

Effects of Acute Bouts of Aerobic Exercise on Adipokines in Individuals with Mid-Spectrum Chronic Kidney Disease

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Category: Doctoral

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ABSTRACT

Adipokines have been known to influence various health-related complications such as chronic kidney disease (CKD) and cardiovascular diseases. Fluctuations in adipokines are commonly seen from changes in body composition, however, some evidence shows acute changes may be seen from exercise.

Individuals with CKD are commonly characterized by a decline in renal filtration and systemic inflammation. It may be possible that an acute bout of aerobic exercise may improve pro- and anti-inflammatory adipokine concentrations typically seen in individuals with moderate stages of CKD.

PURPOSE: To determine the acute effects of aerobic exercise on adipokine concentrations in individuals with moderate stages of CKD. **METHODS:** Fourteen participants (8 females and 6 males, age = 58.7 ± 9.3 yrs., and %BF = 36.0 ± 9.6) were classified as having moderate stages of CKD (stages G3 and G4).

Participants completed 30 min of steady-state moderate intensity exercise (SSE) at 65% VO₂ reserve and high-intensity interval training (HIIE) at a 90% VO₂ reserve separated by 2 min of slow walking (20% VO₂ reserve) in a randomized, crossover design fashion. Venous blood samples were obtained at baseline, 1 h, and 24 h post-exercise. Data were analyzed using a repeated measures ANOVA ($p < 0.05$) and a paired t-test. If any significant main or interaction effects were found, a post-hoc test was performed. **RESULTS:**

There were no significant differences in adiponectin and leptin levels within treatments. However, significant differences were seen between baseline and 24 h omentin concentrations when performing HIIE ($F(2,26) = 5.001, p = .015$). Omentin rose significantly 24 h after an acute bout of HIIE (214.69 ± 83.28 to $252.04 \pm 91.22, p = .034$). A paired t-test showed no significant differences between SSE and HIIE for adiponectin and leptin. Although, there was a significant difference between 24 h omentin concentrations for SSE and HIIE ($t = -2.327, p < .037$). Omentin concentrations were significantly higher when performing HIIE (252.04 ± 91.22) as opposed to SSE ($218.70 \pm 82.00, p < .001$). **CONCLUSION:** Omentin plays an anti-inflammatory role in chronic diseases. Thus, individuals experiencing systemic inflammation from moderate stages of CKD may see benefits after performing an acute bout of HIIE due to the up-regulated release of omentin 24 h post-exercise.