
INTRODUCTION. Head-down bedrest (HDT) decreases plasma neuroendocrine levels by inducing a nadir within four hours. Using the techniques of periodic standing or exercise (+Gz) on this acute suppression of plasma neuroendocrine. METHODS. Nine male subjects (mean±SE age 37±1 yr; height 193±2 cm, weight 85±4 kg) were admitted to the Life Science Division, Moffett Field, CA 94035 for four periods of bedrest (HDT) on VO2peak and intermittent standing (+Gz) or exercise (+GzW) during each period. Subjects were exposed to a head-down tilt (6°) or 180° head-up tilt for five days at a constant exercise level to assess the preceding stand or exercise. Blood was withdrawn and all plasma samples frozen for determination of neuroendocrine levels. Plasma aldosterone, plasma renin activity (PRA), vasopressin (AVP), and cortisol levels were measured by radioimmunoassay. Norepinephrine (NE) and epinephrine (E) levels were measured by high-performance liquid chromatography following HPLC. Values are expressed by ANOVA, P<0.05. RESULTS. Control levels following 45-min supine were not different between treatments. HDT suppressed plasma aldosterone (93.7±6.0±0.7 ng/ml) and NE levels (293±95 to 271±43 pg/ml). Plasma vasopressin (1.15±0.2 to 1.15±0.2 pg/ml), cortisol (11.1±1.4 to 9.3±1.5 ng/dl), and E (69±15 to 65±21 pg/ml) were not different. During standing or exercise negated the decrease in aldosterone and NE levels due to HDT. CONCLUSIONS. Periodic upright posture (+Gz) with or without exercise for 15 min on each hour negates the acute suppression of aldosterone and NE associated with HDT.