Cardiovascular Adjustments to Gravitational Stress

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Abstract

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Does stress cause or exacerbate cardiovascular diseases? The stress phenomenon is illustrated and the impact of stress on the circulatory system is examined. In particular, the pathophysiological significance of stress in hypertension, atherosclerosis, coronary artery disease, myocardial infarction (and others) is described. Stress plays a major role in various (patho)physiological processes associated with the circulatory system. Thereby, it potentially has ameliorating or detrimental capacities. However, with regard to cardiovascular diseases, stress most often is related to deleterious re Continuous cardiovascular measurements were collected during the centrifugation sessions using a non-invasive monitoring system. The cardiovascular responses were more prominent at higher levels of AG and exercise intensity. The observed changes in cardiovascular performance have been attributed to the loss of hydrostatic pressure gradients in microgravity (Charles and Lathers, 1991; Williams et al., 2009), causing a series of physiological adaptations, including a fluid shift from the lower extremities to the upper part of the body, a decrease in circulating blood volume, cardiac atrophy, an increase in venous compliance, a reduction of the baroreflex sensitivity (Clément and Bukley, 2007), and other alterations in autonomic function (Mandsager et al., 2015).