

# An Examination of Self-Reported Pain & Quantitative EEG Changes in Pranic Healing vs. Placebo Conditions: A Pilot Study

Jeffrey Tarrant, PhD, BCN, DCEP. University of Missouri-Columbia (dr.tarrant@hotmail.com; http://drjefftarrant.com)  
Neus Raines, PhD., Certified Pranic Healer. European University Business School, San Diego; (neus@pranichealing.com)

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**Objective:** to determine if there are any significant differences in self-reported pain and EEG (electro-encephalography) activity when subjects received a Pranic Healing session versus a placebo control.

**Methods:** Four subjects received two sessions, a week apart, during which they would either receive a Pranic Healing treatment or no treatment. Subjects were blind to which condition they received at the time of each session and consequently served as their own controls. Subjects completed consent forms and a pre-post questionnaire regarding current level of pain and discomfort. EEG recordings included a 5 minute baseline, a 25-30 minute recording during the treatment condition and a 5 minute post-session recording. Subjects returned to the lab a week later to repeat the process and receive the other treatment or condition.

## Results:

### Subjective Results:

**Pain:** subject 4 substantial pain reduction during treatment, 83%, vs. 17% reduction during control.

**Discomfort:** was reduced between 50% - 83% during treatment in **all subjects**, vs Control reduction between 0% - 50%.

**Tension:** subject 1, 2 and 3 experienced similar tension reduction in both sessions (50%).

Subject 4 tension was substantially reduced during the treatment session, 83%, and 0% during the control.

**Mobility:** no significant changes in both sessions.

### EEG Results:

#### Subjects EEG data for absolute power and coherence were compared to a normative database.

Figure 1: Deviant Z-scores Change Absolute Power Pre-Post

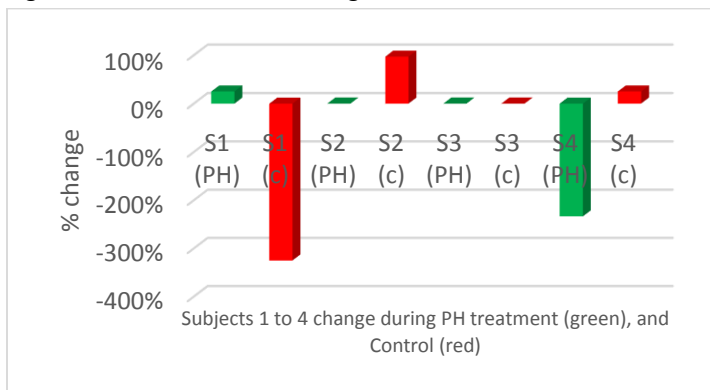
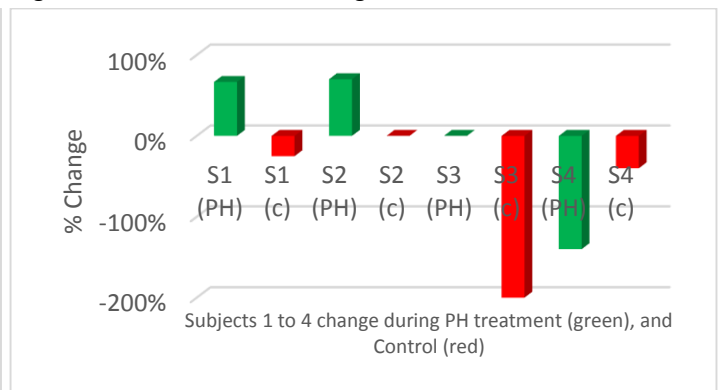


Figure 2: Deviant Z-scores Change Coherence Pre-Post



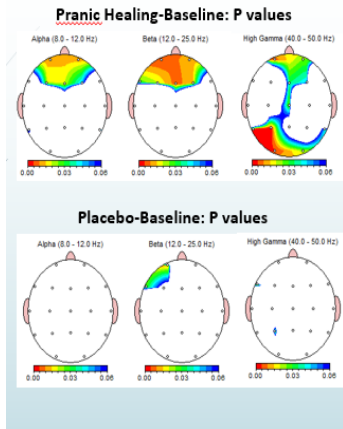
The number of variables that were significantly deviant ( $\pm 1.5$  standard deviations) was calculated for each recording. The change in deviant scores from pre to post Pranic Healing is displayed in green while the change from the placebo condition is displayed in red. It is clear that the brain's response to PH was significantly different than the placebo condition.

#### Subjects' treatment and control EEG data for relative power was compared to their baseline data.

The brighter the colors (yellow/orange/red), the higher the level of significance. For subject 1, there was clearly much more change than occurred during the placebo condition. For subject 4, the pattern of change for PH vs. placebo was quite different. The charts next to each brain image shows the actual values and the direction of change. Values

highlighted in red indicate that the treatment condition was higher than baseline while values highlighted in blue indicate that the control condition was high.

### Subject 1: Relative Power Changes



**SUBJECT 1 - PH Relative Power P Values**

Intrahemispheric: LEFT		
	ALPHA	BETA
FP1-LE	0.013	0.005
F3-LE	0.020	0.020
F7-LE	0.121	0.028
T5-LE	0.047	0.358

Intrahemispheric: RIGHT		
	ALPHA	BETA
FP2-LE	0.014	0.013
F4-LE	0.047	0.013
T6-LE	0.046	0.318

Intrahemispheric: CENTER		
	ALPHA	BETA
Fz-LE	0.020	0.007

**SUBJECT 1 - Placebo Relative Power P Values**

Intrahemispheric: LEFT		
	ALPHA	BETA
FP1-LE	0.388	0.012
F7-LE	0.985	0.030

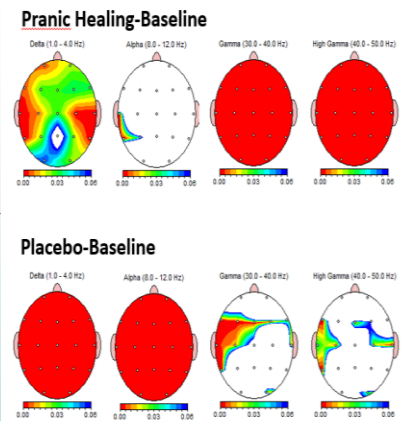
  

Intrahemispheric: RIGHT		
	ALPHA	BETA
	Null	Null

Intrahemispheric: CENTER		
	ALPHA	BETA
	Null	Null

### Subject 4: Relative Power Changes



**SUBJECT 4 - Relative Power P Values**

Intrahemispheric: LEFT			
	DELTA	ALPHA	HIGH BETA
FP1-LE	0.007	0.000	0.011
F3-LE	0.029	0.000	0.243
C3-LE	0.011	0.125	0.239
FP1-LE	0.023	0.041	0.000
C3-LE	0.054	0.349	0.014
F7-LE	0.007	0.021	0.001
T5-LE	0.000	0.002	0.000
T5-LE	0.000	0.001	0.000

Intrahemispheric: RIGHT			
	DELTA	ALPHA	HIGH BETA
FP2-LE	0.022	0.000	0.040
F4-LE	0.056	0.026	0.027
C4-LE	0.001	0.761	0.012
FP4-LE	0.023	0.400	0.001
C2-LE	0.024	0.102	0.006
F8-LE	0.032	0.503	0.034
T4-LE	0.000	0.138	0.001
T6-LE	0.001	0.184	0.000

Intrahemispheric: CENTER			
	DELTA	ALPHA	HIGH BETA
Fz-LE	0.020	0.041	0.120
Cz-LE	0.021	0.165	0.218
Pz-LE	0.063	0.069	0.000

**SUBJECT 4 - Placebo Relative Power P Values**

Intrahemispheric: LEFT			
	DELTA	ALPHA	HIGH BETA
FP1-LE	0.000	0.000	0.000
F3-LE	0.000	0.000	0.156
C3-LE	0.000	0.000	0.004
FP1-LE	0.000	0.000	0.126
C3-LE	0.000	0.000	0.004
O1-LE	0.000	0.000	0.004
F7-LE	0.000	0.000	0.000
T5-LE	0.000	0.000	0.070
T5-LE	0.000	0.002	0.007

Intrahemispheric: RIGHT			
	DELTA	ALPHA	HIGH BETA
FP2-LE	0.000	0.000	0.153
F4-LE	0.000	0.000	0.053
C4-LE	0.000	0.000	0.013
FP4-LE	0.000	0.000	0.002
O2-LE	0.000	0.000	0.000
F8-LE	0.000	0.000	0.204
T4-LE	0.000	0.000	0.064
T6-LE	0.000	0.000	0.001

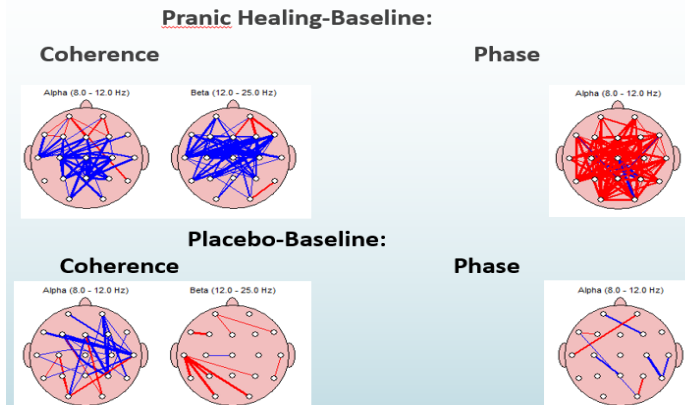
  

Intrahemispheric: CENTER			
	DELTA	ALPHA	HIGH BETA
Fz-LE	0.000	0.000	0.450
Cz-LE	0.001	0.000	0.007
Pz-LE	0.000	0.000	0.000

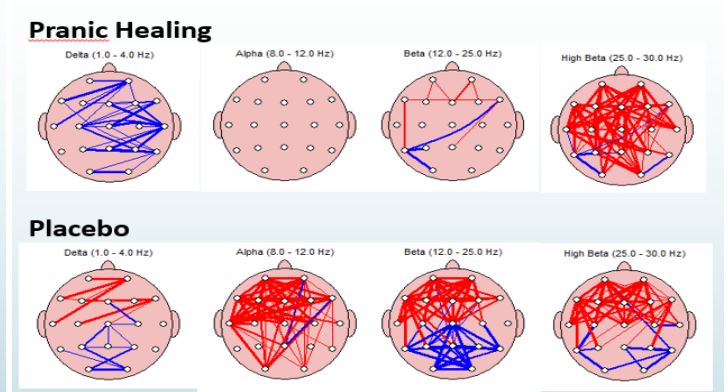
### Subjects' treatment and control EEG data for coherence and phase were compared to their baseline data.

Coherence and Phase are measurements of connectivity and speed of communication between brain regions. Significant changes from baseline for PH and placebo conditions are indicated by the presence of either red or blue lines in the images below. For coherence, blue lines indicate that the level of connectivity decreased during the treatment condition, while red lines indicate that connectivity increased. Blue lines for phase indicate that speed of communication became faster during the treatment condition while red lines indicate that the speed of communication slowed down.

### Subject 1: Coherence & Phase



### Subject 4: Coherence



**Conclusions:** Subjective results indicate that subjects discomfort was substantially reduced in all subjects during the PH treatment. Pain, mobility and tension improvements were different for each subject in both sessions. The EEG data from this study shows that the effect of PH is significantly different than the impact of a control/placebo condition. Changes among subjects were not consistent and may be related to a number of factors including client's baseline brainwave activity and receptivity to healing. Future studies are needed to increase number of subjects, extend the number of treatment sessions received and add additional measurements.

### References:

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