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**CORRELATION OF THE INCREASED CUTANEOUS BLOOD FLOW WITH ELEVATED BIOENERGY MARKERS FROM QIGONG/TAI CHI PRACTICE AND HEAT/MASSAGE THERAPIES.** Shin Lin, Tim Ross, Jialei Guo, Masanosuke Kinoshita, Maya Debbaneh, Patrick Wu, Melissa Meija, Carolyn Le, Eileen Song, Ahn Lien, Jasmine Hum, Kristian Perfecto, Arthur Sarkisyan, and Morgan Chen. International Alliance for Mind-Body Signaling and Energy Research, Dept. of Developmental & Cell Biology, Dept. of Biomedical Engineering, and Susan Samueli Center for Integrative Medicine, University of California, Irvine, CA 92697-2300.

In Qigong and in Traditional Chinese Medicine, the close relationship between blood flow and Qi (also referred to as vital energy, life force, etc.) is illustrated by the ancient sayings “blood is the mother of Qi” and “when intention comes, so comes the Qi, and so comes the blood”. The purpose of this study is to understand the relationship between blood flow and measurable bioenergy markers. In these experiments cutaneous blood flow was measured by placing a probe of a 2-channel laser Doppler flowmetry instrument (Model DRT4 from Moor Instruments, Ltd.) on each of the Lao Gong acupoints on the palm of the hands. A dozen subjects were instructed to perform the single-hand silk-reeling exercise of Chen Style Tai Chi, which consists of a slow, circular movement of the right hand and arm (the left hand is stationary at waist level) and the up-and-down movement of the legs, all coordinated with deep breathing cycles of 4 times per minute. This type of exercise was found to increase the “flux” parameter of blood flow measured at the moving hand by 50-300%, and much less so measured at the stationary hand. In general, this increase in blood flow was primarily due to the hand and arm movement. The coordinated leg movement and the deep breathing cycles were minor contributors to this effect and varied from subject to subject. In related experiments, subjects practicing 15-20 minutes of Tai Chi movements generally produced an increase in bioenergy in the form of heat measured with infrared thermography, light measured with a single photon counting system (~10-20%), and electrical properties measured by gas discharge visualization (~10% in form coefficient) and measured as pre-polarization conductance using Motoyama’s single square voltage pulse method (~10-30%). Physical energy evaluated in a standardized weight lifting test using a Bowflex machine also increased by about 10%. To simulate the self-massage element of some types of Qigong practice, the palm of the hand was pushed strongly against the head of an electrical percussion massager (Thumper Mini Pro, from Sharper Image) for 1-5 minutes. This treatment also increased blood flow and bioenergy markers at a level similar to that produced by Qigong/Tai Chi practice. Similar changes were also seen when the temperature of the hand was increased by 3°C by immersion in 40-45°C water for 1-3 minutes. In conclusion, these experiments indicate that increased blood flow correlates with elevation of biomarkers in a way that is consistent with the traditional concept of a close relationship between blood and Qi. The mechanisms by which these parameters are related remain to be investigated. (Supported by the Joseph and Sou-Lin Lee Endowment for Chinese Medicine Research).