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13 ABSTRACT

The effects of inactivity during chair rest for periods of four days, six days, eight days, and ten days were studied. Despite the presence of body weight and the dependent position of the lower extremities deconditioning occurred. The average decrease in total blood volume after ten days was slightly greater than the average noted after 11 days of bed rest. The average plasma volume loss and the average decrease in red cell mass was similar to that observed after 11 days of bed rest. Orthostatic tolerance and exercise tolerance were progressively diminished with longer periods of chair rest. This study demonstrates that confinement resulting in muscular inactivity causes deconditioning even when normal gravitational factors cause body weight and increased hydrostatic pressure below the diaphragm. For this reason deconditioning during manned space flight may be markedly influenced by confinement with restricted body movement, independent of what influence weightlessness may have on its development.

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