

Skin vascular resistance in the standing position increases significantly after 7 days of dry immersion

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R�sum� en anglais	Actual and simulated microgravity induces hypovolemia and cardiovascular deconditioning, associated with vascular dysfunction. We hypothesized that vasoconstriction of skin microcirculatory bed should be altered following 7 days of simulated microgravity in order to maintain cardiovascular homeostasis during active standing. Eight healthy men were studied before and after 7 days of simulated microgravity modeled by dry immersion (DI). Changes of plasma volume and orthostatic tolerance were evaluated. Calf skin blood flow (laser-Doppler flowmetry), ECG and blood pressure signal during a 10-min stand test were recorded, and skin vascular resistance, central hemodynamics, baroreflex sensitivity and heart rate variability were estimated. After DI we observed increased calf skin vascular resistance in the standing position (12.0 +/- 1.0 AU-after- vs. 6.8 +/- 1.4 AU-before), while supine it was unchanged. Cardiovascular deconditioning was confirmed by greater tachycardia on standing and by hypovolemia (-16 +/- 3% at day 7 of DI). Total peripheral resistance and indices of cardiovascular autonomic control were not modified. In conclusion, unchanged autonomic control and total peripheral resistance suggest that increased skin vasoconstriction to standing involves rather local mechanisms-as venoarteriolar reflex-and might compensate insufficient vasoconstriction of other vascular beds.
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Liens

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