**THERMAL IMAGING AS A METHOD TO STUDY EFFECT OF INDUCED ISCHEMIA ON VASOMOTION.**

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**Introduction:** Despite various studies dealing with occurrences within the capillary network, this area is not completely investigated, particularly not vasomotion. Previous studies have detected that vasomotric blood flow is quantifiable as temperature micro oscillations in the frequency range of 0,005−0,15Hz [1-3]. Based on this, a study of vasomotion in the peripheral circulation with thermal imaging has been conducted. Aim of this study was to investigate if it is possible to measure changes in vasomotric blood flow caused by partial occlusion of blood supply by using thermal imaging.

**Methods and Material:** The temperature oscillations in the skin of four healthy subjects were measured with Gobi 640 17µm GigE (Xenics NV, Belgium) infrared camera. Measurements were carried out on the dominant hand under two conditions. The first measurement under normal conditions was used as a control, whereas the second measurement was conducted with 50% restriction of hand’s blood supply by brachial cuff. To aid comparison, 28 regions of interest (ROI) were determined. Data processing involved correction of artifacts in temperature recording and applying the Morlet continuous wavelet transform. Five ROI were chosen based on the outcome of the correction method to compare both conditions quantitatively within three frequency bands.

**Results:** A paired t-test of the mean amplitude values within the frequency bands shows no significant difference between the magnitudes of uncuffed and cuffed. The means of the frequency bands in both conditions resemble one another. Hence no clear significance with regard to vasomotric activity is shown.

**Discussion:** Results show thermal imaging might not be sensitive enough to detect vasomotion. This might be due to the few subjects and limitations in the setup of the experiment. Furthermore the implemented correction method could not account for all artifacts and might have interfered with the frequency content of interest.

**References**

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