Infrared thermography for examination of skin temperature in the dorsal hand of office workers.

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Reduced blood flow may contribute to the pathophysiology of upper extremity musculoskeletal disorders (UEMSD), such as tendinitis and carpal tunnel syndrome. The study objective was to characterize potential differences in cutaneous temperature, among three groups of office workers assessed by dynamic thermography following a 9-min typing challenge: those with UEMSD, with (n=6) or without (n=10) cold hands exacerbated by keyboard use, and control subjects (n=12). Temperature images of the metacarpal region of the dorsal hand were obtained 1 min before typing, and during three 2-min sample periods [0-2 min (early), 3-5 min (middle), and 8-10 min (late)] after typing. Mean temperature increased from baseline levels immediately after typing by a similar magnitude, 0.7 (0.3) degrees C in controls and 0.6 (0.2) degrees C in UEMSD cases without cold hands, but only by 0.1 (0.3) degrees C in those with cold hands. Using paired t-tests for within group comparisons of mean dorsal temperature between successive imaging periods, three patterns of temperature change were apparent during 10 min following typing. Controls further increased mean temperature by 0.1 degrees C (t-test, P=0.001) at 3-5 min post-typing before a late temperature decline of -0.3 degrees C (t-test, P=0.04), while cases without cold hands showed no change from initial post-typing mean temperature rise during middle or late periods. In contrast, subjects with keyboard-induced cold hands had no change from initial post-typing temperature until a decrease at the late period of -0.3 degrees C (t-test, P=0.06). **Infrared thermography appears to distinguish between the three groups of subjects, with keyboard-induced cold hand symptoms presumably due, at least partially, to reduced blood flow.**