Research Article

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Studies of the Origin and Nature of the Energetic Forces Exerted on a Torsion Pendulum by Human Subjects

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ABSTRACT

These results extend what is known about the effects of a human subject sitting under a torsion pendulum. Previous results showed that subjects affected the pendulum in significant ways.

1. Substantial shifts of the center of oscillation of the pendulum, shifts as large as 2.2 cm (7 deg) requiring a force that is equivalent to 45 mg were observed.
2. Many new frequencies of oscillation of the pendulum were introduced when a subject was present.
3. Dramatic changes in the amplitudes of oscillation of the pendulum were observed throughout the experiments; increasing, decreasing, and increasing again, in quasi-consistent patterns.
4. These shifts of the center of oscillation, the new frequencies of oscillation, and the changes in amplitudes all persisted for 30-60 min after the subject has left the pendulum.

These effects have been variously attributed to 'human bioenergy,' or to simple cranial heat convection currents. The physical nature of the forces causing these effects remains uncertain. Until now all the experiments we have performed have used 'control subjects,' which refers to subjects with no known abilities that would affect the pendulum in unusual ways. In this work, a subject who had 45 years of daily experience with a particular type of meditation 'sound current meditation' was recruited. The purpose was to see if different mental states such as a meditative state versus a non-meditative sate, would affect the pendulum differently. These results establish that they are different, both qualitatively and quantitatively, and that the effects by the experienced meditator were significantly different than those routinely seen with 'control subjects.'

A new kind of experiment was performed by having subjects sit beside the pendulum instead of directly under it. Subjects were the 'experienced meditator,' and a 'control subject.' Effects on the pendulum with subjects sitting beside the pendulum were diminished in amplitude but were otherwise similar to subjects sitting directly under the pendulum. Although the possibility of cranial heat convection currents being able to exert these effects from a significant distance is not eliminated, the argument that cranial heat convection currents are solely responsible for subject effects on the pendulum is weakened.

Keywords: Psychokinesis; Human bioenergy; Cranial energy; Pendulum measurement of bioenergy

INTRODUCTION

Experiments observing the effects on a torsion pendulum suspended above a human subject have previously produced interesting results [1,2]. The pendulum by itself obeys conventional physics and oscillates as a damped harmonic oscillator [1,2]. The oscillations of the pendulum while a human subject is underneath departed dramatically from a simple damped harmonic oscillator. Studies of dozens of subjects over hundreds of experiments established several pattens of pendulum behavior that depart from the expected pendulum oscillations, suggesting that the pendulum detects and measures substantial forces which dramatically alter the motions of the pendulum when a subject is seated under it. The following effects are consistently observed with nearly every subject in nearly every experiment performed up to now.

1. Substantial shifts of the center of oscillation of the pendulum; shifts as large as 2.2 cm (7 deg) requiring a force that is equivalent to 45 mg were observed.
2. Many new frequencies of oscillation of the pendulum were introduced when a subject was present.
3. Dramatic changes in the amplitudes of oscillation of the pendulum were observed throughout the experiments; increasing, decreasing, and increasing again, in quasi-consistent patterns.
4. These shifts of the center of oscillation, the new frequencies of oscillation, and the changes in amplitudes all persisted for 30-60 min after the subject had left the pendulum. This is inconsistent with the physics of a simple harmonic oscillator such as a torsion pendulum, which should return to simple harmonic oscillation immediately after any exterior disturbances are discontinued. This has led to speculation that these effects on the pendulum could be due a mysterious 'human bioenergy field' [1,2], but the idea has been countered by others who claim the effects are solely due to ordinary cranial heat convection currents [3-5]. We have countered by questioning the interpretation of those experimental results [6,7].

The goal of this work is not to resolve these issues, but instead to perform experiments that will provide new information with respect to the kinds of effects human subjects can exert on the pendulum. Prior to now, all the subjects used in these experiments were 'ordinary,' in that they were not known to possess any abilities that might influence the results. There was much commonality in the results obtained with these subjects [1,2]. In this work, a subject was recruited that had employed a specific daily meditation practice 'sound current meditation' for 45 years. The question was if this dedication to a meditation practice would be reflected in responses of the pendulum. It turned out to be yes, and that the effects on the pendulum were disparate from 'normal' subjects. These disparities were observed in both meditative and non-meditative states. Moreover, the effects on the pendulum during meditation were different from the effects on the pendulum during non-meditation. Experiments were also performed with subjects sitting beside the pendulum instead of below it. Although the amplitudes of the effects were diminished, other aspects of the effects remained. These results weaken the argument that human subject effects on the pendulum are due solely to cranial heat convection currents.

MATERIALS AND METHODS

The pendulum used in these experiments to detect and measure subject effects is depicted in Figure 1, and its design and use have been described in detail [1,2]. Briefly, it is a 15 x 35 cm steel mesh hemisphere (a picnic food cover) suspended by a short length (1.75 cm length x 0.7 mm diameter) of nylon fiber. This fiber and hemisphere combination resulted in a 30 sec period of oscillation, or 2 cpm. This period of oscillation gave good sensitivity to the effects exerted by subjects. Rotational motions of the pendulum are recorded using a video camera focused on a 1 cm white dot on the side of the hemisphere. A computer program determines the center of the dot 10 times per sec, displays the data during the experiment and stores the data for later analysis. These measurements are precise, and the rotational position of the pendulum at any time during an experiment is known at a resolution of about 0.1 mm. Whereas the pendulum used here is a steel mesh hemisphere, hemispheres of PET plastics and vegetable fiber produce similar results.

RESULTS

These experiments employed a 'Normal Control Subject' and an 'Experimental Subject.' These are designated 'Subject 1,' and 'Subject 2,' respectively. Many experiments established that Subject 1 is an appropriate control subject, in that pendulum responses with Subject 1 are similar to responses from dozens of subjects in hundreds of experiments.

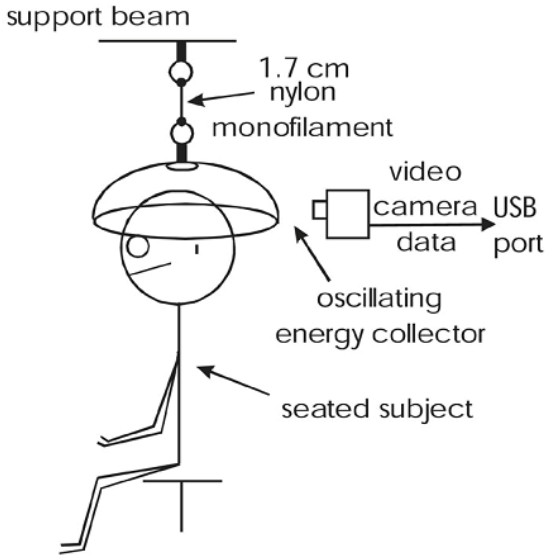

Figure 1: Method of data collection from rotationally oscillating pendulum. A video camera records pendulum positions and saves the data for analysis.

Subject 2 has practiced a daily regimen of 'sound current meditation' for 45 years. The question being explored by using Subject 2 is the possibility that a long-time practice of meditation would result in Subject 2 having different effects on the pendulum than 'normal/control' subjects. If Subject 2 effects are unusual, it would suggest that a subject's mental state may be responsible for some of the effects on the pendulum.

First is the result with the control 'Subject 1,' sitting under the pendulum. Figure 2 shows what has become a conventional pendulum response from many experiments with many subjects. It shows a dramatic departure from the 'center of oscillation,' followed by an extended period of effects after departing from the pendulum. The departure from the natural center of rotational oscillation is a consistent feature of these experiments with displacements of as much as 7 deg rotation away from the natural center of rotation, that would require a force equivalent to 45 mg. These effects persist for 30-60 min after the subject departs from the pendulum [1,2], which is inconsistent with the pendulum being a simple harmonic oscillator that should rapidly return to simple motion once an outside influence is removed.

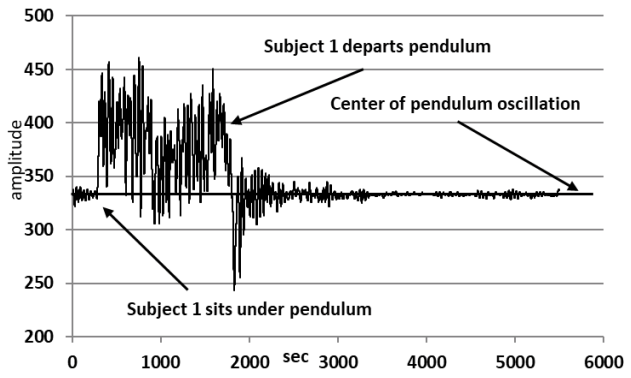

Figure 2: Pendulum effects exerted by Subject 1, a 'control subject'.

Experiments with Subject 2 focused on observing any differences in pendulum effects between Subject 2 sitting under the pendulum 'without mediation,' and Subject 2 sitting under the pendulum 'with meditation. Figure 3 shows the results of these two different meditative state experiments. The effects exerted by Subject 2 are different from Subject 1, both qualitatively and quantitively.

First consider Subject 2 'without meditation,' shown in Figure 3; and compare it with Subject 1 in Figure 2. An obvious difference is that the deflections from the 'center of oscillation' are much less with Subject 2 than with Subject 1, never being greater than 2.5 deg. Another substantial difference is after Subject 2 departs from the pendulum. Instead of being significantly diminished as in Figure 2, it continues nearly unabated compared to when Subject 2 was under the pendulum. The amplitudes of these post-subject effects are unprecedented, so represent a new phenomenon that could be related to 'subject mental states.'

This was followed by a Subject 2 experiment 'with meditation.' There was a dramatic difference compared to 'without meditation.' One difference was the deflection of the pendulum from its natural center of oscillation. Whereas 'without meditation' gave an unusually modest deflection, the experiment 'with meditation' gave a 7.5 deg deflection, which is the largest deflection ever observed among all experiments with all subjects. The residual effects after Subject 2 'with meditation' departed the pendulum are substantial, but less than the residual effects of 'without meditation.' The post-subject residual effects are similar to, but stronger than is observed with the Subject 1 control in Figure 2. It is important to say that the effects of Subject 2, both with and without meditation; are different from Subject 1, and accordingly different from many experiments with many 'normal' subjects.

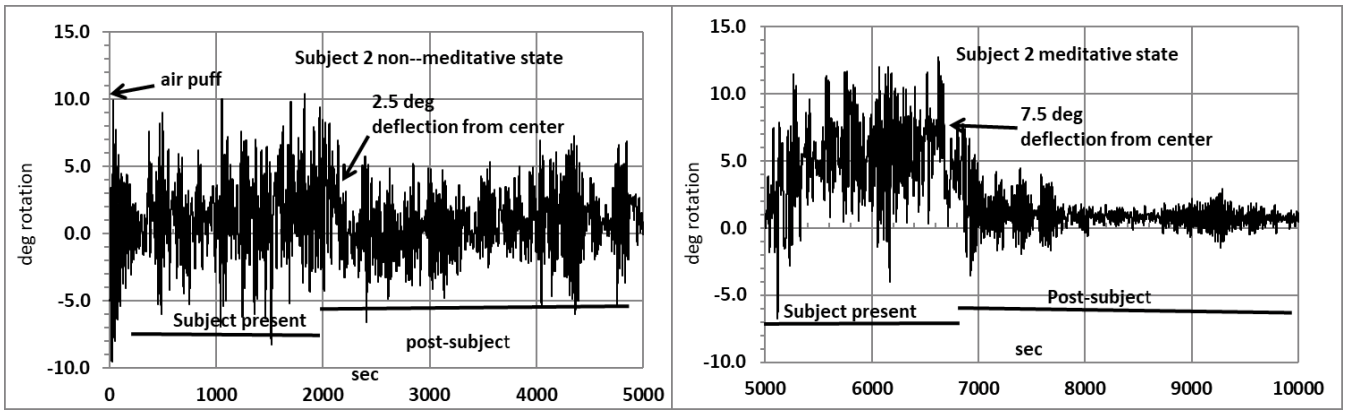

Figure 3: Subject 2 effects on pendulum motions. Subject 2 in a non-meditative state, and in a meditative state.

These experiments were repeated 10 days later, using conditions as close as possible to the first experiments. Figure 4 shows the replica experiment 'without meditation,' followed by the replica experiment 'with meditation.' Although the replica runs are not exactly the same as the original runs, they are similar. These results argue that the mental state of a subject sitting under the pendulum can have a substantial effect on the rotational motions of the pendulum. Moreover, these effects are replicable.

This was explored further by having Subject 1 and Subject 2 sit beside the pendulum instead of directly under it. The subjects were placed in a perpendicular orientation beside the pendulum, so the shoulder of the subject was 0.5 m away from the pendulum, with no body part closer than that from the pendulum. That places the cranium of the Subject even farther than that from the pendulum.

Figure 5 shows the effects of Subject 2, 'without meditation' while sitting beside the pendulum. This is followed by Subject 2, 'with meditation' while sitting beside the pendulum. The data show that the magnitudes of the effects on the pendulum are diminished; but are still significant.

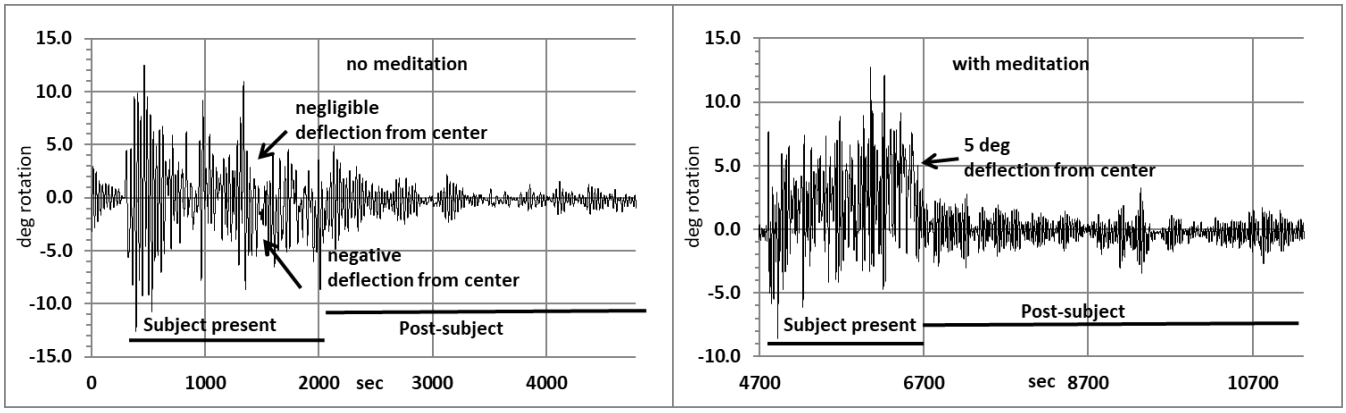

Figure 4: Repeat of Figure 3 experiment, 10 days later. Subject 2 without meditation and with meditation.

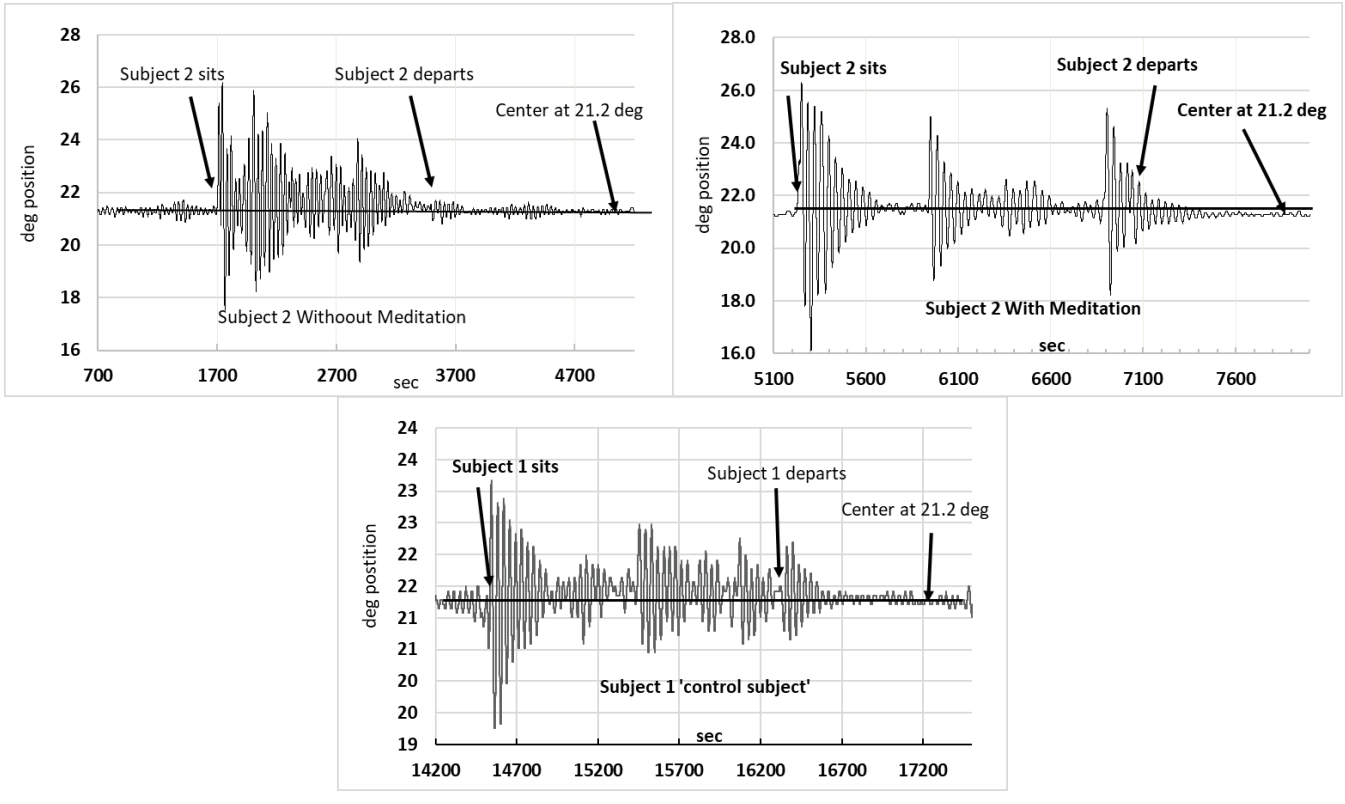

Figure 5: Subjects sitting beside the pendulum instead of under it.

These Subject 2 runs were followed by a Subject 1 'control subject' sitting beside the pendulum at the same distance as Subject 2. Figure 5 shows that Subject 1 also had significant effects on the pendulum, establishing that one does not have to be 'an adept meditator' to influence the pendulum from a distance. This argues that anyone who sits beside the pendulum will similarly influence its motion.

DISCUSSION

These experiments were designed to extend our knowledge of the effects of subjects on a torsion pendulum. Our earlier observations [1,2] of these effects suggested a possible 'human bioenergy field' of some kind. Others have repeated our experiments and have obtained similar experimental results. They attributed their results to cranial convection heat currents [3-5]. We have questioned the validity of those interpretations [6,7]. Results presented here were obtained using a subject who was a long-time (45 years) practitioner of a specific practice of meditation, called 'sound current meditation.' The subject was tested 'without meditation,' and 'with meditation.' The different mental states produced different effects, both qualitatively and quantitatively. The experiments were repeated 10 days later, with similar results.

A new type of experiment was employed to provide information related to cranial convection heat currents as being responsible for the subject-induced motions of the pendulum. Instead of the subjects being seated directly under the pendulum, they sat perpendicular with a shoulder 0.5 m away from the pendulum with crania being even farther away from the pendulum. Experiments both without meditation and with meditation were performed; and the results were compared with the subject sitting directly beneath the pendulum. The results obtained under the pendulum and beside the pendulum are qualitatively similar, being different mainly in the amplitudes of the responses. That is to say, effects were weaker beside the pendulum, but similar otherwise. To determine if the subject being an 'adept meditator' contributed to the effects, it was followed by a 'control subject' sitting at the same distance beside the pendulum. The effects exerted by the 'control subject' showed a reduced amplitude similar to the 'adept meditator' but otherwise similar to effects when directly under the pendulum. These results from beside the pendulum weaken the arguments that subject effects are solely due to cranial heat convection currents. Studies of the effect of distance on subject effects on the pendulum are in progress. Preliminary results suggest that subject effects remain substantial from as far 1.5-3 m.

These experiments were a first attempt to determine if a subject who was a highly experienced meditator would have effects on the pendulum than 'normal' subjects. The differences between the meditator and normal subjects were substantial, both without meditation and with meditation. This suggests that extensive meditation experience results in modifying brain function in a way that has effects on the pendulum oscillations. This appears to be a new way to study the effects of different mental states on nearby objects. The possibility that these effects are mediated by heat convection currents does not diminish the significance of the observations. The possibility that they could be mediated by other forms of energy should be considered. It suggests that subjects who are adept in achieving a variety of altered mental states may be contributors to further studies.

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