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### In vivo reflectance-mode confocal microscopy provides insights in human skin microcirculation and histomorphology.

*Altintas MA, Meyer-Marcotty M, Altintas AA, Guggenheim M, Gohritz A, Aust MC, Vogt PM.; Comput Med Imaging Graph. 2009 Oct;33(7):532-6.*

#### ABSTRACT

**PURPOSE:** Various approaches are used to study microcirculation, however, no modality evaluates microcirculation and histomorphology on cellular levels. We hypothesized that reflectance-mode confocal microscopy (RCM) enables simultaneous evaluation in vivo of both microcirculation and histomorphology.

**PRINCIPALS:** The forearm of 20 volunteers was exposed to either local heat stress (HS-group), or to local cold stress (CS-group). RCM was performed prior and after temperature stress to evaluate quantitative blood-cell flow, capillary loop diameter, granular cell size, and basal layer thickness.

**RESULTS:** In the HS-group, we observed significant increase in capillary loop diameter and increased blood-cell flow after heat stress. In the CS-group, significant decreases of capillary loop diameter and in blood-cell flow were determined following cold stress. Granular cell size and basal layer thickness differed insignificantly prior and after local temperature stress.

**CONCLUSIONS:** RCM provides real-time and in vivo high resolution imaging of temperature-dependent changes in the human skin microcirculation and histomorphology on cellular levels.