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EFFECTIVENESS OF NEWLY FABRICATED SHORT RADIUS CENTRIFUGE DEVICE WITH  
ERGOMETRIC OR SQUATTING EXERCISE AS A COUNTERMEASURE FOR SPACEFLIGHT  
DECONDITIONING IN HUMANS. SATOSHI IWASE, NAOKI NISHIMURA, KUNIHIKO TANAKA\*,  
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**Abstract**

In order to examine the effectiveness of artificial gravity with exercise on the spaceflight deconditioning in humans, we tested a newly developed and fabricated short radius centrifuge device on spaceflight deconditioning induced by simulated microgravity using short term of 6 head-down bedrest of 7 days. The experimental position during centrifuge was lying down position with their legs up. The diameter of the device was 2.8 m, the loaded G was 1.4 G at the heart level, and the intermittent G load was 30 min per day. Fluid shift was compared using bio-impedance. Before and after the bedrest, the anti-G score was calculated as the sum of [the loaded G] [endured time in second], and the countermeasure group exhibited significant higher score compared with the control. Myatrophy and bone metabolism showed no significant difference. In conclusion, artificial gravity induced by short radius centrifuge was effective in improving the orthostatic tolerance but bed rest for only one week was too short to elicit the difference in muscular and bone metabolism.