

Functional Regulation of Acupoint Electrodynamics. Does it Exist?

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BACKGROUND: The mapping out of the electrodynamical properties of acupoints and connective tissue planes is still in progress, although, different electroacupunctural methods have been in use for several decades in alternative medical diagnostics. In spite of this, there are hardly any studies where the electrodynamical properties of acupoints were examined on healthy control subjects under different physiological conditions. I compared the conductance level of the following 6 acupoints: PC6-TB5, Ki6-BI62, Ki9-Gb35 in 8 healthy human controls, after standardized physical exercise. In control experiments, non acupoints (control measuring points: CMP) were chosen within the same dermatome, very close to the acupoints.

METHODS: In this preliminary test I decided to choose a very simple and well known recording method to generate comparable results with previous data from the literature. So the measurement was executed with a Voll-electroacupuncture device. During Voll recording method a maximum 10 μ A DC measuring current is applied to test the conductance between the large surface reference electrode and measuring electrode tip positioned to the acupoint. The measuring electrode is always filled with physiological saline to avoid recording the conductance changes induced by sweat gland activity. In Voll system, conductance values are expressed as a percentage of the maximal conductance on a 1/x scale (zero resistance: 100% or 100 Voll value). 50 Voll value equals 100 k Ω .

RESULTS: The mean \pm SD values of the conductance levels of 6 acupoints and 6 CMPs were compared by variance analysis. The averaged electrodermal conductance levels calculated from the 8 persons' 6 acupoints and CMPs are shown in the following two tables:

Acupoint	Averaged electrodermal conductance level							
Persons	1	2	3	4	5	6	7	8
Before exercise	39.2 \pm 18.3	48.5 \pm 12.7	62.2 \pm 23.2	67.3 \pm 9.4	40 \pm 17.7	56.2 \pm 20.1	55 \pm 11.2	59.8 \pm 17.6
After exercise	41.3 \pm 6.4	49.7 \pm 9	72.2 \pm 9.4	76.5 \pm 3.3	43.2 \pm 14.7	62.8 \pm 14.2	64.5 \pm 4.4	73.7 \pm 11

CMP	Averaged electrodermal conductance level							
Persons	1	2	3	4	5	6	7	8
Before exercise	62.5 \pm 15	37 \pm 12.1	60.5 \pm 8.31	65.2 \pm 10.6	51.3 \pm 3.4	58.8 \pm 10.4	55.3 \pm 13	50.7 \pm 11
After exercise	72.5 \pm 20.3	41.2 \pm 13.4	83.3 \pm 7.1	80 \pm 12.7	67 \pm 4	71.7 \pm 8.1	60.8 \pm 5.7	50.2 \pm 12.5

The averaged electrodermal conductance levels calculated from acupoints or from CMPs were increased in all the persons. The SDs were decreased only in case of acupoints, this decrease was significant at 0.01 level (variance analysis, ANOVA). The conductance levels were also compared as a percentage of control by student t-test at 0.01 level. Significant elevation in acupoint and CMP conductance and significant decrease in SDs of acupoints conductance but not in case of CMPs were observed. This latter result is shown in Fig.1.

CONCLUSION: Vegetative vasculo-dermal reactions after movement exercises can obviously explain the elevation of general skin conductance level at acupoints and CMPs, but can not explain the significant decrease in the SD values only at acupoints. There is further research in progress with the

aim to separate the role of electrodermal and deep tissue conductance in the above process with AC measuring current protocols at different frequencies.

