

**THE IN VITRO EFFECT OF BIOENERGY ON THE CONFORMATIONAL STATES OF HUMAN DNA IN AQUEOUS SOLUTIONS**

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**ABSTRACT**

Conformational changes in aqueous solutions of human DNA were used as a new bioassay for bioenergy. Two subjects were tested for their ability to direct their intention to either wind or unwinding DNA presented to them in a quartz cuvette. Conformational changes of the DNA solutions were assessed by measuring the absorption spectra before and after treatment with bioenergy. The results confirm previous experiments indicating that focused human intentionality can produce significant changes in DNA conformation. The results extend previous studies by demonstrating the dynamic changes in DNA conformation over time are complex and dependent on the type of bioenergy generated. Different subjects produced different types of conformational change as indicated by shifts in the absorption spectra at either 260nm or 310nm. In some cases, bioenergy produced a decrease absorption at 260nm (reflecting DNA winding) and an increase absorption at 310nm. This is an anomalous response of DNA to bioenergy indicating the conformational changes observed are not due to simple winding and unwinding of the DNA helix.

KEY WORDS: Human intention, Qi, bioenergy, DNA conformation, DNA temporal dynamics, absorption spectroscopy.

## INTRODUCTION

The ability to use focused intention to influence biological systems has been known for centuries by ancient religious and spiritual orders in the far East. Practitioners of the martial art of Qigong, for example, learn the skill of intentionally directing the flow of bioenergy within the body and outside the body. More recently, these ancient disciplines have been studied using modern scientific technology at major academic institutions in the East and West. It has been demonstrated that Qi energy applied to acupuncture points produces a spatial and temporal redistribution of biomolecules in the skin around acupuncture points (1). In addition, Qi increases local vascular drug delivery to virally infected areas on the surface of the body (2). More recently it was found that Qi can shift EEG patterns in rabbits, decrease electrical activity of isolated rat pineal glands (3) and inhibit myosin phosphorylation *in vitro* (4).

Such studies have corroborated other research in focused human intentionality using both biological (5,6) and non-biological targets (7,8). These intentionality studies have revealed a variety of effects from the clinical efficacy of therapeutic touch (9) to subcellular effects on biological systems (10) to subatomic effects on physical matter (11).

A novel bioassay for bioenergy, first demonstrated to using Qigong practitioners (12), involves the conformational changes of purified DNA molecules in an aqueous solution. Preliminary experiments with Leonard Laskow indicated that bioenergy generated by a Western-trained healer could also produce similar changes in DNA conformation with a bidirectional response (13). This response was dependent on the intention of the healer to either wind or unwind the DNA molecule. The results from this study were subsequently verified using practitioners of another Western technique which focuses attention to the heart (14). With the latter practitioners it was further demonstrated that the generation of bioenergy, in the absence of a specific intention to wind or unwind DNA, did not produce a conformational change.

The purpose of the present investigation was to extend the previous studies using other Western-trained healers. Since

the conformational change of DNA *in vivo* is a dynamic process and previous studies with electromagnetic fields indicated critical and often narrow time windows for biological efficacy (15), it was also of interest to determine the kinetic changes in DNA conformation at varying times after exposure to bioenergy.

### METHODOLOGY

A sealed test tube containing an aqueous solution (distilled water) of human placental DNA (Sigma Chemical Co, St.Louis, MO, 1.0mg/ml) was used in all experiments. In some experiments, the DNA was partially denatured by heating at 80° C for three minutes. A 20µl aliquot of this stock solution was added to 1.0 ml distilled water, transferred to a quartz cuvette and allowed to remain at room temperature for 15 minutes. The before treatment the absorption spectra was measured using a Hewlett Packard Diode Array Spectrophotometer in the wavelength range from 210 to 310 nm. The covered cuvette containing the DNA solution was then presented to a healer who focused their intention on the sample. The absorption spectra was obtained immediately after treatment and then again at 30 minute intervals for

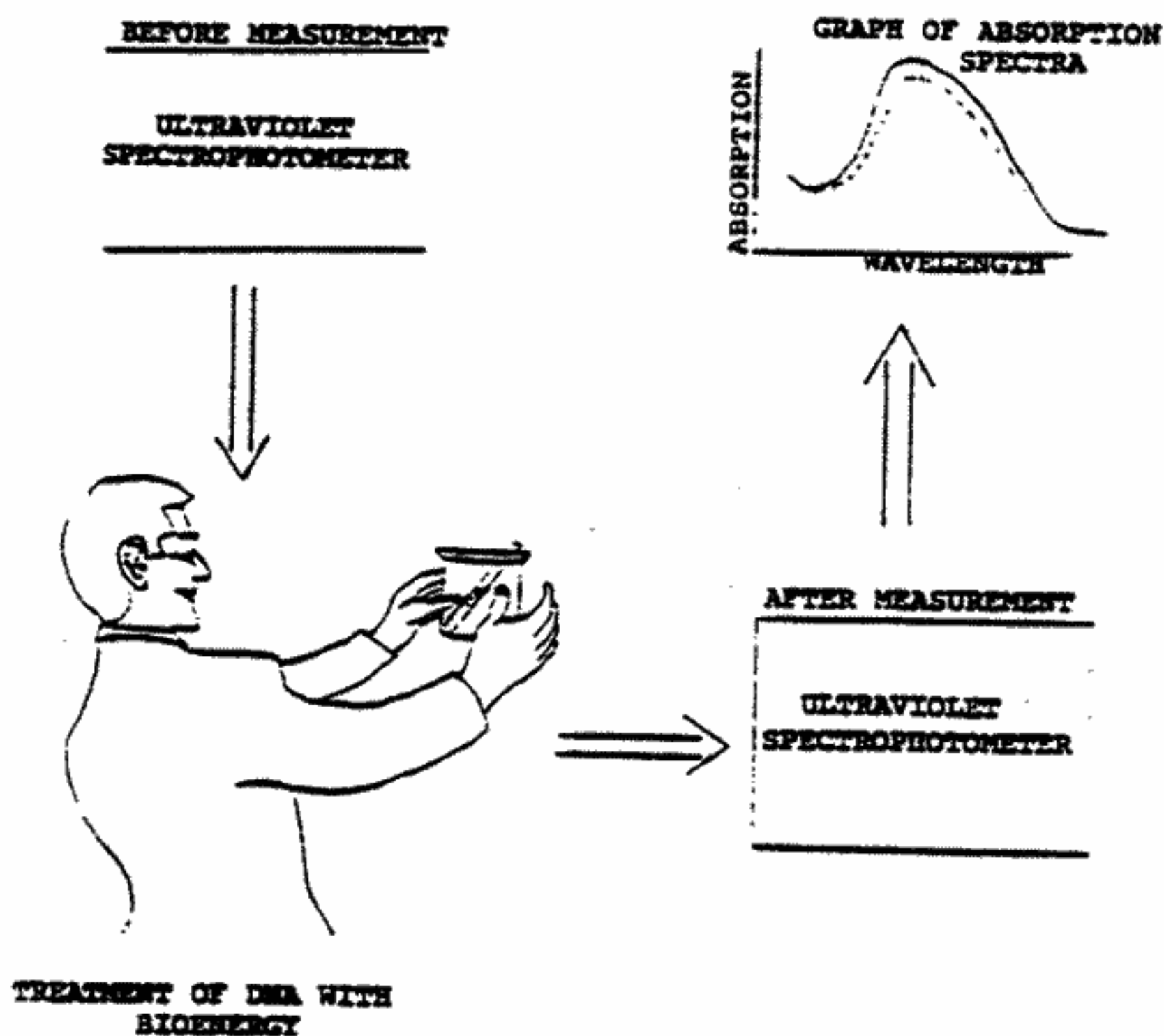


Figure 1: Experimental Set-Up

the next two hours. A separate control sample was aliquotted into a second matched cuvette and measured by absorption spectroscopy each time (immediately after) the treated samples were measured. Both control and treated cuvettes were kept at room temperature for the two hour period separated by approximately 12 inches. Increased absorption at 260 nm is due to denaturation (unwinding) of DNA, whereas decreased absorption is a measure of renaturation (winding). After correcting for possible baseline shifts, absorption values were obtained at 260 nm and 310 nm and the percentage change calculated as the difference between the final reading and the initial reading divided by the initial reading.

The samples were treated for a final duration of 5 to 15 minutes by the healers who focused different intentions onto the DNA molecule to change it. One of the healers (Leonard Laskow) is American and was trained using a technique called Holoenergetic Healing, whereas the other healer (Valerie Sadyrin) is Russian.

### RESULTS AND DISCUSSION

The results from the first series of experiments with V.S. indicated that he was able to immediately influence the conformation of DNA causing a 2.1-3.7% decrease in absorption at 260nm compared to control samples which decreased by  $0.46 \pm 0.36\%$ . This effect was seen in all cases, whether his intention was to wind or unwind the DNA. Similar results have been seen with other healers who could only cause DNA to wind (decreased absorption) whatever their intention. This may be a general characteristic of bioenergy (to wind DNA) which is different from other physical/chemical or thermal forms of information which cause DNA to unwind (16). Thus, although the natural tendency of DNA is to unwind in response to changes in the environment, bioenergy reverses this effect and causes DNA to wind.

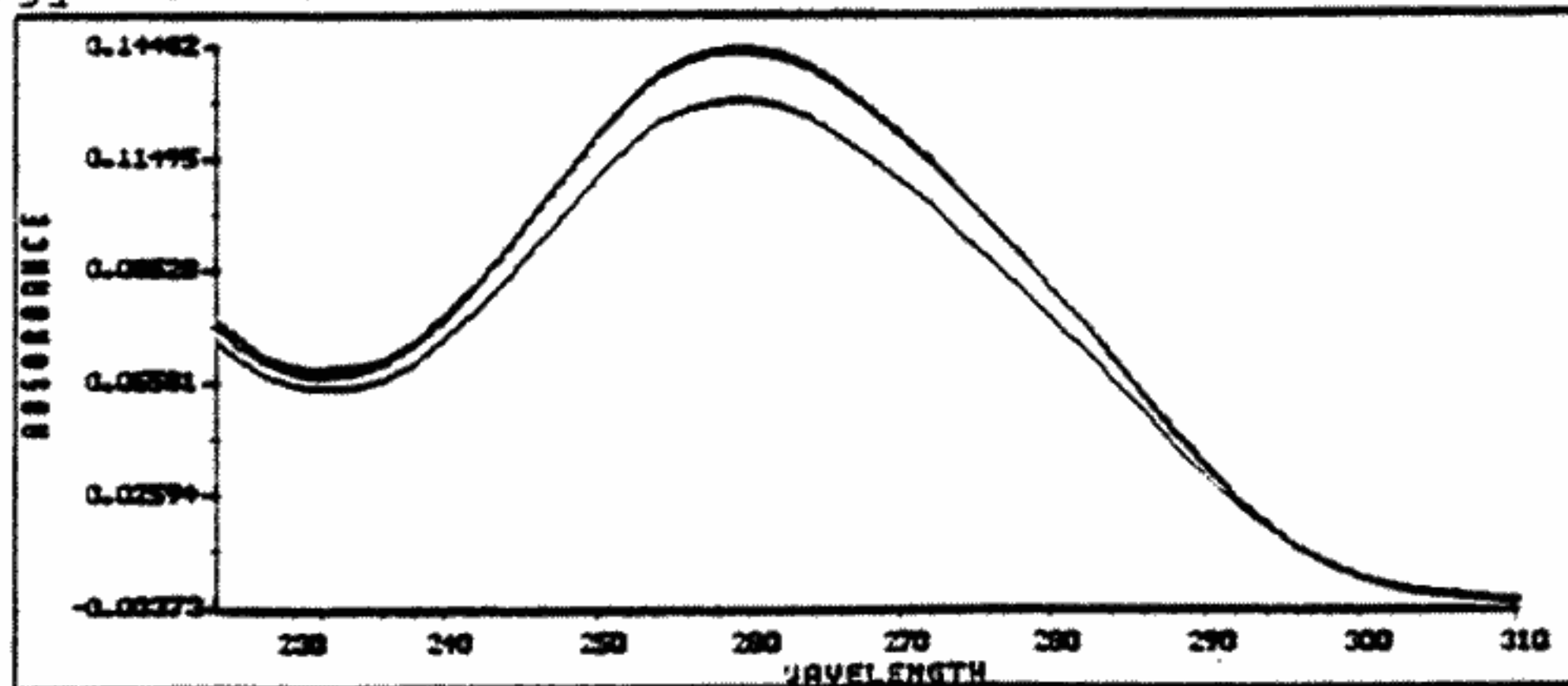


Figure 2: Typical Absorption Spectra

The upper curves are two measurements (one hour apart) of one control sample. The lower curve was taken after treatment.

Although these results suggest that the qualitative nature of the bioenergy field was similar when these two intentions were used, a third intention produced a different biological response. Thus, when the subject directed his intention to change one of the four bases (Guanine) that make up the strands of the DNA helix, a different type of conformational change occurred. This intention was characterized by an increase absorption at 310 nm with no change in absorption at 260 nm. This type of conformational change is distinctly different from that which occurred when the intention was to wind or unwind the DNA. In the latter case a decrease in absorption at 260 nm was associated with an increase absorption at 310 nm.

Thus, no matter which of the three intentions were used by V.S., the results of this experiment indicated that all treated samples showed an increase in the absorption at 310 nm. This increase was not seen with untreated control samples and can be considered an atypical response since environmental changes (eg. pH or temperature) do not affect the absorption at 310 nm. The nucleotide bases which make up the individual DNA strands are the primary absorbers of UV light (from the spectrophotometer) at this wavelength. The observation that bioenergy can cause an increase in absorption at 310 nm and a decrease absorption at 260 nm (DNA winding) is even more unusual and can be considered anomalous. Increased absorption of UV light by the bases (at 310 nm) would normally be associated with unwinding of DNA and increased exposure of the bases to the UV light. Thus, the bases are absorbing more light despite the fact they are more internalized within the more tightly wound structure of the DNA molecule. This observations suggests that the conformational changes induced by bioenergy are not simply due to winding and unwinding of DNA and may reflect a more unique modulation of the hydrogen bonds which hold the two strands of the DNA helix together.

In the second series of experiments with V.S. the kinetic changes in DNA conformation were monitored as a function of time after treatment. As with the previous experiment (which was measured immediately after the treatments), only decreases in absorption at 260 nm (winding) were observed, whether the intention was to wind or unwind the DNA. However, in two experiments this change was delayed and no absorption changes were seen during the first hour. In a third experiment the decreased absorption was seen immediately after treatment (as in the first series) but returned to control values after one hour. These differences may be accounted for by a different performance of the healer on this occasion or by the fact that the DNA samples

in the second series were partially denatured in contrast to the first series where the DNA was intact. These differences in the state of the DNA before treatment may also account for the different behavior in absorption values at 310 nm. In the second series, decreased absorption at this wavelength was observed in some treated samples (in contrast to an increase in the first series), although there was no correlation to the appearance of this effect and the time delay. As in the previous experiment, no absorption changes at this wavelength were seen with the controls.

The third series of experiments with V.S. involved healing three samples placed 12 inches apart in front of the subject. The intention was to unwind the sample in the middle. This sample showed an immediate decrease in the absorption at 260 nm which persisted for the entire two hour time period. There was no concomitant change in the absorption at 310 nm in this sample. In contrast, the sample on the left showed no change in absorption at 260 nm or at 310 nm either immediately after or two hours following the treatment. The sample on the right showed an immediate decrease in absorption at 260 nm and 310 nm which was maintained for the two hour time course. These results indicate that the subject was unable to direct his intention to only one sample and suggests that his bioenergy field is heterogeneous, effecting the individual samples differently.

The last series of experiments was conducted with LL, who had previously demonstrated the ability to bidirectionally effect the winding and unwinding of DNA in accordance with his intention (13). In these experiments he was asked to increase the winding of one of three intact DNA samples placed 12 inches apart. The target sample showed an initial decrease in absorption at 260 nm which was maintained for two hours following the treatment. The magnitude of this effect was 3.5%. Both adjacent samples showed similar behavior which was different than the target sample. Both adjacent samples showed no immediate change in absorption at 260 nm, but did show a similar decrease in absorption (2.6% and 3.0%) after two hours. No changes in absorption at 310 nm were observed in any of the treated samples. These results indicate that this healer was able to focus his intention both in terms of directing the DNA to wind and differentially effecting the target sample. Similar results were obtained with heart-focused practitioners who could more accurately direct their intention to a specific sample of DNA amongst others (14).

These results of the present study confirm previous experiments by the author demonstrating the effect of

focused intention to influence the conformation of human DNA in solution. In this sense conformational changes in DNA can be considered a sensitive bioassay for intentionality information associated with different healing states of consciousness. The results also indicate the time course of the conformational changes is complex and depends on the nature of the bioenergy being directed at the DNA molecule as well as the state (intact vs partially unwound) of the DNA molecule. It is presently unclear to what extent the dynamic changes of purified DNA in an aqueous solution reflect the physiological changes that might be occurring in the body in response to healing bioenergy. It should further be noted that both winding and unwinding of DNA occurs in the body as one of the varied physiological functions of DNA and it is unknown to what extent conformational changes *in vitro* reflect health or disease.

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