

## **Effect Of Combined Aerobic And Resistance Training On HPA Axis Reactivity In HIV+ Women Undergoing Treatment For Substance Abuse**

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### ABSTRACT

Substance abuse and infection with human immunodeficiency virus (HIV) are chronic stressors that affect hypothalamic-pituitary-adrenal (HPA) axis function. The purpose of this study was to investigate the effect of combined aerobic and resistance training on HPA axis reactivity in women with HIV undergoing treatment for substance abuse. Sixteen women (mean  $\pm$  SD;  $41 \pm 9$  years,  $164 \pm 6$  cm,  $78.1 \pm 17.1$  kg,  $36 \pm 10$  % body fat) infected with HIV and enrolled in an intensive 60-day in-patient substance addiction/abuse treatment program were recruited shortly after admission to the treatment facility. Participants were assigned to one of two groups using randomization: (1) supervised combined aerobic and resistance exercise sessions 3 times per week (EX) for six weeks or (2) no exercise training (Control) for six weeks. Before (PRE) and after (POST) the 6-week period participants completed a 10-min public speaking task (Trier Social Stress Test). Saliva samples were obtained before (baseline), immediately after, and every 10 min for 50 min after the task. Saliva samples were analyzed for cortisol. HPA axis reactivity was determined as the difference between the highest values after the test minus the baseline value. HPA axis reactivity did not differ between groups at PRE (EX:  $1.9 \pm 2.0$  nmol $\cdot$ L $^{-1}$ ; Control:  $1.1 \pm 2.7$  nmol $\cdot$ L $^{-1}$ ) or POST (EX:  $1.7 \pm 2.1$  nmol $\cdot$ L $^{-1}$ ; Control:  $0.0 \pm 1.3$  nmol $\cdot$ L $^{-1}$ ). Similarly no differences were found between PRE and POST although the reactivity for the Control group appeared to be reduced at POST. HIV+ women in early recovery from substance abuse appear to display blunted HPA axis reactivity. A combined aerobic and resistance training intervention did not affect this reactivity; although, the exercise intervention might have prevented a further decline in reactivity.