

## Research Article

# Investigation into the Physiological Effects of Nanometer Light Energized Water Study 2: Meridian and Acupuncture Data

Caitlin A Connor<sup>1\*</sup>, Melinda H Connor<sup>2</sup>, Jens Eickhoff<sup>3</sup> and  
Marsha Perry<sup>4</sup>

<sup>1</sup>Green Mountain Health Care, Complimentary Medicine, Akamai University, USA

<sup>2</sup>Research Methodologist, Earthsongs Holistic Consulting, USA

<sup>3</sup>Eickhoff Statistical Consulting, USA

<sup>4</sup>Earthsongs Holistic Consulting, USA

## Abstract

**Methods:** LifeWave X2O, beakers, beaker stands, and bottled water. Acupuncture measures include AcuGraph, Excel II and Electro point testing using a data logging multimeter, barometric pressure sensor, and air pressure sensor. The Bio-Well™ provided the Bio-electric-magnetic measures.

Measures were taken before and after drinking the water within the same 24-hour period. Two groups which were a randomized sample of 10 subjects each were made up of both men and women aged 21-90 with the goal of 10 subjects in each group completing the study. Once all 20 subjects had completed the study recruiting and consenting was stopped. Since this study focused on the impact of infused water, 10 subjects drank bottled water in group 1 and 10 subjects drank the infused version of the water.

Subjects were consented, testing was done. Participants drank the water while concurrent Near Infrared images were taken, and finally all of the tests were repeated in reverse order.

**\*Corresponding author:** Caitlin A Connor, Green Mountain Health Care, Complimentary Medicine, Akamai University, USA, E-mail: caitlin\_connor@mindspring.com

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**Results:** There was a significant change in multiple acupuncture points as measured by different devices, as well as significant changes across multiple organ systems as measured by the Bio-Well™.

**Conclusion:** There is an improvement in wellness measures with a documented trend toward improved body function within the active group. Improvement in organ function were observed in several major body systems using the Bio-Well™.

**Keywords:** AcuGraph; Bio-Well™ Data Logging Multimeter; HRV; Thought Technology Physiological test Suite; Water

## Introduction

This was a confirmation and discovery pilot study to determine the immediate physiological effects on individuals consuming water energized by light. The LifeWave X2O, which infuses water using focused light of specific wavelengths, was used.

## Background

New research has suggested the validity of research in water structure and function. Recent research in the area of photobiomodulation supports changes in water structure based on variations of light [1]. Water is vital to human life, it is critical to life functions [2], it holds cell walls [3] and DNA together [3], and the body is made of water [2]. Water can also be utilized to improve intake of nanoparticles, using it as a delivery method [4,5]. That has a particularly strong impact with poorly soluble compounds [6-8]. Given the combination of the effect of water directly, the potential ability to modify effects [9-11], and the potential for increased absorption of even poorly soluble compounds energized water has the potential ability to broadly effect health and longevity. In this study we have focused on specific wavelengths of light, and the effects in water on changes in human physiological measurements.

## Materials

LifeWave X2O, beakers, beaker stands, and bottled water. Acupuncture measures include AcuGraph, Excel II and Electro point testing using a data logging multimeter, barometric pressure sensor, and air pressure sensor. Thought Technology Infinity Physiology Suite including HRV, EEG, EMG, TEMP, Galvanic Skin Response and Blood pressure. Vitals included Temp, pulse, respiration, blood pressure and O2saturation. Interstitial testing included weight, kCal, BMI, % muscle, % fat, visceral fat and body age. The Bio-Well™ provided the Bioelectric-magnetic measures and the Sit-Stand test was done to test physicality. And near infrared images were taken before, during and after drinking the water. Two computer questionnaires: Living to 100 and Mental Age.

## Thought Technology BioGraph Infiniti Physiology Suite

Complete Thought Technology IS7910 Biograph Infinity Physiology Suite testing including EKG, temp, galvanic skin response, blood volume pulse, respiration and EMG measures were taken. CardioPro SA7597 Infinity HRV analysis software was used to analyze measures.

Three 3-minute measures were taken: prior, during and post drinking the energized water. Analysis was done with CardioPro software and measures panel was loaded into spread sheets for additional statistical analysis.

### Bio-Well

Bio-Well 3.0, with 3.0 Bio-Well software.

### Near Infrared Photos

FLIR One Pro LT iOS Pro-Grade thermal camera for smart phones. High resolution IR images with 1440 by 1080 visual resolution and 80 by 60 thermal resolution accuracy is  $\pm 3^{\circ}\text{C}$  or  $\pm 5\%$  when unit is within  $15^{\circ}\text{C}$  to  $35^{\circ}\text{C}$ . And scene is within  $5^{\circ}\text{C}$  to  $120^{\circ}\text{C}$ .

### Omron Body Composition and Weight Scale (2021)

Made by Omron Healthcare in 2021, the HBF-514C Body Composition and Weight Scale has seven measures available: Body fat %, Body Mass Index, Skeletal Muscle, Resting Metabolism, Visceral fat, Body age, weight. Measures for this study include original weight, body fat and body age.

### Vitals

The following vitals measures were taken including Pulse Oximeter, Blood Pressure (Sphygmomanometer Manual Arm Blood Pressure Monitor BP Cuff Gauge tester Machine), temperature and respiration.

### Point Measures

The point measures were taken using an AcuGraph, a Pointer Excel II LT, a VIVOSUN digital indoor thermometer hydrometer calibrated humidity sensor, an EXTECH Instruments MultiLog 720 True RMS, a CE Digital manometer LCD display dual port air pressure gas gauge meter and a Vivosun digital indoor thermometer hydrometer humidity sensor.

### Questionnaires

The Living to 100 Life Expectancy Calculator [12] and Mental Age Test [13].

## Methods

Ethics approval was NAOEP/IJHC 08-03-23-8. A randomized controlled sample of 20 individuals, men and women age 21-81 were recruited, consented and baseline information taken prior to study scheduled date. On scheduled date, participants were on-site for approximately 2 hours. Defined measures were taken and then while attached to HRV system participants drank 16 oz of one of two versions of water energized by the LifeWave X20 Version I. Base water product used was commercial distilled water lightly chilled prior to device treatment. Water was treated using the device protocol defined by the developers. Bottled distilled water was placed in beakers on a stand with light panels projecting into the water for approximately 45 minutes. The water was removed and poured into a solo cup immediately prior to the participant drinking the water. It was not allowed to sit between. Group one had the energized water and group two had the untreated distilled water. The untreated water was poured into the solo cups immediately before being handed to the research participant. Duplicate measures were then taken.

## Protocol sequence

When individuals decided to participate in the study they were scheduled to come to the lab at a specific time. At the time scheduled individuals arrived, were given the paperwork, and once it was signed both by the participant and a study team member they were asked to complete the Mental Age and Living to 100 questionnaires, which were taken online. Demographic measures were also taken. Once the questionnaires were completed weight with interstitial age was taken. This was done using the Omron Healthcare in 2021, the HBF-514C Body Composition and Weight Scale has seven measures available: Body fat %, Body Mass Index, Skeletal Muscle, Resting Metabolism, Visceral fat, Body age, weight. Measures for this study included original weight, body fat and body age. Once the weight with interstitial age was completed vitals, including blood pressure, temperature, and  $\text{o}_2$  saturation were taken. Once the vitals was completed a sit/stand test was done, where participants were asked to sit and then stand repeatedly as often as they could within a 2-minute period. The number was counted and then written down on the results sheet.

After the sit/stand test was completed Bioelectric point measures were completed on acupuncture points using multiple test devices. One of these devices was a Data Logging Multimeter/VoltMeter, model ML720, which was manufactured by Extech Instruments. The AC bandwidth is from 40Hz to 20kHz. The AC accuracy is  $\pm 0.5\%$  and DC accuracy is  $\pm .08\%$ . The sampling rate was 0.05seconds(50msec). As part of this measure over all temp and barometric pressure of the ambient environment were also taken, as was the air pressure against the skin so that the same measure of pressure would be used at every data point. An AcuGraph, and a Pointer Excel II LT were the other two devices used. A Bio-Well™ measure was also done. At this point participants were wired to the physiology suite, Complete Thought Technology IS7910 Biograph Infinity Physiology Suite testing including ekg, temp, galvanic skin response, blood volume pulse, respiration and emg measures. An initial 3-minute round of data was taken before they were asked to drink the water while the physiology suite took another 3-minute round of data and their infrared image was taken 4 times at intervals during that 3-minute round. Following this all of the measures were repeated in reverse order.

## Statistical Analysis

All outcome parameters were summarized using means and standard deviations or in terms of medians for non-normally distributed data. Changes from pre- to post-test assessment within each group were evaluate using a paired t-test while changes between groups were evaluated using a two-sample t-test. Non-normally distributed outcomes were analyzed using a nonparametric Wilcoxon Signed rank test for evaluating changes from pre- to post assessments within arms and a Wilcoxon Rank sum test for comparing changes between arms. All reported p-values are two-sided and  $P < 0.05$  was used to define statistical significance. Analysis were conducted using the intent-to-treat population.

## Results

### Demographics

The age range for this study was 35-83, with the average age being 63. The population was  $\frac{1}{4}$  men and the rest were women.

		Baseline	Post-Test	Change from Baseline		
Parameter	Activerm	Mean (SD)	Mean (SD)	Mean (SD)	p-value (Change from baseline within Arm)	p-value (Comparisons change from baseline between Arms)
L SP 3	Active	36.8 (21.6)	49.5 (32.3)	12.7 (22.8)	0.112	0.034
L SP 3	Control	58.8 (20.5)	50.6 (25.6)	-8.2 (17.7)	0.178	
R SP 3	Active	35 (20.1)	38.2 (26.2)	3.2 (11.7)	0.408	0.412
R SP 3	Control	40 (17.4)	49.2 (23.9)	9.2 (19.3)	0.166	
L ST 42	Active	33 (22.1)	41.2 (26.3)	8.2 (28.9)	0.392	0.808
L ST 42	Control	43 (24.7)	55.4 (43.8)	12.4 (45.5)	0.411	
R ST 42	Active	36.2 (25.3)	46 (34.6)	9.8 (24.4)	0.235	0.973
R ST 42	Control	42.2 (26.1)	52.6 (56)	10.4 (50.3)	0.529	
L LV 3	Active	31 (15.1)	59.4 (50.8)	28.4 (44.6)	0.075	0.025
L LV 3	Control	59.4 (34.6)	46 (26.4)	-13.4 (30.4)	0.197	
R LV 3	Active	37.1 (22.4)	47.8 (33.4)	10.7 (23.9)	0.191	0.260
R LV 3	Control	51.6 (26.4)	51.4 (31.3)	-0.2 (17.5)	0.972	

Table 1: Descriptive summary and analysis of changes from baseline (visit 1) for AcuGraph outcomes.

		Baseline	Post-Test	Change from Baseline		
Parameter	Activerm	Mean (SD)	Mean (SD)	Mean (SD)	p-value (Change from baseline within Arm)	p-value (Comparisons change from baseline between Arms)
L GB 40	Active	25.2 (21.7)	31.4 (39.5)	6.2 (22.6)	0.408	0.029
L GB 40	Control	46.6 (24.8)	28.6 (13.5)	-18 (23.1)	0.036	
R GB 40	Active	29.4 (20.1)	33.2 (28.7)	3.8 (27.3)	0.670	0.443
R GB 40	Control	39.6 (25)	34.2 (17.3)	-5.4 (25.1)	0.513	
L KD 3	Active	43.9 (37.4)	41 (34.7)	-2.9 (21.7)	0.683	0.064
L KD 3	Control	71.6 (37.5)	48.4 (24.3)	-23.2 (24.3)	0.014	
R KD 3	Active	36.2 (24.4)	35.6 (27.1)	-0.6 (23.5)	0.937	0.292
R KD 3	Control	65.8 (38.8)	54.6 (28.2)	-11.2 (20.1)	0.112	
L UB 64	Active	32.2 (22.1)	37.6 (34.5)	5.4 (19.9)	0.413	0.344
L UB 64	Control	40.4 (19.5)	38.6 (20.7)	-1.8 (12.3)	0.656	
R UB 64	Active	30.8 (22.7)	38.6 (25.5)	7.8 (24.9)	0.347	0.149
R UB 64	Control	46.2 (27.5)	39.2 (22.6)	-7 (18.6)	0.265	

Table 2: Descriptive summary and analysis of changes from baseline (visit 1) for AcuGraph outcomes.

Acupuncture point measures

Acupuncture measures included AcuGraph, Excel II and Electro point testing using a data logging multimeter, barometric pressure sensor, and air pressure sensor. Areas of significance were as follows:

AcuGraph showed between group significance at Left Spleen 3 (SP 3) (Table 1), Left Liver 3 (LV 3) (Table 1), and Left Gall Bladder 40 (GB 40) (Table 2), with near significance at Left Kidney 3 (KD 3) (Table 2). Left SP 3 was p=0.034 (Table 1), Left LV 3 was p=0.025 (Table 1), Left KD 3 was p=0.064 (Table 2), and Left GB 40 was p=0.029 (Table 2). AcuGraph showed significance within group at Left Kidney 3 (KD 3), p=0.014 (Table 1), and Left Gall Bladder 40 (GB 40), p=0.036 (Table 1).

Excel II only showed within group significance at Right Stomach 42 (ST 42) increase in the active group, p=0.036 (Table 3), with a near significance decrease at Right San Jiao (SJ 4), p=0.066 (Table 3), in the control group.

Data logging multimeter only showed between group significance at the An Mian point at p=0.022 (Table 4), with a within group near significant decrease in the active group, p=0.063 (Table 4). The two within group significant changes were a significant decrease at DU 20, p=0.047 (Table 4), in the active group and a significant increase at Pericardium 6 (PC 6), p=0.057 (Table 4), in the control group.

Bioelectric-magnetic Measures

The Bio-Well™ provided the information and areas of statistical relevance were as follows:

		Baseline	Post-Test	Change from Baseline		
Parameter	Activerm	Mean (SD)	Mean (SD)	Mean (SD)	p-value (Change from baseline within Arm)	p-value (Comparisons change from baseline between Arms)
R SJ 4	Active	113 (145.4)	89.8 (124.9)	-4.1 (211.1)	0.96028018535	0.477252545817088
R SJ 4	Control	126.8 (155.1)	75 (102.4)	-60.2 (84.9)	0.06589922196	
L SJ 4	Active	48.9 (69)	74.7 (128.4)	34.1 (142)	0.49158001445	0.831641484399954
L SJ 4	Control	63.2 (84.7)	84.5 (111.8)	21.3 (116.6)	0.57754311185	
R PC 7	Active	122.3 (95)	59.5 (59.3)	-49.4 (96.1)	0.22266141559	0.27334799336873
R PC 7	Control	104.2 (67.8)	97.5 (61.6)	-7.6 (48.6)	0.65327437707	
L PC 7	Active	103.4 (123)	106.6 (89.5)	-1.9 (60.5)	0.92766577628	0.502090407775653
L PC 7	Control	102.3 (79.1)	84.5 (58.8)	-17.8 (39.5)	0.18836622619	
L SP 3	Active	80.9 (97.8)	91 (78.6)	10.1 (34.3)	0.37616671413	0.0956231496265281
L SP 3	Control	114.6 (75.5)	92.4 (62.4)	-22.2 (46.9)	0.16835341856	
R SP 3	Active	103.7 (103.8)	106.1 (109.7)	1 (47)	0.96043760186	0.921677541293724
R SP 3	Control	81.4 (30.4)	87.4 (76.2)	4.7 (80.3)	0.86591091981	
R ST 42	Active	31.2 (30.7)	50.8 (40.7)	24.8 (21.4)	0.03595796159	0.955656945092169
R ST 42	Control	34.3 (34.8)	52.4 (72)	22.7 (90.9)	0.47578194539	
L ST 42	Active	34.1 (45.3)	34 (40.5)	-0.1 (33.4)	0.99264535929	0.778724276425787
L ST 42	Control	40.6 (36.3)	36.9 (31.2)	-3.7 (21.9)	0.60608495142	

**Table 3:** Descriptive summary and analysis of changes from baseline (visit 1) for Excell II outcomes.

		Baseline	Post-Test	Change from Baseline		
Parameter	Activerm	Mean (SD)	Mean (SD)	Mean (SD)	p-value (Change from baseline within Arm)	p-value (Comparisons change from baseline between Arms)
DU 20	Active	11.8 (5.3)	9.4 (3.3)	-2.4 (3.3)	0.047	0.301
DU 20	Control	11 (4.5)	11.2 (4.5)	0.2 (7)	0.930	
PC 6	Active	7.3 (0.7)	7.6 (0.7)	0.3 (1.1)	0.394	0.124
PC 6	Control	7.5 (1.2)	9.1 (2.3)	1.6 (2.3)	0.057	
KD 1	Active	9.7 (5.1)	8 (0.7)	-1.7 (5.5)	0.350	0.243
KD 1	Control	8.3 (1.8)	11.2 (10.9)	2.9 (10.7)	0.415	
An Mian	Active	11.2 (2.8)	9.2 (1.2)	-2 (3)	0.063	0.022
An Mian	Control	7.8 (1.2)	8.6 (1.3)	0.8 (1.9)	0.210	

**Table 4:** Descriptive summary and analysis of changes from baseline (visit 1) for Data Logging Multimeter outcomes.

			Baseline	Post-Test
Finger	Location	Parameter	Mean (SD)	Mean (SD)
L_Fore_Finger	2.Sigmoidcolon	Area	1452.3 (257.6)	1539.3 (229)
L_Fore_Finger	2.Sigmoidcolon	Outer contour length	134.3 (9.8)	143.7 (12.5)
L_Fore_Finger	2.Sigmoidcolon	Outer contour radius	76 (4.9)	78.3 (2.9)
L_Fore_Finger	3.Rectum	Outer contour radius	90.7 (6.2)	92.8 (6.9)
L_Fore_Finger	3.Rectum,Prostate	Intensity	96.1 (2.7)	94.8 (4.1)
L_Fore_Finger	4.Coccyx,Pelvisminorzone	Area	1107.3 (143.8)	1036.7 (114.7)
L_Fore_Finger	5.Sacrum	Energy	0.6 (0.1)	0.5 (0)
L_Fore_Finger	5.Sacrum	Energy (C),	6.8 (0.9)	6.3 (0.6)
L_Fore_Finger	8.Spine-cervicalzone	EC	1.6 (0.1)	1.6 (0.1)
L_Little_Finger	3.Respiratorysystem	FC	1.4 (0)	1.5 (0.1)

L_Little_Finger	3.Respiratorysystem	EC	2 (0.2)	2.1 (0.3)
L_Little_Finger	3.Respiratorysystem	Inner contour length	152.8 (25.3)	154.4 (22.3)
L_Little_Finger	3.Respiratorysystem	Inner contour radius	46.4 (8.5)	46.9 (7.7)
L_Little_Finger	3.Respiratorysystem	Outer contour length	301.7 (25.5)	322 (12.8)
L_Little_Finger	3.Respiratorysystem	Outer contour radius	82.6 (6.5)	84.1 (2.7)
L_Little_Finger	3.Respiratorysystem	Inner area	1714.3 (585.5)	1754.5 (558.2)
L_Middle_Finger	2.Leftkidney	Intensity	95 (4.5)	93.2 (4.4)
L_Middle_Finger	3.Liver	FC	0.5 (0.1)	0.5 (0)
L_Middle_Finger	3.Liver	Intensity	94.4 (4.7)	92.7 (3.4)
L_Middle_Finger	3.Liver	Energy	0.6 (0.1)	0.6 (0.1)
L_Middle_Finger	3.Liver	Energy (C),	7.1 (0.9)	6.7 (0.7)
L_Middle_Finger	4.Abdominalzone	FC	0.9 (0.1)	1 (0.1)
L_Middle_Finger	4.Abdominalzone	Outer contour length	174.9 (10.8)	182.4 (9)

**Table 5:** Descriptive summary, baseline (visit 1), and Post-Test for BioWell outcomes in the Active group.

			Baseline	Post-Test
Finger	Location	Parameter	Mean (SD)	Mean (SD)
L_Middle_Finger	5.Immunesystem	FC	0.3 (0)	0.4 (0.1)
L_Middle_Finger	5.Immunesystem	Outer contour length	62.9 (2.4)	70 (5)
L_Ring_Finger	1.Hypothalamus	Area	1186.1 (108.9)	1117.9 (92.5)
L_Ring_Finger	1.Hypothalamus	FC	0.7 (0.1)	0.6 (0.1)
L_Ring_Finger	1.Hypothalamus	EC	1.9 (0.2)	1.6 (0.1)
L_Ring_Finger	1.Hypothalamus	Inner contour length	60.7 (7.6)	67.1 (4.1)
L_Ring_Finger	1.Hypothalamus	Inner contour radius	43.7 (5.7)	48.1 (2.9)
L_Ring_Finger	1.Hypothalamus	Norm area	2.2 (0.6)	1.6 (0.2)
L_Ring_Finger	1.Hypothalamus	Intensity	94 (3.9)	90.3 (3.6)
L_Ring_Finger	1.Hypothalamus	Inner area	584.2 (149.3)	699 (84.1)
L_Ring_Finger	1.Hypothalamus	Inner noise (%)	37.2 (10.7)	29 (7)
L_Ring_Finger	1.Hypothalamus	Energy	0.5 (0.1)	0.4 (0)
L_Ring_Finger	1.Hypothalamus	Energy (C),	4.9 (0.6)	4.4 (0.4)
L_Ring_Finger	2.Nervoussystem	FC	0.4 (0.1)	0.3 (0)
L_Ring_Finger	2.Nervoussystem	EC	2 (0.3)	1.8 (0.2)
L_Ring_Finger	2.Nervoussystem	Inner contour radius	41.5 (4.7)	44.9 (2)
L_Ring_Finger	3.Spleen	Inner contour length	59.8 (5.3)	64 (3.6)
L_Ring_Finger	3.Spleen	Inner contour radius	42.1 (4.4)	46 (2.7)
L_Ring_Finger	3.Spleen	Norm area	2.4 (0.8)	1.8 (0.3)
L_Ring_Finger	3.Spleen	Intensity	94 (4)	91.3 (3.7)
L_Ring_Finger	3.Spleen	Inner area	538.8 (112.7)	641.1 (70.6)
L_Ring_Finger	3.Spleen	Inner noise (%)	36.1 (8.9)	27.7 (6.7)
L_Ring_Finger	4.Urogenitalsystem	EC	2 (0.2)	1.9 (0.1)
L_Ring_Finger	4.Urogenitalsystem	Inner contour length	131.7 (19.6)	147.8 (13)
L_Ring_Finger	4.Urogenitalsystem	Inner contour radius	46.9 (8.4)	53.3 (4.7)
L_Ring_Finger	4.Urogenitalsystem	Outer contour radius	81.5 (6.5)	87.8 (3)
L_Ring_Finger	4.Urogenitalsystem	Inner area	1458.6 (519.6)	1844.5 (313.9)
L_Ring_Finger	4.Urogenitalsystem	Inner noise	422.2 (84.6)	352.5 (86.4)
L_Ring_Finger	4.Urogenitalsystem	Inner noise (%)	32.3 (11.6)	20.2 (7.9)

**Table 6:** Descriptive summary, baseline (visit 1), and Post-Test for BioWell outcomes in the Active group.

There were a large number of significant changes in the Bio-Well™ measures (Tables 5-18). The significant areas of change can be grouped into spine, brain/nervous system, hormone system, immune system, a few organs, specifically kidney, liver, lungs, and gall bladder and face (Tables 5-18). Between them these areas effect most systems in the body. Most of these groupings had significance in multiple sub-areas.

			Baseline	Post-Test
Finger	Location	Parameter	Mean (SD)	Mean (SD)
L_Ring_Finger	5.Adrenal	EC	1.9 (0.2)	1.7 (0.1)
L_Ring_Finger	5.Adrenal	Inner contour length	36.4 (4.9)	42 (1.8)
L_Ring_Finger	5.Adrenal	Inner contour radius	44.5 (6.2)	50 (3.9)
L_Ring_Finger	5.Adrenal	Outer contour radius	78.2 (6.1)	81.6 (4.7)
L_Ring_Finger	5.Adrenal	Inner area	339.6 (95.8)	425.4 (61.9)
L_Ring_Finger	5.Adrenal	Inner noise (%)	37.1 (11.2)	30 (7.4)
L_Ring_Finger	6.Pancreas	Inner contour length	33 (3.2)	37.1 (2.8)
L_Ring_Finger	6.Pancreas	Inner contour radius	42.4 (4.5)	46.7 (3.2)
L_Ring_Finger	6.Pancreas	Inner area	310.8 (68.4)	373.9 (51.5)
L_Ring_Finger	6.Pancreas	Inner noise (%)	37.7 (9.2)	28.8 (7.1)
L_Ring_Finger	7.Thyroidgland	Inner contour radius	42.4 (4.3)	46.2 (2.6)
L_Ring_Finger	7.Thyroidgland	Norm area	2.1 (0.5)	1.8 (0.5)
L_Ring_Finger	7.Thyroidgland	Intensity	93.9 (3.3)	90.6 (3.6)
L_Ring_Finger	7.Thyroidgland	Inner area	478.4 (101.2)	572.7 (70.9)
L_Ring_Finger	7.Thyroidgland	Inner noise (%)	33.7 (8.6)	28.4 (5.5)
L_Ring_Finger	8.Pituitarygland	EC	1.8 (0.2)	1.7 (0.2)
L_Ring_Finger	8.Pituitarygland	Inner contour length	61.9 (8.6)	69.1 (4.2)
L_Ring_Finger	8.Pituitarygland	Inner contour radius	44.2 (5.7)	49 (2.5)
L_Ring_Finger	8.Pituitarygland	Outer contour radius	72.3 (4.4)	76 (1.9)
L_Ring_Finger	8.Pituitarygland	Norm area	2.1 (0.4)	1.7 (0.2)
L_Ring_Finger	8.Pituitarygland	Intensity	95.1 (3)	90.9 (2.9)
L_Ring_Finger	8.Pituitarygland	Inner area	594.8 (152.2)	723.2 (72.9)
L_Ring_Finger	8.Pituitarygland	Inner noise (%)	35 (9.1)	28.6 (6)
L_Ring_Finger	9.Epiphysis	EC	1.8 (0.2)	1.6 (0.2)
L_Ring_Finger	9.Epiphysis	Inner contour length	154.8 (23.1)	171.6 (13.9)

L_Ring_Finger	9.Epiphysis	Inner contour radius	45.4 (8)	52 (4.4)
L_Ring_Finger	9.Epiphysis	Norm area	2 (0.5)	1.4 (0.3)
L_Ring_Finger	9.Epiphysis	Inner area	1649.1 (593.3)	2115.4 (352.8)
L_Ring_Finger	9.Epiphysis	Inner noise (%)	33.2 (10.5)	25.1 (5.8)

Table 7: Descriptive summary, baseline (visit 1), and Post-Test for BioWell outcomes in the Active group.

			Baseline	Post-Test
Finger	Location	Parameter	Mean (SD)	Mean (SD)
L_Ring_Finger	Wholeimage	EC	2 (0.1)	1.9 (0.1)
L_Ring_Finger	Wholeimage	Inner contour length	364.4 (41.3)	403.2 (28)
L_Ring_Finger	Wholeimage	Inner contour radius	44.4 (6.1)	49.7 (3.4)
L_Ring_Finger	Wholeimage	Norm area	2.2 (0.6)	1.7 (0.3)
L_Ring_Finger	Wholeimage	Intensity	94.9 (2.7)	91.9 (2.6)
L_Ring_Finger	Wholeimage	Inner noise (%)	33.6 (9.2)	25.3 (5.8)
L_Thumb	4.Thyroidgland,Throat,Larynx,Trachea	Outer contour length	356.1 (24.9)	369.5 (23.6)
R_Fore_Finger	1.Spine-cervical-zone	Inner contour length	74.2 (7.2)	70 (6.6)
R_Fore_Finger	1.Spine-cervical-zone	Inner contour radius	53.4 (5.3)	51.1 (3.9)
R_Fore_Finger	1.Spine-cervical-zone	Norm area	1.2 (0.2)	1.4 (0.3)
R_Fore_Finger	1.Spine-cervical-zone	Inner area	870.7 (165)	795.9 (123.1)
R_Fore_Finger	2.Spine-thoraxzone	Norm area	1.3 (0.4)	1.5 (0.5)
R_Fore_Finger	3.Spine-lumbarzone	Inner contour length	84 (9)	78.8 (5.2)
R_Fore_Finger	3.Spine-lumbarzone	Inner contour radius	52.4 (5.5)	49.9 (4)
R_Fore_Finger	3.Spine-lumbarzone	Norm area	1.4 (0.5)	1.6 (0.4)
R_Fore_Finger	4.Sacrum,Prostate	Inner contour length	72.5 (8.1)	64.6 (4.9)
R_Fore_Finger	4.Sacrum,Prostate	Inner contour radius	63 (6.1)	56.2 (4.3)
R_Fore_Finger	4.Sacrum,Prostate	Inner area	1018.8 (200.9)	803.5 (128.5)
R_Fore_Finger	5.Coccyx,Pelvis-minorzone,Prostate	Inner contour length	47.4 (4.6)	40.2 (2.7)
R_Fore_Finger	5.Coccyx,Pelvis-minorzone,Prostate	Inner contour radius	66.3 (5.5)	58.8 (5)
R_Fore_Finger	5.Coccyx,Pelvis-minorzone,Prostate	Outer contour radius	104.1 (3.4)	98 (5.2)



R_Fore_Finger	5.Coccyx,Pelvis-minorzone,Prostate	Norm area	1.6 (0.4)	2 (0.3)
R_Fore_Finger	5.Coccyx,Pelvis-minorzone,Prostate	Inner area	729 (122.1)	562 (102.5)
R_Fore_Finger	6.Blindgut	Inner contour radius	58.9 (6.9)	56 (5.1)
R_Fore_Finger	6.Blindgut	Inner area	1212 (271)	1095.2 (186)
R_Fore_Finger	7.Appendix	Inner contour radius	52.2 (5.3)	50.4 (4)
R_Fore_Finger	9.Transversecolon	EC	1.5 (0.1)	1.6 (0.1)
R_Fore_Finger	9.Transversecolon	Inner contour length	258.9 (25)	244.5 (21.9)
R_Fore_Finger	9.Transversecolon	Norm area	1 (0.2)	1.1 (0.2)
R_Fore_Finger	9.Transversecolon	Inner area	3831.5 (813)	3383 (599.3)
R_Fore_Finger	9.Transversecolon	Inner noise (%)	14.9 (5.4)	18.2 (6.7)

**Table 8:** Descriptive summary, baseline (visit 1), and Post-Test for BioWell outcomes in the Active group.

			Baseline	Post-Test
Finger	Location	Parameter	Mean (SD)	Mean (SD)
R_Fore_Finger	Wholeimage	EC	1.7 (0.1)	1.8 (0.1)
R_Fore_Finger	Wholeimage	Inner contour length	452 (40.4)	429.5 (33.9)
R_Fore_Finger	Wholeimage	Inner contour radius	56.4 (5.8)	53.7 (4.5)
R_Fore_Finger	Wholeimage	Norm area	1.3 (0.2)	1.4 (0.2)
R_Fore_Finger	Wholeimage	Inner area	10220.4 (2029.6)	9217.5 (1487.2)
R_Fore_Finger	Wholeimage	Inner noise (%)	15 (4.9)	17.9 (5.8)
R_Little_Finger	2.Ileum	FC	0.8 (0.1)	0.9 (0.1)
R_Little_Finger	2.Ileum	Outer contour length	133.5 (8)	142 (11.3)
R_Middle_Finger	2.Immunessystem	FC	0.3 (0)	0.4 (0.1)
R_Middle_Finger	2.Immunessystem	EC	1.7 (0.2)	1.9 (0.2)
R_Middle_Finger	2.Immunessystem	Outer contour length	60.2 (5.2)	66.8 (5.1)
R_Middle_Finger	2.Immunessystem	Outer contour radius	72.4 (2.9)	74.4 (2.4)
R_Middle_Finger	3.Gallbladder	EC	1.7 (0.2)	1.8 (0.1)
R_Middle_Finger	3.Gallbladder	Outer contour length	172 (9.5)	182.5 (7)
R_Ring_Finger	1.Pituitary-gland	FC	0.6 (0)	0.6 (0)

R_Ring_Finger	6.Spleen	Area	1141.7 (100.7)	1232.6 (103.4)
R_Ring_Finger	6.Spleen	Area (C),	0.2 (0.3)	0.4 (0.3)
R_Thumb	8.Cerebral-zone(cortex)	Area	2758.1 (293.9)	2626.9 (294)
R_Thumb	8.Cerebral-zone(cortex)	Area (C),	0 (0.3)	-0.2 (0.3)

**Table 9:** Descriptive summary, baseline (visit 1), and Post-Test for BioWell outcomes in the Active group.

			Change from Baseline
Finger	Location	Parameter	Mean (SD)
L_Fore_Finger	2.Sigmoidcolon	Area	87 (126.2)
L_Fore_Finger	2.Sigmoidcolon	Outer contour length	9.4 (13.3)
L_Fore_Finger	2.Sigmoidcolon	Outer contour radius	2.3 (3.2)
L_Fore_Finger	3.Rectum	Outer contour radius	2.1 (1.2)
L_Fore_Finger	3.Rectum,Prostate	Intensity	-1.4 (2)
L_Fore_Finger	4.Coccyx,Pelvisminorzone	Area	-70.7 (73.1)
L_Fore_Finger	5.Sacrum	Energy	0 (0)
L_Fore_Finger	5.Sacrum	Energy (C),	-0.5 (0.3)
L_Fore_Finger	8.Spine-cervicalzone	EC	0 (0.2)

**Table 10:** Descriptive summary and Changes from baseline (visit 1) for BioWell outcomes in the Active group.

			Change from Baseline
Finger	Location	Parameter	Mean (SD)
L_Fore_Finger	2.Sigmoidcolon	Area	87 (126.2)
L_Fore_Finger	2.Sigmoidcolon	Outer contour length	9.4 (13.3)
L_Fore_Finger	2.Sigmoidcolon	Outer contour radius	2.3 (3.2)
L_Fore_Finger	3.Rectum	Outer contour radius	2.1 (1.2)
L_Fore_Finger	3.Rectum,Prostate	Intensity	-1.4 (2)
L_Fore_Finger	4.Coccyx,Pelvisminorzone	Area	-70.7 (73.1)
L_Fore_Finger	5.Sacrum	Energy	0 (0)
L_Fore_Finger	5.Sacrum	Energy (C),	-0.5 (0.3)
L_Fore_Finger	8.Spine-cervicalzone	EC	0 (0.2)
L_Little_Finger	3.Respiratory-system	FC	0.1 (0)
L_Little_Finger	3.Respiratory-system	EC	0.1 (0.1)
L_Little_Finger	3.Respiratory-system	Inner contour length	1.6 (9.2)

L_Little_Finger	3.Respiratory-system	Inner contour radius	0.5 (2.8)
L_Little_Finger	3.Respiratory-system	Outer contour length	20.4 (14)
L_Little_Finger	3.Respiratory-system	Outer contour radius	1.5 (3.9)
L_Little_Finger	3.Respiratory-system	Inner area	40.3 (188.9)
L_Middle_Finger	2.Leftkidney	Intensity	-1.8 (2.6)
L_Middle_Finger	3.Liver	FC	0 (0.1)
L_Middle_Finger	3.Liver	Intensity	-1.7 (4.4)
L_Middle_Finger	3.Liver	Energy	0 (0)
L_Middle_Finger	3.Liver	Energy (C),	-0.4 (0.6)
L_Middle_Finger	4.Abdominal-zone	FC	0.1 (0.1)
L_Middle_Finger	4.Abdominal-zone	Outer contour length	7.5 (7.7)
L_Middle_Finger	5.Immunessystem	FC	0.1 (0)
L_Middle_Finger	5.Immunessystem	Outer contour length	7.1 (4.6)
L_Ring_Finger	1.Hypothalamus	Area	-68.2 (125.3)
L_Ring_Finger	1.Hypothalamus	FC	-0.1 (0.1)
L_Ring_Finger	1.Hypothalamus	EC	-0.2 (0.2)
L_Ring_Finger	1.Hypothalamus	Inner contour length	6.4 (5.3)
L_Ring_Finger	1.Hypothalamus	Inner contour radius	4.3 (5.1)
L_Ring_Finger	1.Hypothalamus	Norm area	-0.5 (0.6)
L_Ring_Finger	1.Hypothalamus	Intensity	-3.8 (3.5)
L_Ring_Finger	1.Hypothalamus	Inner area	114.8 (132.6)
L_Ring_Finger	1.Hypothalamus	Inner noise (%)	-8.1 (9.7)
L_Ring_Finger	1.Hypothalamus	Energy	0 (0.1)
L_Ring_Finger	1.Hypothalamus	Energy (C),	-0.5 (0.6)

**Table 11:** Descriptive summary and Changes from baseline (visit 1) for BioWell outcomes in the Active group.

			Change from Baseline
Finger	Location	Parameter	Mean (SD)
L_Ring_Finger	2.Nervoussystem	FC	0 (0.1)
L_Ring_Finger	2.Nervoussystem	EC	-0.2 (0.3)
L_Ring_Finger	2.Nervoussystem	Inner contour radius	3.4 (4.2)
L_Ring_Finger	3.Spleen	Inner contour length	4.2 (5.8)
L_Ring_Finger	3.Spleen	Inner contour radius	3.9 (4.6)
L_Ring_Finger	3.Spleen	Norm area	-0.5 (0.7)

L_Ring_Finger	3.Spleen	Intensity	-2.7 (3.7)
L_Ring_Finger	3.Spleen	Inner area	102.3 (113.8)
L_Ring_Finger	3.Spleen	Inner noise (%)	-8.5 (6.4)
L_Ring_Finger	4.Urogenital-system	EC	-0.1 (0.2)
L_Ring_Finger	4.Urogenital-system	Inner contour length	16.2 (18.1)
L_Ring_Finger	4.Urogenital-system	Inner contour radius	6.4 (7.2)
L_Ring_Finger	4.Urogenital-system	Outer contour radius	6.3 (7.4)
L_Ring_Finger	4.Urogenital-system	Inner area	385.9 (449.2)
L_Ring_Finger	4.Urogenital-system	Inner noise	-69.7 (80.8)
L_Ring_Finger	4.Urogenital-system	Inner noise (%)	-12.1 (9)
L_Ring_Finger	5.Adrenal	EC	-0.2 (0.2)
L_Ring_Finger	5.Adrenal	Inner contour length	5.6 (4.5)
L_Ring_Finger	5.Adrenal	Inner contour radius	5.5 (6)
L_Ring_Finger	5.Adrenal	Outer contour radius	3.4 (4.7)
L_Ring_Finger	5.Adrenal	Inner area	85.8 (91.8)
L_Ring_Finger	5.Adrenal	Inner noise (%)	-7.1 (10.5)
L_Ring_Finger	6.Pancreas	Inner contour length	4 (3.6)
L_Ring_Finger	6.Pancreas	Inner contour radius	4.3 (4.9)
L_Ring_Finger	6.Pancreas	Inner area	63.1 (72.8)
L_Ring_Finger	6.Pancreas	Inner noise (%)	-8.9 (7.6)
L_Ring_Finger	7.Thyroidgland	Inner contour radius	3.8 (4.5)
L_Ring_Finger	7.Thyroidgland	Norm area	-0.3 (0.5)
L_Ring_Finger	7.Thyroidgland	Intensity	-3.3 (3)
L_Ring_Finger	7.Thyroidgland	Inner area	94.3 (114.5)
L_Ring_Finger	7.Thyroidgland	Inner noise (%)	-5.2 (7.2)

**Table 12:** Descriptive summary and Changes from baseline (visit 1) for BioWell outcomes in the Active group.

			Change from Baseline
Finger	Location	Parameter	Mean (SD)
L_Ring_Finger	8.Pituitarygland	EC	-0.1 (0.1)
L_Ring_Finger	8.Pituitarygland	Inner contour length	7.2 (7.2)
L_Ring_Finger	8.Pituitarygland	Inner contour radius	4.8 (4.9)
L_Ring_Finger	8.Pituitarygland	Outer contour radius	3.7 (4.1)
L_Ring_Finger	8.Pituitarygland	Norm area	-0.4 (0.4)
L_Ring_Finger	8.Pituitarygland	Intensity	-4.2 (3)



L_Ring_Finger	8.Pituitarygland	Inner area	128.4 (126.4)
L_Ring_Finger	8.Pituitarygland	Inner noise (%)	-6.4 (7.4)
L_Ring_Finger	9.Epiphysis	EC	-0.2 (0.2)
L_Ring_Finger	9.Epiphysis	Inner contour length	16.8 (20)
L_Ring_Finger	9.Epiphysis	Inner contour radius	6.6 (7.3)
L_Ring_Finger	9.Epiphysis	Norm area	-0.6 (0.6)
L_Ring_Finger	9.Epiphysis	Inner area	466.3 (544.1)
L_Ring_Finger	9.Epiphysis	Inner noise (%)	-8.1 (10.1)
L_Ring_Finger	Wholeimage	EC	-0.2 (0.1)
L_Ring_Finger	Wholeimage	Inner contour length	38.9 (39.7)
L_Ring_Finger	Wholeimage	Inner contour radius	5.3 (5.7)
L_Ring_Finger	Wholeimage	Norm area	-0.5 (0.5)
L_Ring_Finger	Wholeimage	Intensity	-3 (2.9)
L_Ring_Finger	Wholeimage	Inner noise (%)	-8.3 (7.8)
L_Thumb	4.Thyroidgland,Throat,Larynx,Trachea	Outer contour length	13.3 (19.1)
R_Fore_Finger	1.Spine-cervicalzone	Inner contour length	-4.1 (5.2)
R_Fore_Finger	1.Spine-cervicalzone	Inner contour radius	-2.2 (2.6)
R_Fore_Finger	1.Spine-cervicalzone	Norm area	0.2 (0.2)
R_Fore_Finger	1.Spine-cervicalzone	Inner area	-74.8 (86.7)
R_Fore_Finger	2.Spine-thoraxzone	Norm area	0.2 (0.3)
R_Fore_Finger	3.Spine-lumbarzone	Inner contour length	-5.1 (5.3)
R_Fore_Finger	3.Spine-lumbarzone	Inner contour radius	-2.4 (2.5)
R_Fore_Finger	3.Spine-lumbarzone	Norm area	0.2 (0.2)
R_Fore_Finger	4.Sacrum,Prostate	Inner contour length	-7.8 (3.5)
R_Fore_Finger	4.Sacrum,Prostate	Inner contour radius	-6.7 (2.6)
R_Fore_Finger	4.Sacrum,Prostate	Inner area	-215.3 (86.4)
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Inner contour length	-7.3 (3.4)
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Inner contour radius	-7.5 (3.1)
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Outer contour radius	-6.1 (2.5)
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Norm area	0.4 (0.2)

R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Inner area	-167 (84.2)
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Table 13: Descriptive summary and Changes from baseline (visit 1) for BioWell outcomes in the Active group.

			Change from Baseline
Finger	Location	Parameter	Mean (SD)
R_Fore_Finger	6.Blindgut	Inner contour radius	-2.9 (4.1)
R_Fore_Finger	6.Blindgut	Inner area	-116.8 (174.7)
R_Fore_Finger	7.Appendix	Inner contour radius	-1.8 (2.6)
R_Fore_Finger	9.Transversecolon	EC	0.1 (0.1)
R_Fore_Finger	9.Transversecolon	Inner contour length	-14.4 (15.3)
R_Fore_Finger	9.Transversecolon	Norm area	0.2 (0.2)
R_Fore_Finger	9.Transversecolon	Inner area	-448.5 (514.7)
R_Fore_Finger	9.Transversecolon	Inner noise (%)	3.3 (5.5)
R_Fore_Finger	Wholeimage	EC	0.1 (0.1)
R_Fore_Finger	Wholeimage	Inner contour length	-22.5 (27.2)
R_Fore_Finger	Wholeimage	Inner contour radius	-2.7 (2.9)
R_Fore_Finger	Wholeimage	Norm area	0.2 (0.1)
R_Fore_Finger	Wholeimage	Inner area	-1002.9 (1104.1)
R_Fore_Finger	Wholeimage	Inner noise (%)	2.9 (4)
R_Little_Finger	2.Ileum	FC	0.1 (0.1)
R_Little_Finger	2.Ileum	Outer contour length	8.6 (12.3)
R_Middle_Finger	2.Immunesystem	FC	0.1 (0.1)
R_Middle_Finger	2.Immunesystem	EC	0.2 (0.2)
R_Middle_Finger	2.Immunesystem	Outer contour length	6.5 (4.4)
R_Middle_Finger	2.Immunesystem	Outer contour radius	2.1 (2.9)
R_Middle_Finger	3.Gallbladder	EC	0.1 (0.1)
R_Middle_Finger	3.Gallbladder	Outer contour length	10.6 (12.8)
R_Ring_Finger	1.Pituitarygland	FC	0 (0.1)
R_Ring_Finger	6.Spleen	Area	90.9 (119.3)
R_Ring_Finger	6.Spleen	Area (C),	0.3 (0.4)
R_Thumb	8.Cerebralzone(-cortex)	Area	-131.2 (142.5)
R_Thumb	8.Cerebralzone(-cortex)	Area (C),	-0.1 (0.2)

Table 14: Descriptive summary and Changes from baseline (visit 1) for BioWell outcomes in the Active group.

Finger	Location	Parameter	p-value (within Arm)
L_Fore_Finger	2.Sigmoidcolon	Area	0.057
L_Fore_Finger	2.Sigmoidcolon	Outer contour length	0.051
L_Fore_Finger	2.Sigmoidcolon	Outer contour radius	0.049
L_Fore_Finger	3.Rectum	Outer contour radius	0.008
L_Fore_Finger	3.Rectum,Prostate	Intensity	0.263
L_Fore_Finger	4.Coccyx,Pelvis-minorzone	Area	0.064
L_Fore_Finger	5.Sacrum	Energy	0.021
L_Fore_Finger	5.Sacrum	Energy (C),	0.021
L_Fore_Finger	8.Spine-cervical-zone	EC	0.357
L_Little_Finger	3.Respiratory-system	FC	0.006
L_Little_Finger	3.Respiratory-system	EC	0.077
L_Little_Finger	3.Respiratory-system	Inner contour length	0.757
L_Little_Finger	3.Respiratory-system	Inner contour radius	0.725
L_Little_Finger	3.Respiratory-system	Outer contour length	0.061
L_Little_Finger	3.Respiratory-system	Outer contour radius	0.506
L_Little_Finger	3.Respiratory-system	Inner area	0.699
L_Middle_Finger	2.Leftkidney	Intensity	0.056
L_Middle_Finger	3.Liver	FC	0.604
L_Middle_Finger	3.Liver	Intensity	0.253
L_Middle_Finger	3.Liver	Energy	0.069
L_Middle_Finger	3.Liver	Energy (C),	0.069
L_Middle_Finger	4.Abdominalzone	FC	0.028
L_Middle_Finger	4.Abdominalzone	Outer contour length	0.013
L_Middle_Finger	5.Immunesystem	FC	0.001
L_Middle_Finger	5.Immunesystem	Outer contour length	0.001
L_Ring_Finger	1.Hypothalamus	Area	0.119
L_Ring_Finger	1.Hypothalamus	FC	0.095
L_Ring_Finger	1.Hypothalamus	EC	0.002
L_Ring_Finger	1.Hypothalamus	Inner contour length	0.004
L_Ring_Finger	1.Hypothalamus	Inner contour radius	0.026
L_Ring_Finger	1.Hypothalamus	Norm area	0.021

L_Ring_Finger	1.Hypothalamus	Intensity	0.008
L_Ring_Finger	1.Hypothalamus	Inner area	0.023
L_Ring_Finger	1.Hypothalamus	Inner noise (%)	0.027
L_Ring_Finger	1.Hypothalamus	Energy	0.035
L_Ring_Finger	1.Hypothalamus	Energy (C),	0.033

Table 15: Descriptive summary and p-value for BioWell outcomes in the Active group.

Finger	Location	Parameter	p-value (within Arm)
L_Ring_Finger	2.Nervoussystem	FC	0.064
L_Ring_Finger	2.Nervoussystem	EC	0.056
L_Ring_Finger	2.Nervoussystem	Inner contour radius	0.031
L_Ring_Finger	3.Spleen	Inner contour length	0.049
L_Ring_Finger	3.Spleen	Inner contour radius	0.025
L_Ring_Finger	3.Spleen	Norm area	0.028
L_Ring_Finger	3.Spleen	Intensity	0.050
L_Ring_Finger	3.Spleen	Inner area	0.019
L_Ring_Finger	3.Spleen	Inner noise (%)	0.002
L_Ring_Finger	4.Urogenitalsystem	EC	0.042
L_Ring_Finger	4.Urogenitalsystem	Inner contour length	0.020
L_Ring_Finger	4.Urogenitalsystem	Inner contour radius	0.021
L_Ring_Finger	4.Urogenitalsystem	Outer contour radius	0.024
L_Ring_Finger	4.Urogenitalsystem	Inner area	0.024
L_Ring_Finger	4.Urogenitalsystem	Inner noise	0.023
L_Ring_Finger	4.Urogenitalsystem	Inner noise (%)	0.002
L_Ring_Finger	5.Adrenal	EC	0.036
L_Ring_Finger	5.Adrenal	Inner contour length	0.004
L_Ring_Finger	5.Adrenal	Inner contour radius	0.018
L_Ring_Finger	5.Adrenal	Outer contour radius	0.045
L_Ring_Finger	5.Adrenal	Inner area	0.016
L_Ring_Finger	5.Adrenal	Inner noise (%)	0.062
L_Ring_Finger	6.Pancreas	Inner contour length	0.007
L_Ring_Finger	6.Pancreas	Inner contour radius	0.022
L_Ring_Finger	6.Pancreas	Inner area	0.023
L_Ring_Finger	6.Pancreas	Inner noise (%)	0.005
L_Ring_Finger	7.Thyroidgland	Inner contour radius	0.025
L_Ring_Finger	7.Thyroidgland	Norm area	0.067
L_Ring_Finger	7.Thyroidgland	Intensity	0.007
L_Ring_Finger	7.Thyroidgland	Inner area	0.028
L_Ring_Finger	7.Thyroidgland	Inner noise (%)	0.046

Table 16: Descriptive summary and p-value for BioWell outcomes in the Active group.

Finger	Location	Parameter	p-value (within Arm)
L_Ring_Finger	8.Pituitarygland	EC	0.038
L_Ring_Finger	8.Pituitarygland	Inner contour length	0.012
L_Ring_Finger	8.Pituitarygland	Inner contour radius	0.013
L_Ring_Finger	8.Pituitarygland	Outer contour radius	0.017
L_Ring_Finger	8.Pituitarygland	Norm area	0.016
L_Ring_Finger	8.Pituitarygland	Intensity	0.002
L_Ring_Finger	8.Pituitarygland	Inner area	0.011
L_Ring_Finger	8.Pituitarygland	Inner noise (%)	0.023
L_Ring_Finger	9.Epiphysis	EC	0.050
L_Ring_Finger	9.Epiphysis	Inner contour length	0.026
L_Ring_Finger	9.Epiphysis	Inner contour radius	0.019
L_Ring_Finger	9.Epiphysis	Norm area	0.016
L_Ring_Finger	9.Epiphysis	Inner area	0.024
L_Ring_Finger	9.Epiphysis	Inner noise (%)	0.032
L_Ring_Finger	Wholeimage	EC	0.005
L_Ring_Finger	Wholeimage	Inner contour length	0.013
L_Ring_Finger	Wholeimage	Inner contour radius	0.016
L_Ring_Finger	Wholeimage	Norm area	0.013
L_Ring_Finger	Wholeimage	Intensity	0.009
L_Ring_Finger	Wholeimage	Inner noise (%)	0.008
L_Thumb	4.Thyroidgland,Throat,Larynx,Trachea	Outer contour length	0.055
R_Fore_Finger	1.Spine-cervical-zone	Inner contour length	0.033
R_Fore_Finger	1.Spine-cervical-zone	Inner contour radius	0.023
R_Fore_Finger	1.Spine-cervical-zone	Norm area	0.027
R_Fore_Finger	1.Spine-cervical-zone	Inner area	0.023
R_Fore_Finger	2.Spine-thorax-zone	Norm area	0.046
R_Fore_Finger	3.Spine-lumbar-zone	Inner contour length	0.013
R_Fore_Finger	3.Spine-lumbar-zone	Inner contour radius	0.015
R_Fore_Finger	3.Spine-lumbar-zone	Norm area	0.022
R_Fore_Finger	4.Sacrum,Prostate	Inner contour length	0.020
R_Fore_Finger	4.Sacrum,Prostate	Inner contour radius	0.014
R_Fore_Finger	4.Sacrum,Prostate	Inner area	0.016
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Inner contour length	0.024
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Inner contour radius	0.016

R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Outer contour radius	0.017
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Norm area	0.033
R_Fore_Finger	5.Coccyx,Pelvisminorzone,-Prostate	Inner area	0.029

Table 17: Descriptive summary and p-value for BioWell outcomes in the Active group.

Finger	Location	Parameter	p-value (within Arm)
R_Fore_Finger	6.Blindgut	Inner contour radius	0.052
R_Fore_Finger	6.Blindgut	Inner area	0.064
R_Fore_Finger	7.Appendix	Inner contour radius	0.056
R_Fore_Finger	9.Transversecolon	EC	0.044
R_Fore_Finger	9.Transversecolon	Inner contour length	0.016
R_Fore_Finger	9.Transversecolon	Norm area	0.007
R_Fore_Finger	9.Transversecolon	Inner area	0.022
R_Fore_Finger	9.Transversecolon	Inner noise (%)	0.089
R_Fore_Finger	Wholeimage	EC	0.001
R_Fore_Finger	Wholeimage	Inner contour length	0.028
R_Fore_Finger	Wholeimage	Inner contour radius	0.017
R_Fore_Finger	Wholeimage	Norm area	0.007
R_Fore_Finger	Wholeimage	Inner area	0.018
R_Fore_Finger	Wholeimage	Inner noise (%)	0.046
R_Little_Finger	2.Ileum	FC	0.058
R_Little_Finger	2.Ileum	Outer contour length	0.056
R_Middle_Finger	2.Immunesystem	FC	0.036
R_Middle_Finger	2.Immunesystem	EC	0.013
R_Middle_Finger	2.Immunesystem	Outer contour length	0.001
R_Middle_Finger	2.Immunesystem	Outer contour radius	0.048
R_Middle_Finger	3.Gallbladder	EC	0.007
R_Middle_Finger	3.Gallbladder	Outer contour length	0.029
R_Ring_Finger	1.Pituitarygland	FC	0.087
R_Ring_Finger	6.Spleen	Area	0.039
R_Ring_Finger	6.Spleen	Area (C),	0.060
R_Thumb	8.Cerebralzone(-cortex)	Area	0.017
R_Thumb	8.Cerebralzone(-cortex)	Area (C),	0.025

Table 18: Descriptive summary and p-value for BioWell outcomes in the Active group.

## Discussion

The data to this point has been very encouraging on this device. Both in the first study and the second, we see positive changes in function of the major body systems. The Bio-Well™, acupuncture and physiological data all give insights into changes in electron flow over the skin, and changes in organ function are clearly demonstrated in every major body system including brain, heart, kidneys, liver, gallbladder, pancreas, stomach, intestinal track and bladder/pelvic area particularly in the Bio-Well™ data. Improvement in the interstitial data on age was a confirming measure showing a potential for improved longevity.

It is important to keep in mind a limitation of the data is that the different acupuncture measuring devices showed very different results. This is likely in part due to two reasons, the first, that one of the devices measured different points, the second, that one of the devices largely didn't work. The Excel II device showed a single significant measure, within the active group. This was at the right ST 42 point, which relates to the metabolism and use of water by the stomach. There was also a shift at this point on the AcuGraph, though not to the level of significance in either group. This is likely due to device issues with the Excel II, which showed problems the entire study.

The Data Logging Multimeter showed significance in three measures. The first was a between group measure at An Mian, which showed a decrease in the active group and an increase in the control group. This shows a level of down regulation. An Mian is specifically for sleep. The active group was down regulating while the control group went the other way. This is supported by the within group change in the active group at DU 20, while the within group change in the control group at PC 6 suggests an increase in stress.

The AcuGraph showed the most significant points. SP 3, LV 3, and KD 3 are the three Yin meridians of the foot. Spleen and Liver both relate to digestion, suggesting an improvement in metabolism. In contrast KD 3s significance was due to a decrease in the control group, likely due to an increase in stress from filtering the control water. GB 40 ties in to distribution of body fluids. The fact that it went up in active and down in control suggests that those fluids are being helpfully distributed in the active group and not in the control. All of the AcuGraph changes being on the left side only is very interesting, and not something that is easy to explain. It is a more Yang side of the body, perhaps that means that it is easier to see the changes produced in Yin meridians of the body faster because of the contrast. It is also interesting to note that none of the changes showed in paired meridians. While LV and GB are paired the changes were in different groups. This may be due to the short testing time, and more comprehensive changes may occur in a longer study.

It should also be noted that the algorithm for how both the AcuGraph and the Excell II determine results are not public. There are several variables, including temperature, humidity, barometric pressure, pressure applied with the device, skin moisture content, and, in the case of the AcuGraph, the level of saturation of the probe and any variations in water solutes which may affect conductance. It is possible that these are accounted for in the algorithm, but without that information being publicly available it is not possible to tell. These variables were accounted for when the Data Logging Multimeter was used. Unfortunately the same points were not tested with this device, so correlation can not be established.

There were a large number of significant changes in the Bio-Well™ measures. The significant areas of change can be grouped into spine, brain/nervous system, hormone system, immune system, a few organs, specifically kidney, liver, lungs, and gall bladder and face. Between them these areas effect most systems in the body. Most of these groupings had significance in multiple sub-areas. This suggests that the whole body may be effected, though the impact over a longer period of time would be very interesting. This study had a small sample size and very short intervention period. Replication studies with both a larger sample size and longer intervention and data taking period should be done.

## Conclusion

When the amino acid data from the first study and the physiologic, acupuncture and bio-electric data from the second study are combined it is clear that there is at minimum improvement in wellness measures with a documented trend toward improved body function. Most of the test measures had at least one change in significance. Positive changes in organ function are clearly demonstrated in every major body system including brain, heart, kidneys, liver, gallbladder, pancreas, stomach, intestinal track and bladder/pelvic area. It is interesting to note that the sit-stand physical test and the on-line questionnaires designed to predict body age failed to produce significance yet still showed a positive change with a reduction in age in the active group. Double-blind testing of the device is a logical next step in device development to confirm the current test results.

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## Statements and Declarations

### Ethical Considerations

Human Studies Research Ethics review was provided by NAOEP/ IJHC approval 08-03-23-8.

### Consent to Participate

All participants signed written informed consent documents.

### Consent for Publication

N/A

### Declaration of Conflicting Interest

This study was funded using a grant from LifeWave Corporation. The authors have no other financial or non-financial conflicts of interest.

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## Data Availability

This data is not being shared in a repository due to concerns about confidentiality.

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