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INCREASES IN BLOOD FLOW AND BIOENERGY MARKERS PRODUCED BY HEAT, MASSAGE, AND TOPICAL HERBAL THERAPIES. Shin Lin, Vienna N. Nguyen, Wayland J. Wu, Nahal Nikroo, Jason D. Nguyen, Josh Quinones, Monica J. Lao, and Joanna K. Fong. Dept. of Developmental & Cell Biology, Dept. of Biomedical Engineering, and the Susan Samuelli Center for Integrative Medicine, University of California, Irvine, CA 92697-2300

Traditional Chinese Medicine uses therapeutic modalities that increase the flow of blood and Qi in the body. The aim of this study is to use modern instruments to examine the effects of heat, massage, and topical herbal therapies on blood flow and measurable forms of bioenergy in a small group of human subjects. First, we examined heat therapy using a far infrared lamp commonly used in Chinese medical clinics (Special Electromagnetic Therapeutic Apparatus, Model TDP SHL-11, Chongqing Hyanyu Medical Equipment Co., supplied by Prime Herbs Corp.). We found that exposing the palm to the lamp at a distance of 7 inches for 20 minutes elevated skin temperature at the palm to 40<sup>0</sup> C measured by infrared thermography. This treatment resulted in an increase in cutaneous blood flow measured as “Flux” by laser Doppler flowmetry at the PC8 acupoint by 20-40%. This change was accompanied by an elevation in biophoton emission from the palm measured with a single photon counting system by ~20%, and an increase in pre-polarization conductance (an energy marker) measured at the jing-well point of the lung meridian on the tip of the thumb with Motoyama’s single square voltage pulse method by ~10%. Second, we examined massage therapy on the palm using an electric vibration massage instrument (Rejuvenator Plus, Professional Model RX-2008, distributed by PHI Enterprises, Inc.) at its maximum setting. We found that a 5-minute treatment produced a 3-fold increase in cutaneous blood flow at PC8, a 2.5<sup>0</sup> C increase in skin temperature at the palm, ~20% increase in biophoton emission from the palm, and ~15% increase in pre-polarization conductance at the lung jing-well point. Third, we conducted a pilot experiment on a topical herbal remedy indicated for treatment of common joint/muscle aches and bruises (Shou Tao Jing/Tree Head Essence, Health Dept. Registered No. 012447, Ren Ji Biopharmacological Technology Co., Taiwan). We found that five minutes after application of the remedy to a normal area at the ventral surface of the forearm around PC6, there was a 4-fold increase in cutaneous blood flow, a 1.5<sup>0</sup>C increase in skin temperature, a 12% increase in biophoton emission, and a 15% increase in pre-polarization conductance at PC6. Finally, as a negative control, blood flow to the hand was obstructed by applying a pressure cuff used for blood pressure measurements on the upper arm for 90 seconds. This treatment resulted in a rapid drop of 90% in blood flow measure at PC8, a decrease in biophoton emission from the palm by ~25%, but no significant effect on pre-polarization conductance at the lung jing-well point. The combined results of this study showed that the different therapeutic modalities tested are all effective in increasing cutaneous blood flow, with a concomitant elevation of bioenergy measured as heat, light, and electricity. These findings are consistent with the principle of Traditional Chinese Medicine that “Qi is the commander of blood and blood

is the mother of Qi". (This study was supported by Joseph and Sou-Lin Lee Endowment for Chinese Medicine Research).