

**THE EFFECT OF QIGONG ON THERAPEUTIC BALANCING
MEASURED BY ELECTROACUPUNCTURE ACCORDING TO VOLL (EAV):
A PRELIMINARY STUDY**

by
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ABSTRACT: Electroacupuncture According to Voll (EAV) was used to monitor the effects of qigong practice on therapeutic balancing of subjects. In EAV the electrical conductance of the skin above individual acupuncture points is measured using low voltage and current. Diagnosis depends on measuring the relative electrical conductance and its time dependence. An important diagnostic criterion of degeneration of an organ is an indicator drop which occurs during the measurement when the conductance decreases from an apparent maximum value and then levels off. Two series of EAV measurements were made before and after healthy subjects practiced qigong. Measurements were made at 24 acupuncture points at the ends of the meridians of the fingers and toes of a subject and were made by the same operator and equipment. The subjects were asked to perform a qigong exercise of their choosing. In the first series, four subjects were examined by EAV before and after qigong exercise. Qigong exercise decreased the average EAV measured values of the four subjects in the range of -19 to -31%. Qigong eliminated indicator drops for three subjects and reduced the indicator drop by 80% for the fourth subject. In the second series, each of seven subjects was examined by EAV three times in a blind protocol so that the operator did not know whether a subject had practiced qigong before the second or third examination. Qigong exercise changed the average EAV measured values in the range of -17 to -35% for four subjects and 4 to 15% for three subjects. Indicator drops appeared for three subjects, and they were eliminated for two subjects and reduced by 50% for the third subject. These preliminary studies indicate that EAV can monitor the effects of qigong on changes in the therapeutic balancing of the meridian-organ system. Suggestions are made of how EAV can provide basic information about qigong and its applications.

KEY WORDS: Qigong (Qi Gong or Chi Gong), Electroacupuncture According to Voll, EAV, Therapeutic balancing, Meridians, Organs, Acupuncture, Skin conductance.

INTRODUCTION

Electroacupuncture According to Voll (EAV) is one of several electroacupuncture techniques for measuring local skin electrical conductance for diagnostic and therapeutic purpose(1). In general, EAV emphasizes preventive medicine by providing the medical practitioner with a diagnosis of a subject's health and its change at every stage of therapy. In the present study, EAV was used to monitor the effects of qigong practice on therapeutic balancing of subjects (2,3). The equipment is basically a D.C. resistance meter that measures relative changes in electrical conductance of the skin above an individual acupuncture point. Diagnosis depends on measuring the relative electrical conductance and its time dependence. The relative conductance is measured by a meter that is calibrated from 0 to 100. The "normal" value of 50 is expected when the acupuncture point and associated organ are in a physiologically balanced condition. Higher values (higher conductance) are associated with inflammation and lower values (lower conductance) with degenerative disturbances. The indicator drop is an important diagnostic criterion in EAV of a functionally disturbed organ. An indicator drop occurs during a measurement when the conductance of a given acupuncture point increases to an apparent maximum value and then decreases to a lower equilibrium value. In the present study, EAV was used to monitor the effects of qigong practice on therapeutic balancing of healthy subjects.

Two series of EAV measurements were made by the same operator and equipment. In both series, the subjects were asked to perform a qigong exercise of their choosing, usually sitting or standing meditation or moving qigong. The first series was performed during an international conference (4) at which qi and the human meridian system were among the main topics. About six months later, the second series was conducted in San Francisco with different subjects (5).

MATERIALS AND METHODS

The EAV instrument, a Computronix Acupro II system (Synergy Health Systems, 1223 Wilshire Boulevard #321, Santa Monica, CA 90403) was designed and operated by Douglas C. Leber. The instrumental test parameters were: 1.25 volts D.C. output voltage, 12.7 microamperes current output at full scale, and 95,000 ohms resistance at midscale of 50. A schematic of the electrical circuit is shown in Fig. 1. The instrument was calibrated from 0 to 100, and the value of 50 indicates that an organ associated with the acupuncture point was free of pathological problems. The tester pressed the brass probe electrode (0.13 cm diameter and connected to the positive side of the circuit) gently onto the acupuncture point as shown in Fig. 2. To minimize variations of skin conductance due to perspiration, tap water was applied to the skin in the region of the acupuncture point before the measurement. The cylindrical brass hand electrode (1-inch diameter and connected to the negative side of the circuit) was held in the subject's free hand, which was also moistened with water. Twenty four acupuncture points at the ends of the meridians of the fingers and toes of a subject were tested in about 5 minutes. The computer was programmed to provide information on the right and left side of the body for twenty organs and physiological functions of the body.

The subjects were 30 to 65 years of age. They were examined by EAV before and after practicing a qigong exercise for 10 to 15 minutes. The subjects went to a secluded spot to practice their own style of qigong, which was sitting or standing meditation or a form of moving qigong. The subjects were asked to balance their energies, and they were examined within 15 minutes after practicing qigong. One subject was examined by EAV before and after receiving qigong therapy from a qigong master and was also examined by EAV three more times within 22 hours.

RESULTS AND DISCUSSION

Series 1: In Series 1, four subjects were examined by EAV before and after qigong. Subjects A,

B, and C, who had practiced qigong for more than 10 years, practiced their own style of qigong for 10 to 15 minutes. Subject D, who had studied qigong for about one year, was given a qigong balancing treatment for about 10 minutes by subject A, a qigong master who used a combination of acupuncture massage and emitted qi to balance the meridians and organs of subject D. Subject A was not aware of that variations in the polarity of qi may exist in different parts of the his hands and of the body of the subject (6).

Examples of the EAV measurements before and after qigong are shown for subject D in Fig. 3 and for subject C in Fig. 4. The 20 pairs of horizontal bars represent the measured values at the acupuncture points associated with specific organs and functions of the body as described below the pair of bars. For a given pair of bars, the upper bar represents the value on the left side of the body and the lower bar that on the right side of the body. For example, LUCL and LUCR represents the lung meridian on the left and right side of the body, respectively. The scale for the measured values is shown at the bottom of each graph in the figure. A vertical line at the "normal" reading of 50 is a convenient reference for comparing changes that resulted from qigong practice. The two numerical values to the left of each bar are the actual measured values. The maximum value is on the left and the equilibrium value, which may be lower if there is an indicator drop, is on the right. The magnitude of the indicator drop is represented by a "white" bar and its numerical value is the difference between the maximum and the minimum measured values.

Visual inspection of Fig. 3 and Fig. 4 shows that qigong had decreased all measured values and had either eliminated indicator drops or reduced their numbers. However, qigong did not restore balance to some of the meridians and the corresponding organs. For example after the qigong balancing treatment for subject D, the measured values for the spleen, liver and gall bladder meridians on the right side of the body remained elevated with respect to the others at values of 66, 69 and 67, respectively. In the case of subject C, the measured values remained elevated for the stomach at values of 77 and 66 and for the urinary bladder on the right side of the body at a value of 68, and two of the nine indicator drops remained. These observations suggest that EAV can be used to monitor the effects of qigong therapy on individual organs of the body.

The results of the EAV measurements obtained before and after qigong for each of the four subjects are summarized in Table 1. For each subject, average measured values were calculated from the 40 values, 20 on the left and 20 on right side of the body (see Fig. 3). For each subject, a percentage change (change %) was calculated from the average measured values obtained before and after qigong. The results show that qigong had changed the average measured values of each practitioner in the range of -19 to -31%. The sum of all indicator drops (in meter divisions) for a given EAV examination were either eliminated or reduced markedly by qigong. The style of qigong of each subject and the duration of the practice are noted in a separate column in Table 1.

In Table 1, the plus and minus value that follows an average EAV value is an apparent "standard deviation" that indicates that individual meridians or body functions have measured values greater or less than the average value. This standard deviation would be zero if all the meridians and body functions were balanced and had the same measured AEV values. Individual meridians and body functions may not be balanced for many reasons, including chronic, acute, stress, and emotional factors. The magnitude of the apparent standard deviation may be regarded as a semiquantitative indicator of imbalance in the meridian system.

In a preliminary study to determine possible lasting effects of qigong, subject D was examined by EAV a total of four times over a period of 22 hours. The average measured value was 75.1 ± 5.2 before qigong, 51.5 ± 9.9 twenty minutes after qigong balancing, 55.7 ± 10.4 four hours later after lunch, and 59.0 ± 8.1 twenty-two hours later after breakfast. The increases in the standard deviations after the first 20 minutes were mainly due to large elevations in the measured EAV values of the

meridians of the liver at a value of 85, spleen at 85, large intestines at 68, and kidney at 65. These changes are probably caused by food eaten at lunch.

Series 2. A blind protocol was used in Series 2 so that the EAV operator did not know when the seven subjects practiced qigong. This was accomplished by measuring the EAV of each subject three times, and in between measurements the subject left the examination room. After the initial EAV examination, the subjects were given a random selected card instructing them to practice qigong after the first or after the second EAV examination. Later the subjects informed the examiners when they practiced qigong. Of the seven subjects, E, F, G, H, I and K were experienced qigong practitioners, while subject J had studied qigong one year. Computer printouts similar to those in Fig. 3 and Fig. 4 were analyzed for each subject. The averages of the 40 measured values and the sum of indicator drops are tabulated in Table 2. The average measured values obtained just after qigong practice are indicated in boldface.

The results show that qigong practice changed the average measured readings of most subjects. The average measured values decreased for four subjects (E, F, G, H) in the range of -17% to -35%, increased for two subjects (J and K) in the range of 12% to 15%, and remained essentially unchanged for subject I. For subject I, a decrease in the average measured values was observed after qigong, that is, from the second to the third examination (82.7 ± 2.7 to 61.2 ± 11.8 , respectively). This decrease may be due to a delay in the effects of qigong exercise. Indicator drops were present in the EAV of only three subjects before qigong, and these drops were either eliminated or decreased by qigong.

In series 2, the average measured values for four subjects (E, F, G, H) showed similar decreases in magnitude as those in series 1. However, the average measured values for the other three subjects (I, J, K) increased. This difference in response of individual qigong practitioners can be accounted for in many ways, such as by differences in qigong style, intention of the practitioner, and physical and emotional states. For example, we had asked the subjects to balance their energies, but subject J later told us that she had tried to increase her qi, thus perhaps explaining the increase of 12%.

Because of scheduling problems, we were unable to carry out control experiments. However, the reproducibilities of successive AEV measurements before or after qigong were satisfactory for five of the subjects. This can be seen in Table 2 by comparing the second and third measurements (after qigong) for subjects E, F, H, and J, and by comparing the first and second measurements (before qigong) for subject G. These successive readings changed less than 4%.

CONCLUSIONS

Our preliminary studies suggest that the EAV technique can monitor the effects of qigong on the therapeutic balancing of the meridian-organ system. EAV also should be valuable in other applications of qigong: 1) evaluating the effectiveness of different types of personal qigong exercises for balancing organs of the body, 2) measuring the receptivity of subjects to emitted qi, 3) evaluating the effects of different kinds of emitted qi, for example, positive and negative qi (8), 4) determining the duration of the balancing effects of qigong, 5) determining the relative healing power of qigong masters for certain medical problems, 6) comparing the relative effectiveness of energy balancing by qigong with other therapies, such as acupressure, acupuncture, healing with hands, Reiki, as well as conventional physical exercise, 7) investigating the therapeutic effectiveness of qi energy stored on materials such as paper (7), 8) investigating the therapeutic effectiveness of electrical, mechanical and laser stimulation(8), and 9) investigating the interaction between a qigong master and a subject (9).

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REFERENCES

1. Fred M. K. Lamb, Jr., M.D., Julia J. Tsuei, M.D., Zixian Zhao, M.D., M.S.: Bioenergetic Regulatory Measurement Instruments and Devices. Am. J. Acupuncture, Vol.16, No. 4: pp. 345-349, Oct.- Dec., 1988.
2. R. Voll: Twenty years of electro-acupuncture diagnosis in Germany: A progress report. Am. J. Acupuncture, Vol. 3, No. 1: pp. 7-17, 1975.
3. See collection of nine articles on Electroacupuncture According to Voll in the Am. J. Acupuncture, Special EAV issue, pp. 5-99, Second printing, 1989.
4. International Conference on Bioenergetic Medicine, Past, Present and Future, University of Hawaii, September 30, 1989.
5. Presented at the Second World Conference on Academic Exchange of Medical Qigong, Beijing, China, September 1993.
6. Omura, Y., Common factors contributing to intractable pain and medical problems with insufficient drug uptake in areas to be treated, and their pathogenesis and treatment: Part I. Combined use of medication with acupuncture, (+) qi gong energy-stored material, soft laser or electrical stimulation, Acupuncture & Electro-Thera. Res. Int. J., Vol. 17: pp. 107-148, 1992.
7. Omura, Y., Storing of qi gong energy in various materials and drugs (Qi Gongnization): its clinical application for treatment of pain, circulatory disturbance, bacterial or viral infections, heavy metal deposits, and related intractable medical problems by selectively enhancing circulation and drug uptake, Acupuncture & Electro-Thera. Res. Int. J., Vol. 15: pp. 137-157, 1990.
8. Omura, Y., Connections found between each meridian (heart, stomach, triple burner, etc.) & organ representation area of corresponding internal organs in each side of the cerebral cortex; release of common neurotransmitters and hormones unique to each meridian and corresponding acupuncture point & internal organ after acupuncture, electrical stimulation, mechanical stimulation (including Shiatsu), soft laser stimulation or Qi Gong, Acupuncture & Electro-Thera. Res. Int. J., Vol. 14: pp. 155-186, 1989.
9. Omura, Y., Unique changes found on the qi gong (chi gong) master's and patients's body during qi gong treatment; their relationship to certain meridians and acupuncture points and the re-creation of therapeutic qi gong states by children and adults, Acupuncture & Electro-Thera. Res. Int. J., Vol. 14: pp. 61-89, 1989.

Running title:

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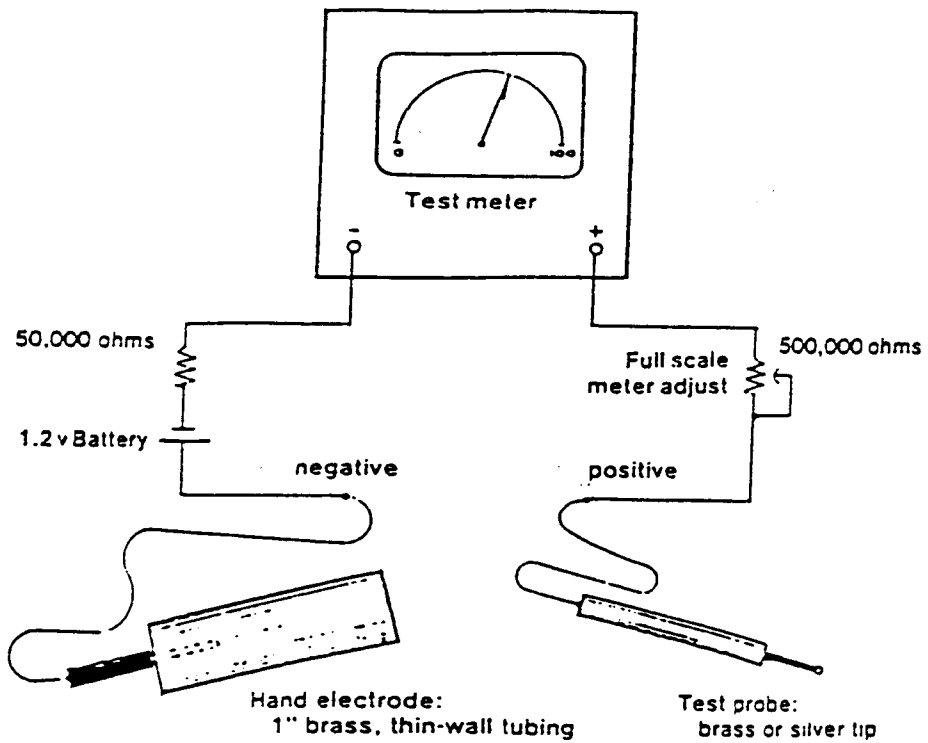


Fig. 1: Schematic of electrical circuit for measuring the electrical conductance of acupuncture points by Electroacupuncture According to Voll.

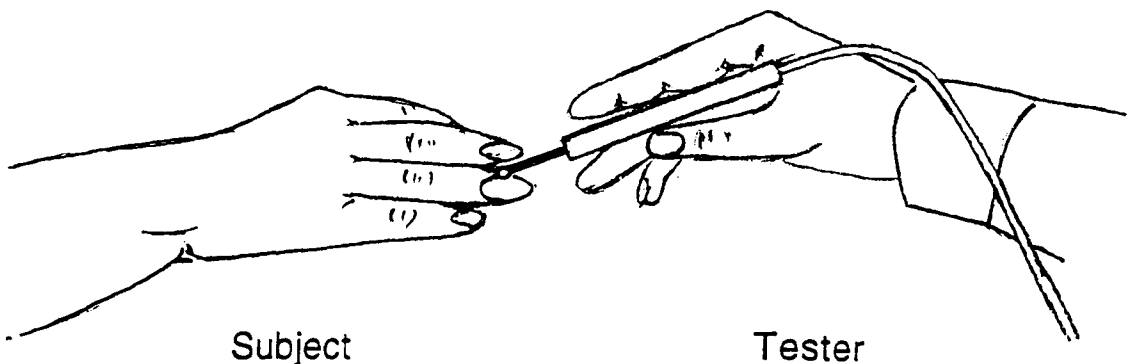


Fig. 2: Measurement of electrical conductivity of an acupuncture point on finger of subject (left) by test probe held by tester (right). Other hand of subject holds the hand-held, brass electrode (see Fig. 1).

Table 1. The effect of qigong exercise on the average measured EAV values and sum of indicator drops for each of 4 subjects before and after qigong (Series 1).

Each subject was tested before and after practicing qigong. Subject D was given qigong balancing therapy by subject A. The change (%) refers to the difference between the measured values before and after qigong. The indicator drop (ID) divisions are the sum of all such drops for a given subject. The style and duration of qigong practice is shown in the right-hand columns. Average measured values for before and after qigong were calculated from the average of 40 readings, 20 on the left side of the body and 20 on the right side (see Fig. 3).

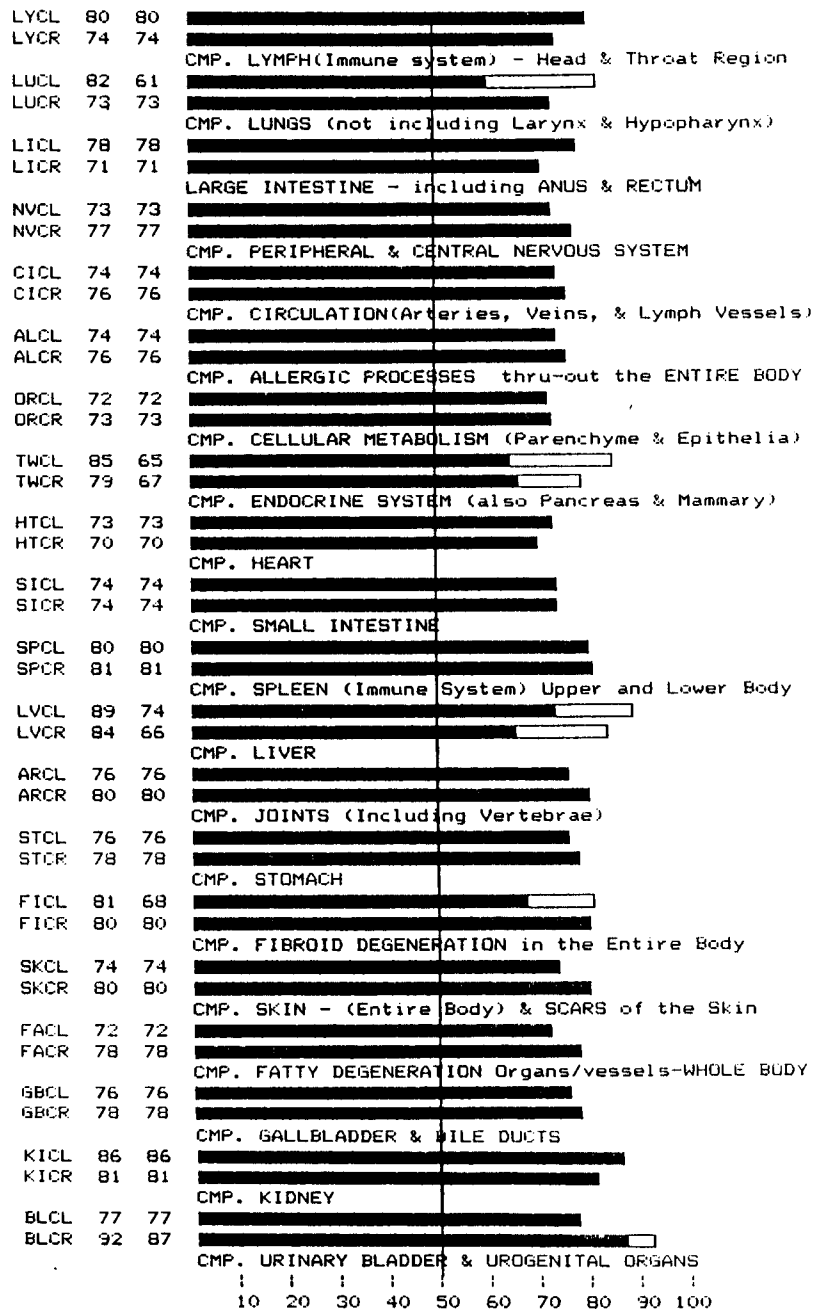
Subject	Average measured values			Sum ID Divisions		Qigong	
	Before Qigong	After Qigong	Change (%)	Before Qigong	After Qigong	Style	Time (min.)
A	69.0±3.3	51.4±4.4	-26	20	0	Moving	15
B	72.0±3.9	53.3±7.1	-26	22	0	Standing	10
C	67.0±6.6	54.6±5.7	-19	129	28	Sitting	10
D	75.1±5.2	51.5±9.9	-31	53	0	Therapy	10

Table 2. A blind study of the effect of qigong exercise on the average measured EAV values and sum of indicator drops for each of 7 subjects before and after qigong exercise (Series 2).

Each subject was tested 3 times. The bold faced numbers indicate measured values obtained just after qigong practice. Secret instructions informed the subjects to practice qigong either after the second or third EAV test. The change (%) refers to the difference in measured values before and after qigong practice. Indicator drop (ID) divisions are summed for a given subject. The style and duration of qigong practice are shown in the right-hand columns. The average measured values before or after qigong were calculated from the average of 40 measured values, 20 on the left side of the body and 20 on the right side (see Fig. 4).

Subject	Average Measured Values				Sum ID Divisions		Qigong	
	First test	Second test	Third test	Change (%)	Before Qigong	After Qigong	Style	Time (min.)
E	61.3±15.4	39.6±11.2	38.6±9.7	-35	14	0	Moving	15
F	74.8±3.0	52.0±5.2	51.7±4.0	-30	0	0	Sitting	10
G	76.1±2.6	79.1±4.2	58.1±8.6	-27	0	0	Sitting	10
H	74.4±3.2	62.1±12.7	58.9±10.5	-17	0	0	Sitting	10
I	79.2±4.1	82.7±2.7	61.2±11.8	4	0	0	Sitting	10
J	67.5±8.9	74.5±7.0	71.1±4.2	12	28	14	Moving	15
K	67.2±11.5	53.9±13.5	62.1±14.7	15	8	0	Sitting	10

BEFORE QIGONG



AFTER QIGONG

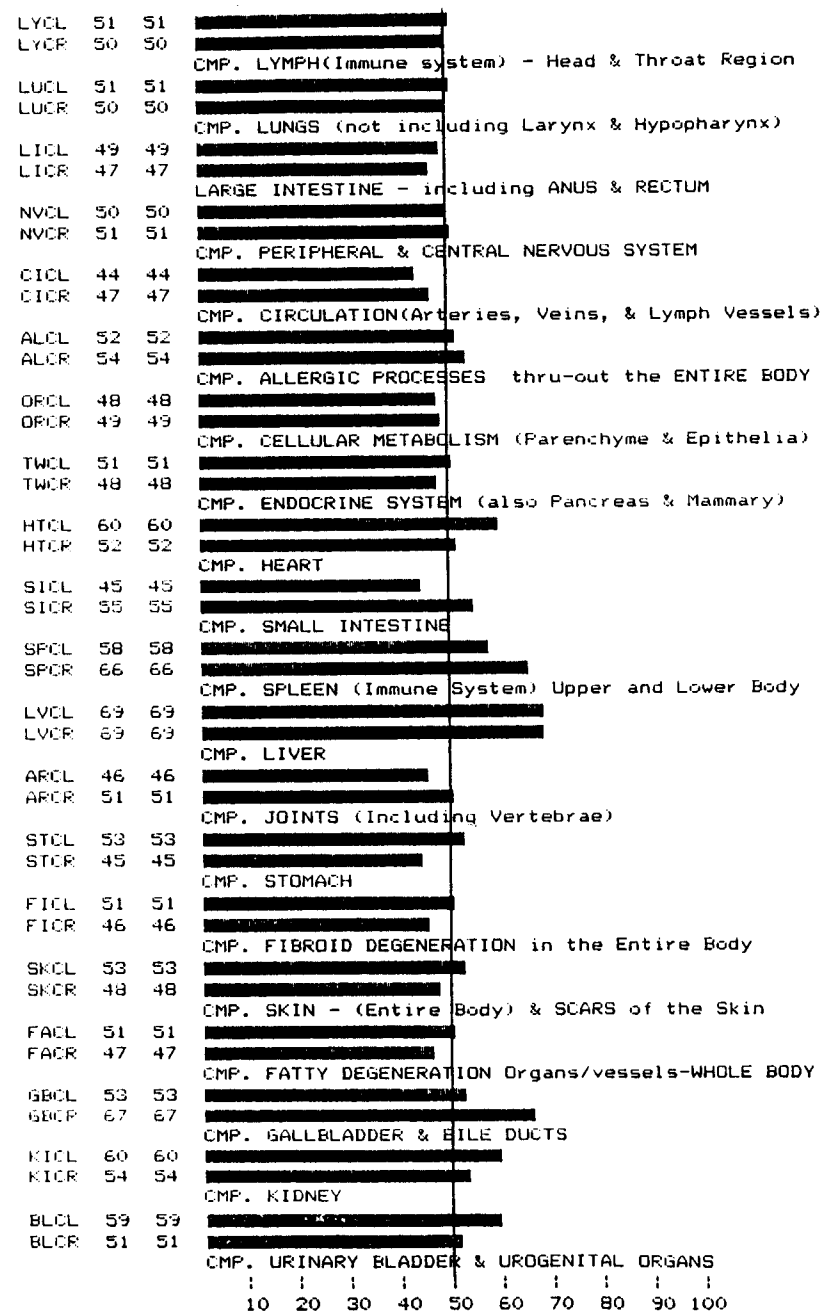
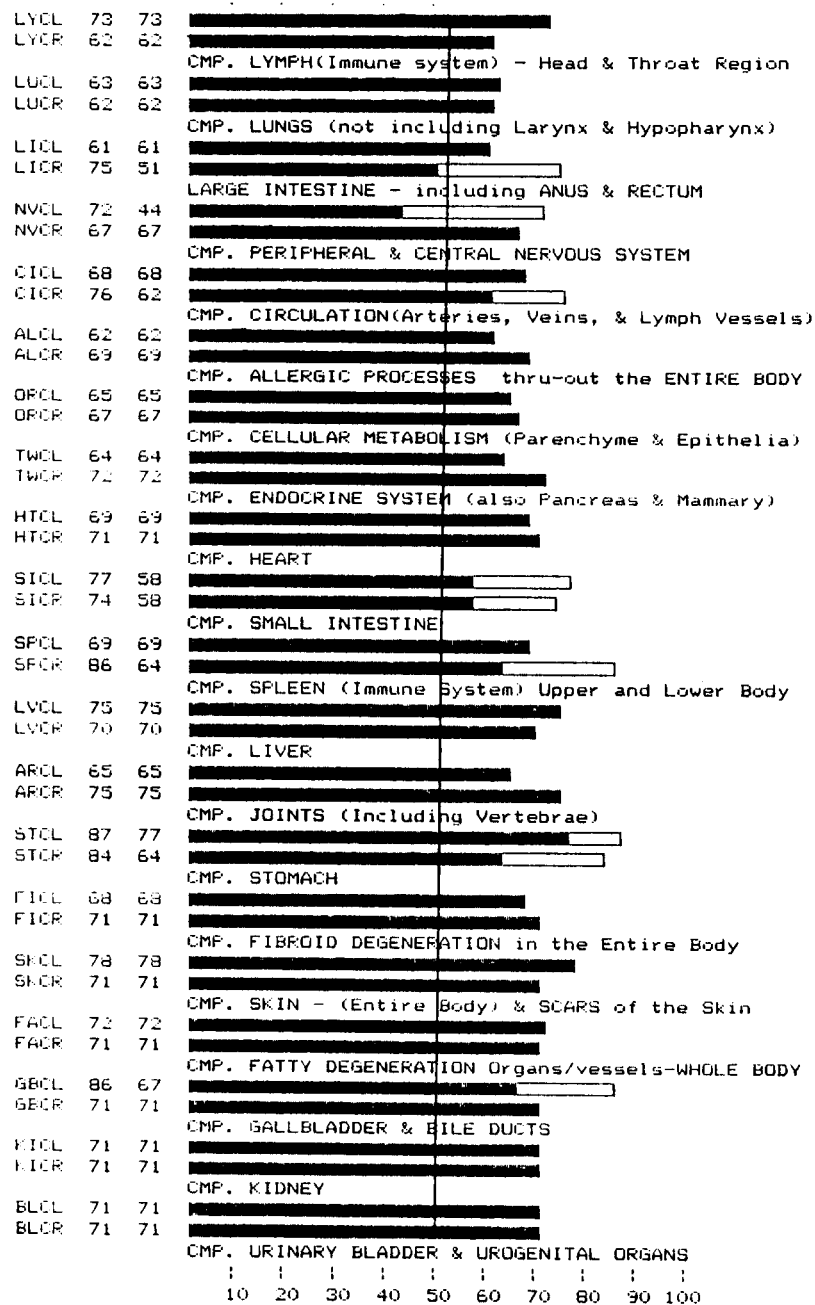


Fig. 3: The EAV response of subject D to qigong balancing for 10 minutes by subject A (see Table 1). Data on the left represents the EAV results before the qigong treatment, and on the right after the treatment. The vertical line indicates a meter reading of 50.

BEFORE QIGONG



AFTER QIGONG

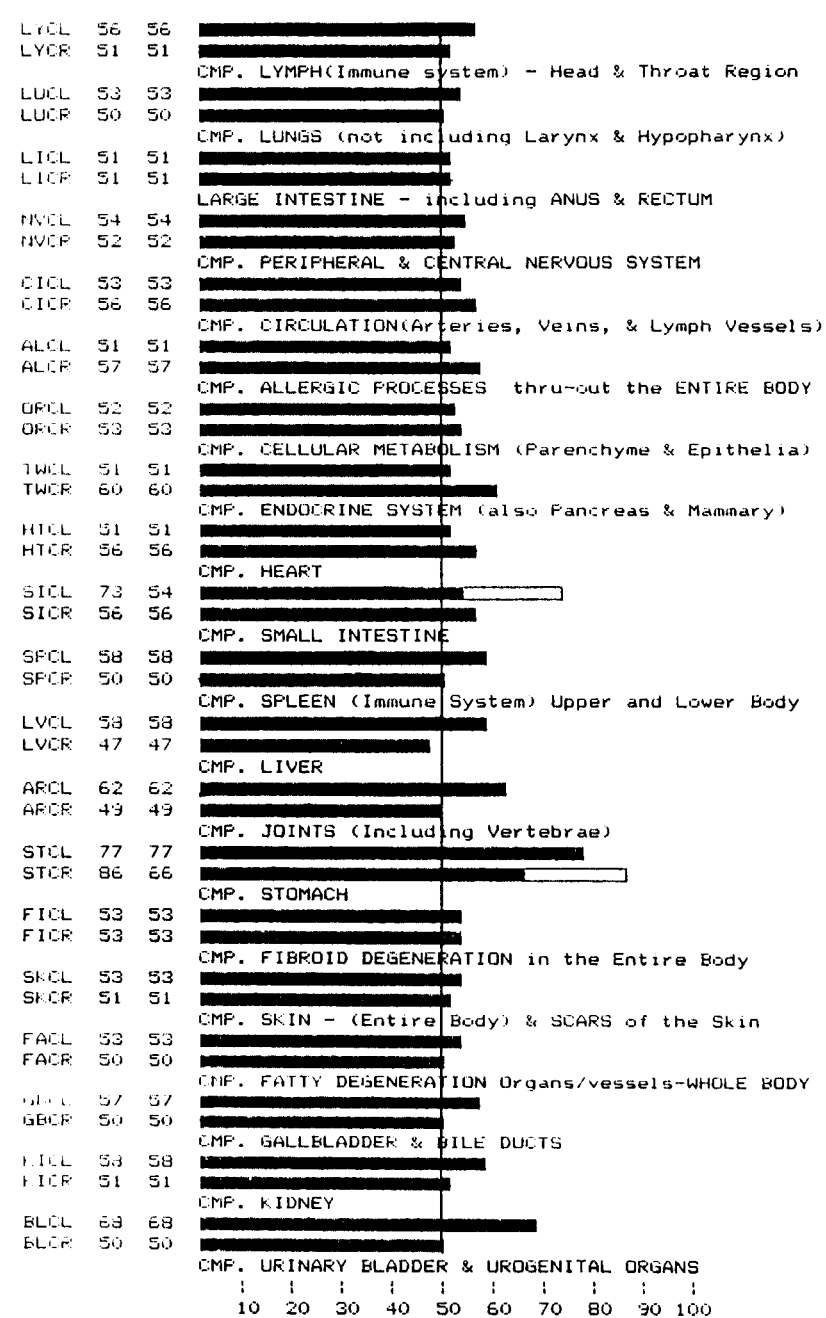


Fig. 4: The EAV response of subject C to sitting meditation qigong for 10 minutes (see Table 1). Data on the left represents the EAV results before the qigong treatment, and on the right after the treatment. The vertical line indicates a meter reading of 50.