

Shifting Hemodynamics of Blood Pressure control during Prolonged Mental Stress

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The present study examined the hemodynamics underlying blood pressure elevations for evidence of a shift in the control of blood pressure during prolonged mental stress. Mean arterial pressure (MAP), cardiac output (CO), and total peripheral resistance (TPR) were measured at rest, during a 28-min mental arithmetic stress task, and during recovery, in 30 young healthy men and women. The stress task elicited a sustained increase in MAP: CO rose during the first half of the task but returned to baseline levels during the last quarter of the task, whereas TPR increased as the task progressed. When participants' hemodynamic reactions were classified as cardiac, vascular, or neither, there were more cardiac reactors early relative to late in the task, whereas there were more vascular reactors late relative to early. Thus, the sustained pressor response was initially supported mainly by cardiac mechanisms but subsequently by predominantly vascular mechanisms.

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