

Hydration status and cardiovascular psychophysiology.

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Society for Psychophysiological Research, Washington D.C., 2002

The goal of this study was to examine the relationship between individual differences in hydration status and cardiovascular functioning (resting levels and reactivity) during two laboratory manipulations: posture change and an intense surgery video.

Thirty-two volunteers participated in a lab protocol that included a 5-minute supine baseline, 5-minute standing period, 5-minute viewing of a surgical amputation video using 3-D image goggles, and a 5-minute post-video standing period.

The percentage of total body water by weight (TBW%) was assessed at the beginning of the lab session using electrical bio-impedance (**MultiScan 5000, BodyStat, Ltd**). Automated blood pressure (SBP, DBP) and impedance cardiography measurements of heart rate (HR), stroke volume (SV), cardiac output (CO), and total peripheral resistance (TPR) were recorded throughout each period. Change scores were computed (Task – Baseline) for each cardiovascular variable in order to assess the relationships between TBW% and cardiovascular reactivity. Pearson correlations revealed significant relationships between TBW% and baseline HR ($r = -0.37, p < .05$), and DBP ($r = -0.35, p < .05$).

Reactivity analyses revealed significant correlations between TBW% and changes in HR ($r = 0.48, p < .01$), SV ($r = -0.44, p < .01$), CO, $r = -0.37, p < .05$, DBP ($r = 0.39, p < .05$), and TPR ($r = 0.63, p < .001$) during the first standing task, and between TBW% and HR ($r = 0.46, p < .01$), SV ($r = -0.28, p < .05$), DBP ($r = 0.34, p < .05$), and TPR ($r = 0.40, p < .05$) during the standing task that followed the surgery video. No relationships were found between TBW% and surgery video reactivity.