) is $x(t)$.

2. From the *qigong* signal to construct a vector space

$$\{X_i^{(n)}\} = \{X_i, X_{i+1}, \cdots\cdots, X_{i+(n-1)l\tau}\}$$

τ is a delayed time.

3. The correlation integral $C^n(\varepsilon)$ and the correlation dimension D_2 are calculated

$$C^{(n)}(\varepsilon) = \frac{1}{n^2} \sum_{i,j}^{3^n} \theta(\varepsilon - |X_i^{(n)} - X(n)_j|)$$

$$\theta(R) \equiv \begin{cases} 1 & \text{for } R \geqslant 0 \\ 0 & \text{for } R < 0 \end{cases}$$

$$D_2 = \lim_{\varepsilon \to 0} \frac{\mathrm{Log}\ C^{(n)}(\varepsilon)}{\mathrm{Log}\varepsilon}$$

We have found that D_2 saturated at $n = 3$-4. This means that the *qigong* signal has low dimension strange attractor behaviour. One can use about 5 equations to describe the dynamics of the human body. The chaos and fractal characteristics are universal in nature and society.

We have also shown that the structure and functions of the human body also have fractal characteristics and infinite series of similarities called Functional Structure Holography.

From the theory of coincidence of the human body and heaven, it is also expected there should be some chaotic sources in the universe which have the correlation dimension equal to that of the human body and which should also saturate at $n = 5$. The "resonance" of the chaotic signals between the human body and heaven and between the human bodies may be the theoretical basis of *qigong* exercise and medical *qigong*. Recently, people have found that the electromagnetic radiation from the solar system has the strange attractor behaviours with $D_2 = 3.5$ and the correlation dimension saturates at $n = 4$-5. So we expect that the correlation dimension of *qi* in the *qigong* state should be $D_2 = 3.5$.

In connection with *qigong* we have also studied the strange functions of the human body. We have made the following hypothesis: *Qi* has a super ability to produce living matters or to solidify nitrogen; the brain has a squeezed state with super sensibility; the time and space also have fractal structure and infinite self-similarity.

To understand *qigong* and peculiar functions of the human body, a whole new theory might be essential. We call it "the human body and nature as an integrated one," which deals with tachyon and super quantum effects with $h \to \infty$. A new constant might be needed. When $\varepsilon = 0$ the relativity theory and quantum mechanics can work well. However, when $\varepsilon \neq 0$ the relativity theory and quantum mechanics do not work at all. Where is a constant in connection with *qigong* and mind. From the point of view of relativity and quantum mechanics, the classical theory is the limit $1/C \to O$ and $h \to O$, where c is the speed of light and h planck constant. On the other hand, $1/c \to \infty$ and $h \to \infty$ may be in connection with *qigong* and peculiar functions of the human body. So that is why today's natural science cannot explain *qigong* and peculiar functions of the human body. We need a new breakthrough. the relativity theory and quantum mechanics is the limit $C \to Co$, $h \to ho$ ($Co = 3 \times 10^{10}$cm/sec., $h = 6.6 \times 10^{-\gamma?}$ erg. sec.) of the new theory.

SCIENCE OF VITAL MESSAGE AND *QIGONG*

Gu Hansen, Wu Dumin (The China Vital Message Institute, Shanghai, China)

In the coming age of vital science, the focal point of medical science will shift to Chinese medicine, of which modernization of *qigong* is a trend of word history.

1. Nonstatic mass matter verified.

Several famous physicists of the 19th century, namely Faraday, Waxwell and Hertz led a great revolution in physics, proving the existence of electromagnetic wave, a nonstatic mass matter (energy matter in brief). Electromagnetic wave is an expression of materialistic movement. It proves that every static mass matter (mass matter in brief hereafter) always accompaies certain specific natural resonant frequency. The discovery of dualistic correspondence between mass matter and energy message thoroughly broke through the old concept that only visible and touchable things are material and outcomes of the spetacular world of message of today. Nevertheless, physics is still in general a science for the lifeless world.

2. Energy message dualistically corresponding to orderization of matter.

The development of the disequilibrium thermo-dynamitics theoretically has built a bridge between physics and biology. It, in the first time, explained the relationship between the living body and message, or dualistic correspondence of the living body with vital message. The living body by acquiring negative entropy becomes itself orderized at higher order and thus gain development and evolution, though no report of practical applications has yet been seen.

3. Science of vital message and *qigong*.

Biology and Western medicine based on postmortem anatomy have already developed to the molecular level which brings about unprecedent improvement in the development and evolution of the living body, disease curing and life prolongation. However, so far in general it is still limited in the interreaction between the living body and static mass matter. The effects of nonstatic mass on the development of the living body are still overlooked.

(1) In terms of the human body life corresponding to the complex message system, the authors, after experimental tests, on the material basis of the emitted *qi*, reached a conclusion that *qi*, as so often said by ancient people is nothing but 'field' of modern science and 'shape' is tangible matter of static mass by all sorts of modern scientific measurements from naked eyes to electron microscope. When a person falls ill, it must be some unbalance of his

yin and *yang* . Two ways of readjustment can restore the balance of *yin* and *yang* . One is to readjust *yin* . It is the way of Chinese pharmaceutical medicine. Here we may call it the medicine of *yin* . The other is to readjust *yang* to restore the balance of *yin* and *yang* by the *qigong* therapy. Here we may call it medicine of *yang* for the time being. In this sense, the oriental medicine seems to be much dialectical than the Western medicine. The essense is how to recognize the material world in a comprehensive way, though merely qualitatively.

Therefore acusthesia vision, language, thought, emotion and knowledge are all matters stored in the human cerebral cells in highly orderized modes, just like sound and vision recorded in magnetic molecules of a cassette in orderized mode. When aging and finally death occur the orderization gives way to disorderness in the cerebral cells. The energy-message system degenerates and finally loses its function. No matter how you define death, at the moment of death, the loss of body mass in general is not quick, but the loss of energy-message is significantly quick. A dying man cannot hear, see, talk and think, and can no longer receive any message from outside. After all these, then, there will be the destrction of the body mass. Therefore it is thriving and declining of the vital message that chiefly characterizes the vitality of the living body.

2. The *qigong* state — *qigong* message---the orderization of specific parts of the human body--physiological effects.

Through the experiments the authors found various produced different messages. Since different messages dualistically correspondent to different forms of orderization, therefore various *qigong* exercises always direct the human body to produce orderization in differnt parts and strata of the body, and then macroscopically manifest different biological effects analogous to different medical treatments to cure various diseases.

3. Science of vital message and scientifization of *qigong* .

Science of vital message is a branch studying the quantitative exchanges of bio-messages between the living beings and their environments.

Since the messages of energy mass dualistically correspording to various sorts of orderization in the living body, it is possible to gather vital messages of specific parts and strata from the living body of fine variety and at robust age, and to transmit them to the living body of the same kind and at different stage of life in order to revivify its own vital messages, especially reinforce the orderization of the living beings' robust years, so as to preserve health and change the defective orderization into health ones to cure deseases and prolong life.

Wu Dumin, one of the authors, after many years of hard work on animal experiments

successfully collected a set of broad spectrum therapeutic vital messages having strictly numerical ordinal corresponding to those of the living body of robust years in the end of 1950's. These collected therapeutic messages were inputted into the vital message therapeutic instrument designed by Ku Hansen, the other author of this paper, in the middle of 1980's, The instrument was patented with a type number SMS-O3 and used by more than a hundred units. Several hundred thousand person-times have been treated with this instrument. Reports show no side-effects appeared and quite a lot of difficult and complicated diseases were cured, e. g. improving the vision of patients with senile cataract and audition of patients with senile deafness; recovering the function of pancreas cells; recovering the liver cell from necrosis; repairing the hurted bone tissue suffered from cancerous bone tumor; imporoving lymphatic circulation; improving immune function of the three systems; improving microcirculation; increasing blood flow in the coronary artery; raising PO_2 of arterial blood, etc. These examples prove how the vital messages control the orderization of the living body, which macroscopically present to be controlling physiological functions for the purpose of curing illness and prolonging life.

Science of vital message is the product of this epoch. Vital message controls orderization of the living body and macroscopically controls the physiological functions of the living body. This idea through recognition and emphasis will bring about tremendous progress to the civilization of mankind. An unprecedent magnificent vital-message industrial revolution will surely take place as the result of interaction between the living organism and the material world--the interaction between vital matter and non-static mass matter. It is much essential for *qigong* to promote towards a higher level in the development of the energy-message vital science.

Qigong, the treasure of Chinese nation, will play an important role in preserving health and prolonging the human life.

PSEUDO-COLOUR TREATMENT OF THE RADIATION FIELD PHOTOGRAPHY OF *QIGONG* MASTERS

Cai Jianyu, Yuxian and Zhang Qihu

(Shanghai *Qigong* Institute, Shanghai, China)

Radiation field photography is a kind of technique done by the exposure of the film due to electric discharge of the body surface under the state of electric field of high voltage. This technique can be appllied to any research of the human diseases, meridians, physiological conditions and other extra human functions.

In doing the radiation field photography, the physiological indexes, such as those of the thickness of skin, the cornfication of skin, temperature of the body surface secretion and electrolyte concentration of sweat, blood microcirculation, local affection, etc. influence to some extent the intensity of the radiation field electricity. In theory, the difference of the result of the photography is directly caused by the amount of the static current on the body surface, the organic resistance, quality of the film and the air humidity.

If pictures of the radiation field are taken for the same person and at the same period, the factors of variation are greatly reduced. A comparative study of the body surface temperature between 10°C-45°C have been conducted to see if the body surface temperature and the electrolyte concentration of the body surface markedly affect the radiation field.

Another comparative study of the body during infiltration in 10% Nacl solution and normal water has been done too, and there was no marked difference found.

Experiment methods.

The pictures were taken with a self-made radiation field instrument, the voltage of the electric field was 15000-20000 volts. The duration of discharge was about 50 μx.

Pictures of the *qigong* practisers were taken be # 铈 ore, during and after the exercise under the same room temperature and humidity. The palms of the practisers directly put on the films. The duration of discharge and voltage did not change in the process and the films were immediately developed after pictures taken.

An assessment of the radition condition was done according to the changes of length of the radiative ray, radiation thickness, shadow of the radiation halo, radiation points and the intensity of the radiation spots. Pseudo-colour treatment was conducted to further assess the

intensity of the radiation. The exposure degree was divided into 9 grades. Thus, the exposure degree could be seen in accordance with the colour and area difference.

Pictures of 49 practisers of various *qigong* patterns were taken, among them 46 were males and 3 females at the age of 24-70. The *qigong* patterns included *Wudang Qigong*, Inner-Cultivation *Qigong*, *Shaolin Qigong*, *Huanglong Tangzhang Qigong*, Buddha' s Warrior Attendant *Qigong*, etc.

Results and Discussion:

Qualitve grade of the radiation field negatives was decided according to the following criteria.

1. Obvious changes of the length of the radiative rays, changes of thickness and concentration of the shadow of the radiation halo, increase of intensity of the radiation spots, known as marked increase.

2. Slight changes of the length of the radiative rays, some changes of the thickness and concentration of the shadow of the radiation halo, slight increase of the radiation spots, unobstructive increase of the intensity of the radiation spots; known as slight increase.

3. No changes of the S indexes.

4. Shortening of the length of the radiative rays, slight decrease of the thickness and intensity of the radiation halo, reduction of the radiation spots, decrease of the intensity of the radiation spots, known as slight decrease.

5. Marked decrease of the 5 indexes.

Results of the 45 subjects:

Indes No.	Persons
1	5
2	12
3	17
4	9
5	0
6	6

Failure of identification.

From the above it is significant to assess by the radiation field photography of the *qigong* practisers ($P > 0.1$). The results could vary for different practisers who did the same *qigong* exercise. It tells that the variation of *qigong* is not the main cause of the changing results, however, the practiser' s exercise quality is the decisive factor. After the exercise, the increase and decrease of the intensity of discharge of the radiation field may be related to the

patterns of *qigong* the master practises, and to the fact that the master is in a stress state.

After the 49 subjects' negatives were treated by the pseudo-colours process, the following results were obtained based on the 5 criteria of the radiative energy.

Indes No.	Persons
1	5
2	23
3	9
4	11
5	1

From the above we can see that all the identifications may be got after the negatives have been treated by the pseudo-colour process, and it has been proved that practice of *qigong* markedly influences the result of the radiation field photography ($P > 0.001$). The pseudo-colour process is effective to the radiation field phyotography.

The radiation field photography can be applied to medical and clinical research and in the study of *qigong*, it can tell us that the process of the *qigong* exercise affects to some extent the radiative intensity. A further study of the mechanism of the influenced radiative intensity and the mechanism of *qigong* is a subject of interest.

A STUDY OF THE "DURATION AND DEGREE" OF THE SMALL *QI* CYCLE *QIGONG*

Ren Zhengxin et al (Jiangxi Chinese Medicine and Pharmacy Institute, Jiangxi province, China)

The term "duration and degree" refers to the condition in which the *qigong* exercise is practised. The "sensation of *qigong*" in the part of the body involved in the exercise is induced by thought, breath, etc. The "sensation of heat" is commonly found. By means of analogy and comparison, the ancients compared the duration and degree in exercising *qigong* to the duration and degree of heating bricks in a burning kiln. The duration and degree is an important theoretical and practical issue. It is a secret that any alchemist would not pass on to other people. It's more than 2000 years since the term "duration and degree" appeared in the book *Zhou Yi Can Tong Qi*. On the basis of the alchemy and with the help of current psychological and physiological theories, the theory of biofeedback and scientific electronic techniques, we have developed a "*qigong* exercise indicator". This apparatus combines the

interior feedback of the *qigong* exercise with the theory of exterior biofeedback. It employs the skin temperature difference (STD) between Dantian and Sanyinjiao (Sp 6) as an objective index to evaluate the duration and degree. The kinetic changes of the skin temperature at these two acupoints are determined simultaneously with a numeral thermometer. The STD lights up an indicator lamp with every 0.3°C difference. Using this apparatus we tested three groups of subjects. In Group A the subjects practised small *qi* cycle using this apparatus, in Group B the subjects practised the samll *qi* cycle *qigong* without using this apparatus, and in Group C the subjects did not practise the small *qi* cycle *qigong*, but sat silently with their eyes closed. The results were as follows. In Groups A and B, the STD between the above two acupoints significantly increased with the duration of the exercise, reaching a relatively steady level after 15 minutes. In Group C the STD showed no significant alteration at any time, and the STD value was significantly lower than that of Groups A and B ($P < 0.01$). This suggests that practising the samll *qi* cycle *qigong* may increase the skin temperature at Dantian, thus increasing the STD between Dantian and Sanyinjiao (Sp 6). But the STD of Group A was significantly greater than that of Group B. This shows that this apparatus can increase the effects of the small *qi* cycle. We tentatively take an STD of 1.2°C as a relatively appropriate degree for the small *qi* cycle. In Group A, this degree was reached by practising the small *qi* cycle *qigong* for about a month on the average, but in Group B the duration of more than three months is necessary for reaching the same degree. Group A was significantly faster than Group B. This suggests that this apparatus can accelerate the effect of the small *qi* cycle. From these results, it is suggested that this apparatus is a useful supplementary instrument for practising *qigong*. It can resolve problems such as long duration and difficulty in attaining the appropriate degree in practising *qigong*.

PHYSICAL CHARACTERISTICS OF THE EMITTED *QI*

Gui Yongfan, Chen Qi, Li Yinfa and Jiang Shan

(Nanjing Aeronautical Institute, Nanjiag, China)

In this paper, three functions of the emitted *qi* which were discovered with the aid of some physical instruments, such as the Van de Graaff generator, light sensitive plate and Geiger-Miiller counter are mentioned.

1. The Emitted *qi* can restrain the discharge process. The discharge between the two balls in the Van de Graaff generator will be stopped or the period of discharge will become

longer when the emitted *qi* is exerted on the instrument.

The Van de Graaff generator was used for testing. The two discharge balls in the generator were pulled apart until the critical state was reached. Then the *qigong* master aimed his emitted qi at the discharge space. The distance between the fingers or palm of the *qigong* master and the discharge space was 10cm to 3 M. We have discovered the following phenomena:

(1) The "emitted *qi* " stopped the discharge or made the period of discharge longer.

(2) The *qigong* master had no sensation of getting an electric shock when he emitted his *qi* near the discharge space. Nevertheless when he stopped emitting his *qi* , he had the sensation of an electric shock if his hand was still near the discharge space.

(3) In the restraining process, a series of restraint and discharge, such as restraint--intermittent bursts of discharge--restraint sometimes appeared.

We recorded the crackling sound of the discharge with a recorder and measured the changes during the period of discharge with a FFT analysis system CF-920. Table 1 lists five typical periods of successive discharge.

Table 1. Discharge Period When Discharge Is Restrained by the Emitted *Qi* (sec.)

Curve	d (m)	Discharge order N									
		1	2	3	4	5	6	7	8	9	10
(a)	0. 41	0. 67	0. 63	0. 62	0. 62	0. 58	0. 61	0. 63	0. 66	0. 65	1. 15
(b)	0. 41	0. 84	1. 39	0. 77	0. 88	0. 75	1. 17	0. 77	0. 72		
(c)	0. 41	0. 84	0. 75	1. 16	0. 69	0. 64	0. 42	1. 02	0. 41	0. 63	
(d)	2. 35	1. 10	0. 90	1. 18	0. 96	0. 87	0. 85	0. 87	0. 88		
(e)	2. 35	1. 38	2. 02	2. 62	2. 30	1. 43	3. 01	1. 25	1. 43	1. 50	1. 52

2. The emitted *qi* can cause the exposure of light sensitive plates wrapped in a piece of black paper. By false colour image processing with a picture processing instrument, we obtained a colour photograph, in which the image of fingers and the Laogong (P 8) can be seen clearly.

We selected various light sensitive plates which were wrapped in a piece of black paper. The *qigong* master emitted his *qi* at the emulsion layer of a light sensitive plate. The distance between the palm of the *qigong* master and the plate was about 10cm. The duration of emission was about 10 minutes. The plates which had been acted on by the abovementioned

way and the control plates were developed in the darkroom under a green light. We got the following results:

(1) The colour of the controls was darker than the affected plates.

(2) After development, white speckles, various patterns or orderly stripes appeared on the affected plates.

(3) The white speckles were clear when the plates were pre-exposured. In the best one the image of fingers and the Laogong (P 8) could be seen clearly.

Infrared radiation cannot penetrate the black paper, whereas high energy particles cannot develop white speckles. The process of exposure is an ionizing process in which an electron of the ionic bond of hiloid silver is moved away. That is the discharge process. We may explain the exposure of the light sensitive plate as being caused by the restraint of discharge.

3. The emitted *qi* can change the counts on the Geiger Miiller counter.

We have obtained a large number of data by testing the emitted *qi* of more than 200 persons. Before a test we would record automatically the background of the Geiger counter. By statistical analysis we can prove that the background in a time interval $\triangle t$ follows Poisson's distribution with an average value λ.

In the tests, the palm of the *qigong* master was 5 cm away from the counter. The duration of emission was 200 sec. to 10 min. We made a data processing test of the measured discrete-time order x (n) using various digital filter and frequency spectrum analyses, thus obtaining information on the emitted *qi*.

EFFECTS OF THE EMITTED QI ON SILICON'S CRYSTALLINE STATE

Wu Banghui, Wu Ruixian, Du Kaiying, Wu Shiying and Zhu Jumu

(Sichuan University, Sichuan provinec, China)

Song Kongzhi, Li Xianggao, Lan Rongliang and Zhou Liangzhong

(Institute of Space Medical Engineering, China)

In recent years, with the development of the human body science, a series of experimental evidences have been obtained. They prove that the peculiar functions and emitted *qi* can change structures and properties of matters. For example, some natural gifted men and *qigong* masters can break steel needles sealed in a container into two parts and then bind them togather (without any touch), or influence the structure of water, physiological saline, glucose injection, etc, or make cards that have been torn or pounded into paper pulp into their

original state. All these changes can be assumed to be caused by actions of a certain matter (or energy) given off by the naturally gifted men or *qigong* masters. The natural instinct of which is still unknown. We call the matter the "emitted *qi*". Detailed study of the action of the emitted *qi* on matters has profound theoretical meanings and important application prospects to various modern sciences.

This paper discusses the effect of the emitted *qi* on silicon crystal state. The Si single crystal plates or Si single crystal plates that had been single-sided covered with amorphous Si was put into hermetically sealed glass bottles as subjects of the peculiar function of a naturally gifted man. Their crystal structure was analyzed before and after the treatment.

The analytical curve of X-ray's is the diffraction of Si crystal plate that hadn't been treated.

From the silicon plates which were acted on by the emitted *qi*, we found three plates which had become oriented microcrystal.

In order to be prudent, by the end of 1987, we reanalyzed the structure of plates A and B. To our surprise, these two plates restored their original single crystal structure. To have a better understanding of the effect, seven days after the plate (C) was analyzed we traced to examine it and found that it had become single crystal as (A) and (B).

With reference to "Breakdown-Restitution" effect of photodiode under the action of the peculiar function, we think the change of the single crystal to oriented microcrystal as a kind of "soft change".

INVESTIGATIONS OF ELECTROMAGNETIC RADIATIONS AND LUMINOUS PHENOMENA IN A FUNCTIONAL STATE OF *QIGONG*

J. J. Fan, F. Wang, H. C. Yan, Z. K. Yang, S. B. Li, J. S. Li, N. H. Mao, W. T. Liu, J. S. Hou and Q. Y. He (The Fourth Military Medical College, Xi'an, Shanxi province, China)

Electromagnetic radiations and luminous phenomena with five different wavebands have been investigated in a functional state of a *qigong* master, Mr. Li Shaobo, the founder of a form of *qigong* exercises, named "genuine *qi* in motion". When Li was in the *qigong* functional state, no radio signals with frequency 0.1 Mc-300Mc (wavelength: 3000m-1m) were received. However, some microwave signals with frequency 2 Gc (λ : 15 cm) were detected near Baihui (Du 20). The intensity of microwave signals varied with changes of

antenna direction.

The temperature increase of 1.5°-2°C in Baihui (Du 20) and Laogong (P 8) was recorded with a microwave radiometer.

Infrared thermovision (λ : 8-14km) demonstrated that when the *qigong* performance started, the temperature of the face gradually rose to a stable level. As soon as the *qigong* performance stopped, the temperature of it quickly returned to normal.

The visible light around Baihui (Du 20) was not observed by a luminometer (10^{-4} Lux.).

With a low light level night vision instrument (λ : 0.38-0.8 μm), a special luminous phenomenon, a halo around Li's head was seen once. At the same time the visible light was also found around Dantian. This luminous phenomenon lasted about eight minutes.

The results suggested that a human body in the *qigong* functional state radiates certain wavelength microwaves, infrared radiation and low visible light.

A STUDY OF THE MECHANISM OF THE EMITTED QI

Guo Yinglan, Geng Xindu and Mi Juanceng

(Northwest University, Shanxi province, China)

Many studies of the physical and biological effects and the clinical practice with the emitted *qi* have been reported. The aim of the study in this paper is to look into the material basis and the mechanism of the emitted *qi* by chemical methods. It includes three aspects: (1) Thermal efficiency of the emitted *qi* on various chemicals; (2) Effect of the emitted *qi* on the biological activity of enzymes; (3) Effect of the emitted *qi* on the conformation of proteins.

1. Thermal efficiency of the emitted *qi* on various chemicals.

Acetone, ether and absolute alcohol were poured into three 25 ml. flasks respectively, and then were acted upon by the emitted *qi* from three *qigong* masters, A, B and D. After a few minutes, it was found that the temperature of each chemical rose to some extent. With statistic evaluating, we found a linear relation of the logarithm of the change in the carorific value Q of each chemical to the distance S from the flask bottom to the *qigong* master's point Laogong (P 8). The linear relation appeared in nine experiments out of twelve.

It is very interesting that for the three chemicals, each slops of this kind of plot, i.e.,

lgQ vs. S, keeps a constant, if the source of the emitted *qi* is from the same *qigong* master. Therefore, an equation to compare the two values Q and S separately is got through a comparison between the *qigong* master and non-*qigong* master.

$$Q = e^{0.434(bs+a)}$$

Where "a" is a constant relating to the thermal efficiency of the chemicals on which the emitted *qi* acts; "b" is an attenuation coefficient reflecting the decrease in lgQ with the increase in S. And, the larger the b value, the slower the attenuation rate is.

It was also found that the emitted *qi* is not a thermal current, it is a form of energy, which can transmit in air and through glass. The thermal efficiency is only produced by the interactions of the emitted *qi* and the receivers.

2. Effect of the emitted *qi* on the enzymatic activity.

The activity of saccharogenic amylase was proved by receiving twelve times of the emitted *qi* of the three *qigong* masters, B, C, c. The result was got by statistic method. The activity of saccharogenic amylase was decreased when they were acted on by B and C, and the maximum value was -20%. But when D acted on it for three times, the activity of saccharogenic amylase increased and for once it decreased. The maximum was 10%. When D acted on a-amylase, the activity of it changed too. Substrates, pH values, temperature, allosteric effect, activator, inhibitor, etc. were the influenial factors on the activity of enzyme. Since all the experimental conditions were controlled strictly, the only cause for the change in the activities of enzymes in the study comes from the change in the allosteric effect of each enzyme.

3. Influence of the emitted *qi* on the conformation of proteins.

To prove the possibility that the activity of protein may be changed by the emitted *qi*, we designed experiments of high performance liquid chromatography (HPLC). Rigid cation exchanger was chosen as the stationary phase and many salt aqueous solutions with a suitable pH value were chosen as the mobile phases. Results showed the decrease in tr (retention time) of lysozyme, when the emitted *qi* acted on the column, or the column oven, or the sample solution in a tube directly. The decreased range of its activity was over -3.5% to -17.5%. The fact elucidates that the emitted *qi* has an ability to pass through the wall of the stainless column, then it interacts with protein and makes the change in its conformation. When cytochrome C received the emitted *qi* by the same *qigong* master, t_r became obviously longer. The corresponding increase in Z value, $\triangle Z$, was 1.49. The phenomenon explained the increases in the total munber of the cation and the anion released from the contact interface between cytochrome C molecule and the surface of the stationary phase. The contact surface

was enlarged to an extent that changed its structure when it participated in the chromatographic process.

THE PHENOMENOLOGICAL MODEL OF HEALTH QIGONG AND ITS APPLICATION TEST

Liu Beisheng (Chengdu Branch, Chinese Academic of Science, Sichuan province, China)
Wang Guoheng (Affiliated Hospital, Chendu University of Science, Sichuan province, China)

From a global point of view, *qigong* is divided into two schoots, Chinese *Qigong* and Indian Yoga. In turn, Chinese Qigong is divided into three parts: Taoism, Buddhism and Confucianism. Among them, Taoist *Qigong* , in partieular, embodies the national features of the Chinese Qigong. There are three intensions in the Taoist *Qigong* , including medicinal and food arts, sex arts and guiding arts. According to its functional effect, *qigong* can be divided into two kinds--Health *Qigong* and Extrasensory *Qigong* .

Health *Qigong* plans treatment according to a diagnosis on the basis of the patient's condition, physique and personality etc. The general principle is quiescent *qigong* for *yin* syndromes, dynamic *qigong* is mainly used for *yang* syndromes. Most chronic diseases and difficult complicated illnesses can be cured by combining the two patterns of *qigong* . Beginners practise *qigong* in an initial state of consciousness. First he must make mental preparations, then he will conduct mind-body self-regulation (self-regulation of the mind, of the body and of breath) . If the method is right, the state of *qigong* including relaxation, calmness and increased intelligence will be reached.

If you cannot persist in practising for a long ime, you will return to the initial state of consciousness. So, only by long-term practice can you benefit from *qigong* .

The phenomenological features of the regulation of the body and mind may be summarized as follows: 1. The regulation of the mind is the key point, and the regulation of the body and breath are subordinate to it. 2. The regulation of the mind aims at enhancing exchange of nonsensational information and restraining exchange of sensational information. 3. Potential communication between the top of the head and the perineum is established within the human body (small *qi* cycle) . In the brain, it refers to getting through the lobus frontalis--hypothalamus--hypophysis. 4. The electric potential in the skin becomes orderly. The same phenomenon occurs in the brain. The electric potential of the cerebral cortex becomes orderly. 5. Electric magnetic sensitivity of the human body increases. The bioelectric

magnetic field of the human body will have coherent resonance with the ELF wave band of the earth's electric magnetic fiels.

The author proposes to establish a reversed bio-holographic law. An entire organism can be taken as an enlargement of a part of it. The human body can be looked upon as an enlarged brain. Such corresponding relationships of the form, development and function can be found as follows: skin--cerebral cortex, the two sides of the body--cerebral hemispheres, top of head--lobus frontalis, perineum--hypophysis, navel--hypothalamus, navel cord--pons, medulla oblongata.

On the basis of the above listed, an artificial stimulation system of *qigong* was invented by the author in 1983. This apparatus is to make biofeedback stimulation to the interrelated positions of the human body, indirectly influencing and changing the function of the brain. It can help 95% of the beginners quickly get into the state of relaxation, and 5% of the beginners establish the small *qi* cycle or majar *qi* cycle within a week. It has a good auxiliary effect on over a hundred kinds of chronic diseases and complicated cases. This apparatus has been made in the People's Republic of China and put in clinical application in more than 300 hospitals. After Dr. Shan Tunghsu, who is the originator of the N. W CHI-KUNG Reseach & Training Center bought our invention, he started the CHI System International, LTD. in Taiwan. The machine was named the Chinese Health *Qigong* machine (the fourth artificial stimulation system of *qigong*). It is suitable for home-use. It has been well accepted by all circles in Taiwan and has ushered in a new chapter of the cooperation in science and technology of *qigong* between the mainland and Taiwan.

THE MECHANISM OF *QIGONG*—MAGNETIC RESONANCE

Ma Jiannan (Technology Institute, Hongkong Chinese University, Hongkong)

Qigong is a kind of frequency energy, which can be affected by the strong magnetic field and stored in the human body and released by it. When we are doing the basic exercise of *qigong* (e. g. cycle movements with hands in front of the abdomen), we are using the blood in the hands, the blood cells in the blood and the magnetic matters in the blood cells to crosscut the magnetic line of force of the globe. As a result, there produces the direct current and magnetic field when the frequency of the cycle movement is 0. 3-0. 7 Hz, and a numb feeling appears in the hands. This kind of *qi* sensation is neither electric current because the feeling will disappear when the cycle movements are accelerated and the frequency is over 0. 7

Hz, nor magnetic field because when the hands are placed between two pieces of strong magnet, no such feeling occurs. The author thinks that it is a feeling caused by the magnetic resonance. There is a coincidence between the *qigong* phenomenon and the mechanism of the magnetic resonance when one is practising the basic exercise of *qigong* . A human magnetic field with an appropriate frequency is produced, which can cause the water in one's hand to have nuclear magnetic resonance (NMR) . The ^{1}H and ^{3}C are orderlessly arranged in the body, but after the *qigong* exercise through the automagnetization, a magnetization state ↑ ↓ ↑ ↓ appears. At this moment if there is an energy coming from outside, the frequency of which is correspondent to the formula of nuclear magnetic resonance $\upsilon = r\frac{H_o}{2\pi}$, the magnetized water may absorb the energy and there occurs the magnetic resonance state ↑ ↓ ↑ ↓ ⇆ ↓ ↑ ↓ ↑ . υ is the frequency, H_o is the intensity of the external magnetic field, γ (rotatory magnetization) and 2π are constant. The weaker the magnetic field is, the lower frequency needed.

Water and organic compounds are considered as the media for the magnetic resonance force, flowing in the body. The two hands may guide its travelling course because in the *qigong* exercise the magnetic resonance first occurs in the hands; it can also flow from the place where the strongest energy stores to the place where the weakest energy stores. The disabled, weak, diseased and aging organs would absorb the energy passing through them and get rehabilitated.

In general, energy of infrasonic wave band is emitted to treat patients in the *qigong* therapy. It can cause the magnetic resonance of the water and protein in the body. Patients tend to absorb the energy emitted from others. A slight hot sensation of the patients can be confirmed by an infrared thermograph and far-infrered detector. But this is the secondary energy generated by concomitance, because man-made temperature increase cannot bring the curative effect of *qigong* . The energy of magnetic resonance may be originated from the magnetic resonance elements of the cells-- ^{1}H , ^{13}C , ^{15}N , ^{31}P , etc. When the condition of the magnetic resonance changes, the magnetic resonance ceases because of the unbalance of the NMR formula, and these elements have to liberate the absorbed energy of the magnetic resonance, some of which would be absorbed by the cells concerned to strengthen the activity of them. When the supply of the energy of the magnetic resonance discontinues, the extra activity of the cells terminates, and then the far-infrared energy of high frequency is liberated by them. The wavelength of the secondary energy is related to the diameter of the cells. Various peak spectrum diagrams of the infrasonic wave band are seen when the *qigong* masters are emitting their *qi* since they practise different patterns of *qigong* exercises and there is

differed intensity of magnetic fields. It explains the curative effect to different organs.

From the above analysis we can say that there is a third energy other than food and air for the human beings. The *qigong* masters are able to absorb the infrasonic energy of low frequency and emit high frequency energy.

The theory of human magnetic resonance not only explains the fundamental phenomena of *qigong* , but also moving objects by *qigong* , meridian travelling course and the Bermuda mystery. Some of the manifestations present in the *qigong* exercise should be expounded not only by the magnetic resonance, but by the magnetic induction capacity, superfluidity and rearrangement of crystals.

The research of the human science in future will stress the following aspects: 1. Treating diseases by frequency; 2. Training *qigong* pupils with the superconductible magnetic field; 3. Training the peculiar function with the reverse magnetic pole; 4. Developing *qigong* instruments based on the mechanism of the magnetic resonance; 5. Doing away with superstitions with the mechanism of *qigong* ; 6. Exploring the wisdom of the outerspace creatures according to the religious legends. But the task of top priority at present is to standardize the *qigong* teachers and offer regular course of *qigong* .

ACHIEVEMENTS OF ANCIENT CHINESE MEDICAL *QIGONG*

Ma Jiren (Shanghai Research Institute of *Qigong*, Shanghai, China)

It is believed that Chinese *qigong* has a long history of 5, 000 years. In the course of its development over thousands of years, *qignog* has absorbed and incorporated various kinds of exercise theories and methods in all fields beneficial to the mind and body, prevention and treatment, intelligence and prolongation of life. Therefore, a great number of *qigong* exercises have been created and used for therapeutic purpose, which brings valuable information to the theory of traditional Chinese medicine and contributes positively to medical care of the people.

Being a Chinese unique cultural legacy, *qigong* is a self-applied exercise for the health of mind / body, which was gradually devoloped by the ancient Chinese people in their long practice in life and labour and in their prolonged struggle against disease and senility. It is a branch of clinical science of TCM as well. It was in remote antiquity that the sprout of *qigong* appeared in people's daily life. According to the literature and information concerned as direct or indirect envidence, we can find that the origin of *qigong* is closely related to clinical practice. It was recorded in ancient books that at the time of 2, 500 B. C., the Central Plains of China was in flood and dampness was extremely violent. As a result, there occured skin numberness and joint stiffness among the local people. In order to relieve these conditions, people there consciously selected dancing movements as a kind of treatment, Hence, these dancing movements are regarded as the earliest dynamic *qigong*.

"The Classic of Internal Medicine" describes 5 kinds of therapies formed due to different geographical locality in remote antiquity. One of them is *Daoyin* (similar to dancing movements) developed in the central part of China and is taken as the ancient *qigong*. *Daoyin* was the name of a therapeutic measure of *qigong* in the 5th century B. C.. In a broader sense, *Daoyin* contains the whole contents of ancient *qigong* including the quiescent and dynamic *qigong*; in a narrow sence it refers only to the dynamic *qigong*. Viewing from the literature, specialistic practitioners were trained for different medical branches. The ancient *qigong* which was also called *Daoyin* was among these measures.

The use of the ancient *qigong* in treatment and prevention was recorded extensively in ancient books. In the 7th century, these records were systematzed in a large scale and taken

into the noted medical book "Treatise on the Etiology and Symptomology of Diseases", in which 260 *qigong* -practising methods are available, applicable respectively to 110 syndromes. In "Collected and Classified Ancient/Current Books, Volume of Medicine", *qigong* , as one of the 4 therapeutic methods, was applied to the treatment of a great number of diseases in viscera and the body surface as well.

In addition to the application of a certain *qigong* exercise particular instruction was also given to patients according to their conditions and body constitution. Rich experiences have been accumulated in this aspect.

AN EXPLORATION OF THE TRADITIONAL *NEIDAN* METHOD

Song *Tianbin* (Beijing College of Traditional Chinese Medicine, Beijing, China)

The *Neidan* method has always been regarded as a mysterious skill of the Taoist School, the purpose of which was not only to preserve health and prolong life. However, when we remove its mysterious veil and look at it from the point of view of modern medical science, we find that the traditional *Neidan* method is indeed a kind of *qigong* exercise for the treatment of diseases, preservation of health and prolongation of life. The *Neidan* method of *qigong* embraces the three basic elements of modern *qigong* —— regulation of the mind, breath and body. In addition, its complete theoretical and methodological system is the core of the Chinese science of *qigong* , a summarization of all the various schools of *qigong* . The exercise of *qi* circulation, which is regarded as an advanced form of *qigong* by many practicers, is the basis and typical feature of the *Neidan* method.

Works on alchemy contain useful experience and records of experiments, but they also contain deliberately mystifying things and various pretexts. Therefore, if they were accepted without discrimination, the practiser would easily be led astry. Take the exercise of *qi* circulation for exemple. If the practiser believes that it can provide such wonderful effects as eternal life, ascenking to Heaven, body duplication and transformation, access to fairyland, and rejuvenation, if he improperly pursues such effects, he may result in psychological disorders. There may be abnormal and painful sensations, or functional disturbance of the vegetative nervous system. In severe cases the victim may become psychotic. Even if nothing goes wrong, excessive desire will lead to useless comsumption of *qi* and mental fatigue with hallucinations instead of healthful effects. Ancient works on alchemy, in fact, recognized the

possibility of such dangers and maintained that the practiser should have a proper purpose and lead a simple, quiet life. With a proper understanding and application of the *Neidan* method, such dangers may be avoided entirely.

Historical records and actual experience all prove that the *Neidan* method undoubtedly has a health-protecting effect. The exercise of *qi* circulation, for example, has at least three advantages: First, motion is placed under control and breathing is regulated, so it is easy to void one's mind of other thoughts and go into a trance. The physiological processes affect the psychological processes, resulting in a healthy mental state of calmness and pleasure with no desire. The body and mind is adjusted to the optimal state so that the person' s intelligence and capability are better than usual. Secondly, self-implication is put into full play. Mental control is achieved through a great variety of measures which affcet and regulate the physiological processes. It is inferred that the metabolic processes may be improved through the auto-regulation of the neurohumoral regulatory system, as the result some biochemical reactions and consequently the aging process may be slowed down, whereas certain functions may be activated to maintain youthful vigour and exploit potential energy. Thirdly, the body and mind receive all-round exercise with an emphasis on protecting health. The mind, breath and body are regulated together. The essence of life, *qi* , and the spirit are all adjusted. Stillness and motion are combined with the former as the basis. In other words, the body is still outside yet moving inside, and absolute stillness causes motion.

It has been proved by modern experimental studies that the physiological indexes showed marked changes after practising the exercise of *qi* circulation. It was observed in the Beidaihe *Qigong* Sanatorium that there was no statistical difference between an experimental group and a control group before practising the exercise, whereas after practising the exercise of *qi* circulation for two months, the respiratory rate of the experimental group during the *qignog* state was significantly slower than that of the control group, the cerebral blood flow was markedly decreased, and the temperature at the Mingmen (Du 4)and Qihai (Ren 6) increased by an average 1°C. It was observed at the Jiangxi Institute of Traditional Chinese Medicine and Pharmacology that in ten persons who practised the exercise of *qi* circulation the skin temperature at the lower elixir field, Juque (Ren 14), Jiaji (Extra 21), Mingmen (Du 4), Yintang (Extra 1), and the bilateral Laogong (P 8) increased markedly during the exercise as compared with the temperature before the exercise, whereas there were no changes in the control group. This shows that the psychological activity of controlling one's thoughts has an actual physiological effect. It is not just a heat effect; it has a clinical therpaeutic effect as well. It was reported by the Beidaihe *Qigong* Convalescence Hospital that among ten patients

suffering from chronic diseases, two were cured, seven improved markedly, whereas only one did not respond after practising the exercise of *qi* circulation for two months. According to the past experience, the patient suffering from gastroptosis who did not respond could also be cured if the course of treatment was prolonged for another 3-5 months. The Zhejiang Institute of Traditional Chinese Medicine and Pharmacology reported that the exercise of *qi* circulation at Mingmen (Du 4) can be used to treat cancer. Other experiments show that during the exercise the appearance of the feeling of meridian conductivity is markedly higher, increasing from 21.3% to 42.5%. This shows that the circulation of *qi* in the body in the *Neidan* method is a natural phenomenon during the period of exercise in which the feeling of meridian conductivity appears, and that it is nothing mysterious. At present very few experiments have been conducted in which the exercise of *qi* circulation was observed directly, but many experimental studies on the regulation of the mind, breath and body conducted in the past have indirectly proved that the psychological and physiological effect of the *Neidan* method is authentic. However, it is not easy to attain such effects as described in anciect works like long period of fasting, extremely slight respiration, hibernation, etc. So it is not difficult to understand why the *Neidan* method has for thousands of years been regarded as a mysterious, advanced form of *qigong* exercise.

If we peel away its superstitious, religious covering and look through the mysterious veil, it is absolutely possible to understand its mechanism from the point of view of modern science. This would help in avoiding untoward effects and in achieving early success. From the point of view of modern anatomy and physiology, the position of the elixir fields are precisely the location of the important nerve centers and endocrine glands, such as the lobus parietalis and lobus frontalis of the cerebral cortex, the hypothalamus, the medulla oblongata, the spinal cord, the celiac plexus, the pituitary, the thyroid, the thymus, the gonads, the adrenals and other glands of the digestive system. These organs are essential to life and may be regarded as life centers.

On this basis we have designed a short-cut to the modern *Neidan* method, namely, direct psychological training of the neurohumoral regulatory system to affect physiological activities with paychological processes. The actual procedure is first to draw a coloured anatomical graph showing the position of the important internal organs of the neurohumoral regulatory system. Then the ancient method of looking and thinking is employed. The practiser first looks at the graph, and then tries to visualize it in his mind with his eyes shut, repeating the process for a number of times and gradually prolonging the period of recalling the image with the eyes shut. Finally the anatomical graph is reconstructed in his own body so that when he visualized the

image in his mind, it is as if he could see his own internal organs clearly. Then accompanied by light music and inducing readings from a tape, the mind concentrates on the following locations successively: the testes, perineum and coccyx——the lumbar region of the spinal cord and the adrenal glands —— the thoracic region of the spinal cord and the medulla oblongata—— the hypothalamus and pituitary—— the lobus parietalis and lobus frontalis of the cerebrum and Yintang (Extra 1)——the tongue, parotid glands and sublingual glands—— the thyroid, thymus, ear and lungs——the stomach, gallbladder and pancreas—the ovaries and the vegetative nerve plexus in the abdominal and pelvic cavity.

The mind should concentrate on each location for three minutes, making a total of about 30 minutes before the second cycle is started. The practiser may maintain normal breathing and simple concentration of the mind, or, after a period of training, use a method of breathing peculiar to the *Neidan* method in which *qi* ascends via the Du Meridian during inhalation and descends via the Ren Meridian during exhalation, quickly passing through the aforementioned locations. But it is better not to imagine sights and pursue the sensation of *qi* in order to avoid the possibility of such untoward effects as functional disturbances. The practiser should concentrate his mind so as to go into a calm, natural state of quiescence. The purpose of the exercise is to prevent diseases, improve health and slow down aging process instead of pursuing the feeling of meridian conductivity. Only when beneficial physiological changes appear can it be said that *qi* is really circulating smoothly. Without such changes there is just imaginary circulation. To be sure, imaginary circulation is helpful to the circulation of *qi* , but a proper degree of the imagination is important. It would be difficult to attain success with an excessive or insufficient degree of imagination.

A STUDY OF THE ACHIEVEMENT OF HEALTH-PRESERVATION BY *QIGONG* IN THE "ESSENTIALS OF HEALTH KEEPING"

Han bin, He Deguang and Hou Wei

(Institute of Acupuncture and Moxibustion, China Academy of Traditional Chinese Medicine, Beijing, China)

"Essentials of Health-Keeping" is a treatise published before the Sui Dynasty (581-618). The book has lost, but some of the information recorded in "Zhubingyuanhoulun" ("General Treatise on the Cause and Symptoms of Diseases").

1. According to the analysis of the system of health-preservation since the Jin Dymasty, the content used in the quoted passage in the "General Treatise on the Cause and Symptoms of

Diseases", and the style of the original work, we think that the part of *qigong* in the book was quoted from an independent work, the "Essentials of Health-Keeping."

The publishing year and the author of the book has been unknown at any times. Based on the features of the age and the relationship between the work and other documents, it is thought that the book was published in the year aften the completion of the "Collection of Cultivating Disposition and Life Prolongation" and before the "General Treatise on the Cause and Symptoms of Diseases," or between 456-610 AD. Many scholars considered the author was Chao Yuanfang. My study doesn't agree with the idea, but Chao certainly did a lot of work in quoting the documents.

2. The "Essentials of Health-Keeping" recorded rich knowledge of *qignog* . My study has summarized the following aspects, such as the basic theory of health-preserving, the effect of *qigong* , patterns of exercises, the knowledge of exercise, the application of *qignog* , indications of the *qigong* therapy, and the rules of treatment.

(1) The basic theory of health-preserving by *qigong*: *Qigong* practice in the "Essentials of Health-Keeping" was guided by the basic theory of traditional Chinese medicine and distinctive views on the human body, creating its own theory of health-preserving. The extensive combination of *qigong* and the basic theory of traditional Chinese medicine in the book displayed the following aspects, such as *yin-yang* , five elements, *zang-fu* organs, meridians, points, life essence, *qi* , blood and body fluid. In addition, the book had taken the Dantian theory and the theory of ascending, descending, opening and closing.

(2) The knowledge of the mechanism of *qigong* : It was held by the book that *qigong* could regulate the function of the *zang-fu* organs, *qi* and blood to expel diseases.

(3) Patterns of *qigong* exercises: The statistical analysis tells us that there are about 270 kinds of exercises listed in the book and the majority of them were about the dynamic types (accounting for 94.5%), including *Daoyin* , breathing exercises, standing posture, ect. These all belong to the schools of medical *qigong* , Taoism and Buddhism.

The study has sorted out the practices of exercises in terms of mind-control, breathing and physical exercises. (a) Mind-control can be divided into four kinds according to different psychological features. They are imagination, self-implication, sensation feeling and concern of respiratory movement; (b) Respiratory exercise includes natural breathing, abdominal breathing, breathing in and out through the nose, breathing in through the mouth and out through the nose. breathing in through the nose and out through the mouth, stopping breathing, ect; (c) The physical exercises are summarized; (d) The relationship between breathing, physical exercises and mind-control is expounded.

(4)knowledge of exercises: The process of exercises, volume, time, direction, etc. were recorded in the book.

(5) Applicafion of *qigong* : It is for the purpose of prevention and treatmeat of diseases, delaying the aging process and improving looks.

(6) Indications of *qigong* : About 241 kinds of diseases could be treated by *qigong* listed in the book, covering the internal medicine, surgery and gynecology.

(7) Principles of treatment: There existed the concept of selecting the pattern of exercises based on differentiation of syndromes. i. e. based on the condition of cold and heat, deficiency and excess.

3. After sorting out the confext of the book and from the angle of history of *qigong* , we have made a comparison between the book and other literature before and after it , and believed that the book kas made six outstanding aspects:

(1)Preserving health by dynamic *qigong* .

(2) Health protection, disease expelling and longevity —— the purpose of practising *qigong*.

(3) Collecion of essentials of each school, patterns of exercises in detail and rich knowledge of exercises.

(4)Unified scientific thought.

(5)Selecting the patterns of exercises based on differentiation of syndromes.

(6)Enlarging the range of indications.

Through the analysis of the above-mentioned, we would say that the book is a very important treatise of health-preserving by *qigong* , it has the effect of forming a connecting link between the preceding and following in the history of the development of *qigong* .

4. Conclusion. The book was completed around 456-610 AD and the author is unknown to us. It is rich in centext and provide the necessary materials for our study of the history of *qigong* , the exercises and theory of it.

A PRELIMINARY COMPARASION BETWEEN *QIGONG* AND INDIAN YOGA

Zhang Xiaofang

(Is't Affiliated Hospited of Suzhou Medical College, Jiangsu Province, China)

Qigong is one kind of non-drug treatment which underlies the training on both mind and

body. It can strengthen the immune function of the body, so it has the function of preventing and treating diseases, slowing down the process of aging. It has some merits, such as effectiveness, low cost, lack of side-effects and avaiability to all ages. Nowadays, *qigong* has drawn attention from the whole world. The next century will belong to *qigong* .

Qigong originated from the orient. Both Chinese *qigong* and Indian Yoga have a history of about five thousand years. They are the products of oriental civilization.

Yoga, one kind of Indian traditional way to keep the body fit and preserve health, utilizes a philosophic thinking which creates a harmony between "self"and"Fan"(Supernature). The purpose is to seek for enjoying high position and living in ease and comfort that is "without death and birth, without thinking and desiring." The main schools include Jnana Yoga, Kama Yoga, Bhak Yoga, Hatha Yoga, Raja Yoga. Kundalini Yoga and Tan Tra Yoga. Its exercising principles are Yama (concentration), Niyama (good personal hygiene), pranayama (regulating breath), pratyhara (isolation from environment), Pharana (high mora standard), Dhyana (speculation), Samadhi (being silent) . Its chief practicing methods are Pranayama or meditation. Bodily posture, Shat Karmas, Kundalin nisakti and so on. The mechanism of its effect is through regulating the diet. Yoga exercise and using daily living knowledge properly restore the body' s normal function and maintain the body' s homeostasis.

Chinese *qigong* is one kind of traditional method to preserve health. Its philosophical thinking is that of the corresponding relation between the human body (bodily structure, physiological phenomena, pathological changes, etc.) and mature. The purpose of Chinese *qigong* is to seek for "*She Shan Yang Qi*" (preserving the health, keeing the energy), "*Gui Zen Fen Bu*" (everything returns to its original natural environment), "*Qiang Shen Zhi Bing*" (exercising the body and curing disease), "*Jian Shen Yu Di*" (Strengthening the body and warding off the enemy) . Its main schools include Confucian, Taoist, *Wushu* , medical and folk *qigong* . Its training principles are to cultivate one's morals, calm oneself without desiring and rest to attain mental tranquility and preserve health according to a " *Jie* " (religious discipline), " *Ding* " (calming and collecting oneself) and " *Huei* " (wisdom, training ways). It is achieved by regulating the body's function, controlling breath, smoothing the mind, making the inner energy active, coordinating between vital energy and blood, dredging the meridians, balancing *yin* and *yang* .

The article attempts to make a comparative study of seven aspects between Chinese *qigong* and Indian Yoga. The results demonstrate that both have many similarities including their historic origin, philosophic thinking, training principles and characteristics of practicing methods. China's " *Qihua* (activation of vital energy) theory" has some influences on Indian

"Kundalini Yoga." The earliest records of Kundalini's Qi Mai theory of India was in the 17th century, and that was just as the flourishing time of the Ming Dynasty of China, Zheng He went to the "Western ocean" (around Indian ocean) seven times. He once arrived at Guli of India (the southeast coastal area of India) and carried some Chinese medical works there, among which, probably some were the works of Chinese *qigong*. To analyze Kundalini's Qi Mai theory, we know, the "Meridians and the theory of" *Qi Hua Lun* are similar to the seven acupoints of the Ren-Du Meridians, and the theory of "*Qi Hua Lun*" of Chinese *qigong* was formed earlier, so we infer that the theory of "*Qi Hua Lun*", which has the Chinese characteristic played an active and promotive role in the formation of Kundalini's theory of India. Indian Yoga basically derived from a single school (entity), while China *qigong* has essentially three schools, namely "*Ru*", "*Shi*" and "*Tao*". The three schools are always interrelating and combining; then new methods are created through these combinations.

PROMOTING *QI* FLOW ALONG THE TRAVELLING COURSES OF MERIDIANS

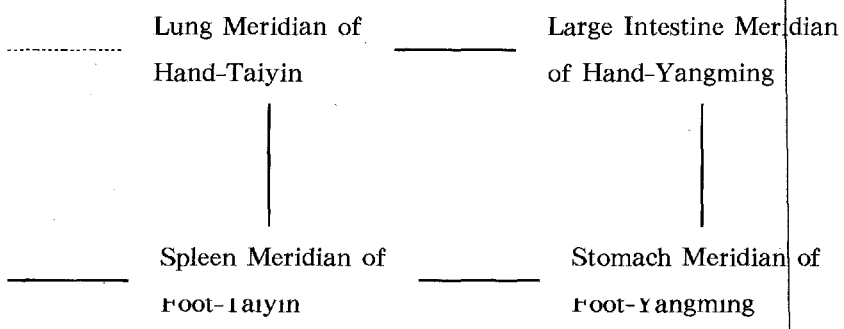
Li Ding(China), Chen Zhongxing (Indonesia)

The so-called "*Guan Qi*" or promoting *qi* flow method is a basic exercise in which the mind is closely combined with respiration, and assisted by the postures of hands, conducting the *qi* to make full exchange between the internal milieu of the human body and the external surroundings of nature by means of respiration. Then the "*Guan Qi*" exercise along meridians is the same method as mentioned above, but it is characterized by pushing the *qi* along the courses of 14 major meridians in the body. With this exercise the automatic control system of the body can be enhanced, the protective adjustment in the brain facilitated, the sufficient respiratary exchange in the lung maintained, and ample exygen supply provide for the internal organs and tissues, especially the brain, heart and kidney. Moreover, this exercise can be also used to correct the deviation and discomfortability occurring in the practice of *qigong*. If this method is performed facing trees and flowers in a quiet environment with fresh air one to three times a day, 10 to 20 minutes for each time, with the practice of 100 days, beneficial results will be obtained especially in the middle-aged and old people suffering from chronic diseases. The keypoint for attaining good result is unremitting practice.

The "*Guan Qi*" exercise along meridians consists of 2 parts: one is "*Guan Qi* exercise of the twelve regular meridians," and the other is "that of the Ren and Du meridians." The former is called major *qi* cycle while the latter known as *Guan Qi* method in the small *qi* cycle. In the major *qi* cycle, it has been found that every four meridians can form a separately closed circulatory cycle, therefore the major *qi* cycle is subdivided into cycle 1, cycle 2 and cycle 3.

Part I: Major *qi* cycle

Cycle 1:



Performance: Stand in quietness and relaxation with both hands piled one on the other and put together on the region of Dantian; massage on the region clockwise and counterclockwise, six times in each, then the same method of massage repeated on the epigastric region. After that, both hands go up over the diaphragm, and the mind covers from the chest to the hands along the course of the Lung Meridian. Then both arms spread out slowly with the thumbs erected and all other fingers relaxed. The palms are turned from facing the front to facing upward, and the arms go up further with fingers parted from each other and pointing to the sky. Look up to watch fingers, first the thumb then the index finger, then look down to perceive internally the Yangming Meridians (the Hand-Yangming Meridian first, and the Foot-Yangming Meridian later). Both hands are lowered down slowly to point Dazhui (Du 14) and move forward along the lateral neck up to the face. With the thumbs erected and palms facing the face, the hands push down along the Stomach Meridian to conduct the *qi* down to Lidui (S 45), and subsequently the arms drop down and the body bends over to converge the first 3 fingers with the first 3 toes. Toes tap the ground 3 times, simutaneously the kidney *qi* is elevated 3 times. Internal perception concentrates on the Taiyin Meridians (the Foot-Taiyin Meridian first and the Hand-Taiyin later), starting from Yinbai (Sp 1), along the Spleen Meridian to ascend to Zhongfu (L 1) on route Zhourong (Sp 20), to connect with the Hand-Taiyin Meridian, forming cycle 1. The same procedure of concentration is repeated for 3 to 9 times and then followed by 3 cycle 2.

Cycle 2:

Heart Meridian → of Hand-Shaoyin → Small Intestine Meridian of Hand-Taiyang ↓ Unrinary Bladder Meridian of Foot-Taiyang ← Kidney Meridian of Foot-Shaoyin ← ↑

Performance: The concentrated flow of *qi* starts from the Spleen Meridian at the end of the big toe and rises to enter the abdomen at Chongmen (Sp 12) to connect with the Heart. Meridian. Meanwhile the body gradually straightens up and the *qi* is conducted to arrive at the heart and flow transversely in the axillary region. Arms spread out with the little finger straightened and the other fingers relaxed. The palms turn to face upward and arms are lifted with fingers pointing to the sky. Look up to watch the medial aspect of the little fingers and then watch their dorsal aspect with the hands intorted; and look down to perceive internally the Taiyang Meridians (from the Hand-Taiyang Meridian to the Foot-Taiyang Meridian). Both hands descend slowly to the Dazhui (Du 14), and the hands arrive at the paraspinal musculature on route of the lateral apects of the neck, the medial side of acromion and through the axilla. Along the Urinary Bladder Meridian, the hands descend to Zhiyin (B 67) with the body bent and the little fingers converged with the little toes. Toes tap the ground 3 times and the kidney *qi* is elevated 3 times at the same time. Internal perception stresses on the Shaoyin Meridians (from the Foot-Shaoyin up to the Hand-Shaoyin), conducting the *qi* to flow from Yongquan (K 1) up to the chest where it connects with the Hand-Shaoyin Meridians, thus the second ciycle is formed. The same procedure of conducting *qi* is repeated 3 to 9 times, and then the *qi* goes to the third cycle.

Cycle 3:

Pericardium Meridian → of Hand-Jueyin → Sanjiao Meridian of Hand-Shaoyang ↓ Gallbladder Meridian of Foot-Taiyan ← of Foot-Jueyin ← Liver Meridian ↑

Performance: The *qi* is conducted from the centre of the sole to ascend simutaneously and the body straightens up. The *qi* arrives at the perinium where it enters the spinal column. Travelling upward, it penetrates the diaphragm to connect with the pericardium. From the chest, it runs to the hands along the Pericardium Meridian of Hand-Jueyin. At this time, arms spread out from one body-inch lateral to the nipple with the middle fingers straightened and other fingers relaxed. Palms start to turn to face upward and the arms go up with fingers pointing to the sky. Look up to watch the middle fingers first and after the hand is intorted to watch the dorsal aspect of the fourth finger; look down to perceive internally the Shaoyin Meridians (Hand-Shaoyin first, then the Foot-Shaoyin). Both hands descend to Dazhui (Du 14), then through the lateral aspects of the neck, they arrive at the outer canthus, then go down to the lateral chest and abdomen. Bending over, the fourth finger meets with the fourth toe. The toes tap the ground for 3 times and the kidney *qi* is lifted for 3 times as well. The internal perception is stressed upon the Jueyin Meridians from the foot one up to the hand one. The flow of *qi* is conducted up to the chest and connects with the Pericardium Meridian of Hand-Jueyin. Thus, the third cycle is formed. The *qi* flows in this cycle for 3 to 9 times, and enters the first cycle again, or finish the exercise, or to continue with the small cycle.

Part II: small *qi* cycle

The circulation proceeds between the Ren and Du Meridians.

Stand in quietness and relaxation, hands piled one on the other are put on the Dantian region. The hands start to go slightly and then press down. The mind follows the motion of hands and leads the flow of *qi*. The *qi* descends to the perinium, revolves around the genital organ, and travels up along the Ren Meridian on the ventral median line, subsequently, arms go up slowly, with palms facing each other. Fingers are parted pointing to the sky. After that, palms turn to face downwards. Look up to watch Laogong (P 8), then look down to lead the *qi* with the mind, both hands descend to conduct the *qi* along the Du Meridian on the posterior median line on the head and nape down to the dorsal median line through the axilla. The *qi* arrives at the perinium from where it ascends back to Dantian (lower abdomen). Simutaneously, both hands move back to the Dantian region, too. The concentration of mind stresses on Dantian for a moment and then shifts to Yongquan (K 1). Toes tap the ground 3 times and the kidney *qi* is elevated for 3 times. The flow of *qi* gets through the Ren and Du Meridians, ascending in the *yin* meridian and descending in the *yang*. The conduction of *qi* is repeated for 6 times usually, or can be also repeated for 3 to 9 times.

The same procedure of conducting *qi* can be repeated from the Du Meridian to Ren Meridian, ascending in the *yang* meridian and descending in the *yin*, so the direction of *qi* flow is just opposite to the former one.

The ending of the exercise: The kidney *qi* is elevated for 3 times, then breathe in once, raise the heel, and fall back the heel slowly to the ground.

ZHIYI'S CONTRIBUTIONS TO THE THEORY OF BUDDHIST DHYANA-SAMADHI THERAPY

Chen Bing (Centre for Religious Studies, Sichuan University, Chengdu, China)

The Dhyána-Samádhi of Indian Buddhism began to be introduced to China by An-Shi-Kao, an eminent Buddhist monk of Parthia, who lived in the closing years of the Eastern Han Dynasty (25—220). By the end of the Northern and Southern Dynasties (420—581), Chinese Buddhists had not only acquired basic knowledge of various ways of Dhyána-Samádhi in both Mahávána and Hinayána which were then popular in India and Central Asia, but also embarked on a stage of summing up, sorting out and creatively developing the theories of it. Zhiyi (538—591), the founder of the *Tiantai* Sect, benefited from the work of his predecessors and became the most prominent in the study and development of the Dhyána-Samádhi theory.

In his "*Shi Cham Bo Luo Mi Ci Qi Fa Men*", "*Zhi Guan*" and "*Mo Ke and Xiao Zhi Guan*", Zhiyi explained separately three ways of cultivating Samatha-Vipasyaná in detail; among them was Dhyána-Samádhi therapy. On the basis of summing up both the theories from India and the experiences gained by the Chinese Dhyána-Samádhi masters, and assimilating the Chinese medical science, *qigong* in Taoism as well as folk medicine, he expounded the Dhyána-Samádhi therapy in terms of symtoms, causes and treatment of diseases, and provided a rather systematic theory of Dhyána-Samádhi therapy.

In symptomatology and diagnostics, Zhiyi classified all diseases into four types: 1. Diseases of Caturmahābhūta (the four principal elements; earth, water, fire and wind), as taught in Indian Buddhism; 2. Diseases of the five sense organs (eye, ear, nose, tongue and body; 3. Diseases of the five internal organs (heart, liver, spleen, lungs and kidneys), as taught in traditional Chinese medicine; 4. Diseases due to six emotional disturbances. He enumerated symtoms of each, advised those who practised Dhyána-Samádhi to learn how to feel the pulse in Chinese medicine and diagnose their own diseases by hallucinations and

dreams they have while practising Dhyána-Samádhi.

Zhiyi summarized the cause of diseases mentioned in Buddhist Scriptures and classified them into six groups: unbalance of Caturmahábhāūta, improper diet, inability to regulate one's body, mind and breath in practising of Dhyána-Samádhi, and to overcome ghosts, demons and karma. He held that the first and second groups should be treated with medicines, the third, fourth and fifth by Dhyána-Samádhi and the last group by means of psychotherapy (e. g. confession). He insisted that one should surely dispel and cure all diseases as long as one practised Dhyána-Samádhi diligently in the right way. Therefore, he called it a treasured therapy by which one could cure oneself of all diseases without paying or suffering from taking medicines.

Zhiyi classified the ways of Dhyána-Samádhi therapy into six groups: 1. Focusing one' s mind on one part of the body, e. g. on the acupoint Dantian, feet or the diseased or aching part; 2. Producing the sounds of the six Chinese characters *chui* , (吹), *hu* (呼), *xi* (嘻), *ke* (呵), *xu* (噓), and *si* (四). Each of them corresponds to one of the five internal organs. One chooses the right character relating to the diseased organ and produces in imagination the sound of it while one is sitting quietly practising Dhyána-Samádhi, until the disease is cured. This has its origin in Taoism; 3. Regulating breath. If one trains Dhyána-Samádhi by starting with counting one's breath, one should suit one's counting of exhalations or inhalations to the feelings in one's body while one is sitting quietly. In addition, there are twelve ways of breathing regulation (bringing up, bringing down, accelerating, filling, increasing, destroying, cooling, warming, bursting through, holding up, harmonizing and enriching), each of which cures one kind of disease; 4. Imagining in a definite situation, e. g. those suffer from cold diseases may imagine fire and those who suffer from general debility may imagine warm cream dripping into their bodies from the crowns of their heads and flowing to and moistening every part of their bodies; 5. All diseases will disappear when one's mind enters a state of void and tranquility after one fails in introspecting and examining oneself to find the substance of the mind; 6. Folk medicine, such as twirling Dantian, beating the aching part with a rod and dispelling diseases by means of chanting incantations. However, one must examine their effects and employ them with great caution.

For more than a thousand years, Zhiyi's theory of Dhyána-Samádhi therapy has not only been employed by the Chinese Buddhists of different sects, but also exerted a great influence on Taoism, traditional Chinese medicine and *qigong* . His restoring the unbalance by Dhyána-Samádhi, focusing one's mind on Diantian and the diseased and aching part, "six-character therapy" and cures for general debility have been absorbed by Taoism and *qigong* , and widely

employed in *qigong* and medical circles up to now.

QIGONG AND BUDDHISM

Domyo Miuya (Sino-Japanese *Qigong* Academy)

Nowadays in China, *qigong* is being intensively studied by many scholars in various fields as an old yet new branch of medicine.

In Japan, too, interest in *qigong* is now gradually heightened, and, as people are brought to demonstrations of *qigong* , even the most sceptical are greatly surprised and eagerly become engaged in the research work on the subject.

It is said that *qigong* originated from Taoism and Buddhism. However, in the Chinese medical classic "Huangdi Neijing" or "Classic of Internal Medicine" and "Lushi Chunqiu" or "The Spring and Autumn Annals" it can be observed that a consideration of *qigong' s* methodolody was taken up in search of therapy by the authors of these old books. From this fact, I deduce that *qigong* , Taoism and Buddhism have developed their own history separately and in parallel rather than being orginated one from the other.

Various attempts of medical and scientific analysis have been tried on *qigong* to find its substance, but I think it will take some time to verify its hypostasis.

As a religious man, I think it is more important for me to analyze *qigong* from a religious perspective, particularly from that of Buddhism as opposed to a medical or scientific analysis of *qigong* . In my view *qigong* originated separatedly and in parallel to Buddhism. I feel very strongly that I should pursue an analytical study from the view point of Buddhism. The exercise patterns of *qigong* and its mind-control are quite similar or almost the same to Mijiao Shan (Esoteric Zen Buddhism) which I personally am preaching. In addition to this, I can find many points of similarity between *qigong* and the "GOKAJI", a mystical prayer conducted by powerful ascetics. Mijiao Shan preaches that the body, mouth and mind power are three important elements of attaining to perfection. Illness can be cured by such practice, and I have had numerous examples cured by Mijiao Shan.

The difference between Mijiao Shan and *qigong* is perhaps the absence of prayer in *qigong* . *Qigong* is normally conducted in front of a patient while Mijiao Shan can be effectively performed regardless of the distance between the patient and the one offering the prayer.

Some people may not believe this, but it is a fact that cannot be denied. The *qigong*

treatment performed from a distance of several metres, and the Mijiao Shan prayers that are from longer distances, can be found very similar in principle.

How is the Mijiao Shan perfomed? It is performed by those well-practiced ascetics that inherit the competence from their masters. the " *Yizhi* " (a manual or instruction book) contains such instructions as expressions of the hands (*Yin*), ways of concentrating mind and ways of breathing. These physical performances are found very similar to the *qigong* ways of practice.

Take one example, both *qigong* and Mijiao Shan try to concentrate one's mind in a relaxed bodily state, using similar kinds of " *Yin* ", expressed by the hands.

I am sorry that due to limited space, I cannot explain this to the reader in detail, but it is a fact that the strength of the alpha wave emitted from the brain is enhanced when Yin is added to the meditation.

" *Zhenyan* " or incantation that is uttered from the mouth are many. The most famous of all, and the one that is said to be most effective is "Namakusamanda, bodanan un shitchi sowaka" . When you say this prayer seven times in one breath with a concentrated state of mind, you can solve any problem that you face and you can attain anything that you wish.

I have disclosed the secret words of *Zhenyan* . My intention of doing this is to tell the reader that the deed of uttering these words is exactly the same as that defined by Alexis Carrel, the Nobel prize winner. "State of mind which is spiritually agitated by spoken mystical words, and in which the absolute world and univereal principles are unified by the consciousness. ".

This, I think, is the same as the state of mind when a GOKAJI performance is being conducted by monks.

Buddhism is based on the thought that "all are rooted in one", and it deems the human society a small universe as against the big universe which is the root of all phenomena. Buddhism preaches that the energy with which the big universe is filled, can be realized as the " *qi* " . therefore, therapy by " *qi* ", not only the internal *qi* but also emitted *qi* can fill the patient with the energy of the universe. Should *qigong* , the therapy of the *qi* be reinforced with the consciousness mentioned above, it would certainly be more effective in curing diseases. Because the human being possesses a power of the mind, the activity of the soul is much stronger than the *qi* which is the essential power source of *qignog* .

Supposing the energy or *qi* is the combined strength of electro-magnetic power, infrared rays and distant infrared rays that work on the flesh, the energy of mind may be an unknown supernatural power that works on the mind of human beings. It is therefore suggested that the

study of *qigong* should not only be the study of the effects of *qi* , but it should also include the study of the mind. If it is so requested, I will make public the practice of Mijiao Shan to show people that phenomenal effects can be seen in the common alpha wave zone both in the *qi* and the mystic power of the Mijiao Shan.

ON TRADITIONAL RELIGIOUS *QIGONG* AND ITS MEDICAL APPLICATION

Takashi Tsumura (Kansai *Qigong* Society, Japan)

1. Ancient medicine began from magical healing concerning with shamanism. Generally the history of medicine is written orientating "from magic to science", but this model shows only one side of truth. " *Zhuyou* "(healing by declaration)," *Yijingbianqi* "(a kind of drama-theraphy) in ancient medicine is really rational and scientific from the viewpoint of modern paycophysical medicine. Rather, trends of the thought that separate mind and body, or illness and life in medicine of after ages, have doubtful problem. It is the reason why the ancient medicine is regarded note worthy again recently.

2. the oriental medicines have developed in relation to interdependence and interpenetration with religions. For example, ancient Indian medicine and Hinduism or Indian Buddhism, traditional Chinese medicine and Taoism or Buddhism, and, Japanese oriental medicine ("KANPO") and Shinto or Japanese Buddhism.

3. Simply speaking, the purpose of medical *qigong* is mainly "balance of *yin-yang* " . But religious *qigong* wants high spiritual awakening. The theme of finding inner divinity and purifiing body spoiled by real desires in Buddhism, is equal to "seeking after pure *yang* " in Taoist *qigong* . The purpose of medical *qigong* is support and recovery of health, but it cannot interfere with the patient's inner spiritual life or a view of value. The religeous *qigong* studies how to live. But, from the view of psycophysical medicine, in case the patient has a feeling of sin or unusal tension, healing of his illness is very dificult. That is, scientific medicine steps into the field of religious *qigong* in the new stage of development. We need a study of the religious *qigong* from the new standpoint.

4. Chinese religious *qigong* contains Tao-Sheentao lineage and Buddhist lineage. Taoist *qigong* seeks after "eternal life" . But this "long life" is not equal to long life in medical meaning. It means seeking after pure *yang* , over limitation of physical body.

Zhuagzi, rather, criticized the attitude that grasped his given life by cosmos as his own,

and the desire earnestly to enclose or increase it.

Shentao, way of hermits, created *Neidan* school in the time from the Tang to Song Dynasties. It means "the development of inner medicine" and seeking after the unity of mind and psychological control by consistent image movement.

In modern times, Hu Yaozhen arranged and opened this system, and applied it to medicine and martial arts. On the other hand, quiescent *qigong* of Zhuangzi was revived by Chen Yingning. It is effective to healing neurosis.

5. The Buddhist *qigong* contains MIJIAO (esoteric Buddhism), especially Tibetan esoteric system and stream of Chan (Zen, Japanese). Tibetan *qigong* seeks after unity with cosmic lifetide directly. It has something common in this point with *Neidan* in spite of so many differences in concrete method.

Chan has also common field, it created various high techniques for mind-body control as *Zhiguang* (concentration and contemplation).

6. The religious *qigong* has more refinded and experienced mind control methed than medical *qigong*. Also in medical *qigong*, " *Rujing* " (enter a very quiet state) is very important for having effect, but in this field, they seek for control of image, check of overwork of mind and deepening quality of " *Rujing* ".

In this process, the most important things are the develpement of intuition and imagination through the liberation of the right side of the brain, and reviving balance of the brain through control of overwork of intellectual centre and activation of feeling centre and life centre.

7. In Japan, also, we can find quiescent *qigong*, dynamic *qigong*, spontaneous *qigong*, healing by *qigong* and high technique unification of mind and body. And after introduction to Japan, Chan has much developed as an effective psychological healing.

Toward the traditions like these, we want to study the assuming attitude of "abandoning refuse, taking essence". But, for the human study in the new age or holistic medicine, we can not judge it in the field of accomplished science, but connect it with recovering "black science", namely the tradition of Tao science from the ancient times. We want the reconstruction of modern science. For example, *yi* (divination) contains richly the theory concerning with the relationship between mankind and its environment, and *Chan* or *Neidan* is, as they are, high psychophysical science.

The religious *qigong* will open the path to future medicine by its totality of grasping human themselves.