THE EFFECTS OF AN ACUTE BOUT OF CONCENTRIC, ECCENTRIC, AND TRADITIONAL RESISTANCE EXERCISE ON ADIPONECTIN CONCENTRATIONS

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ABSTRACT

Introduction: Adiponectin is a protein secreted from adipose tissue which displays both anti-diabetic and anti-atherogenic properties. **Purpose:** The primary aim of the study was to examine the effects of a single session of eccentric, concentric, and traditional resistance exercise on total adiponectin and high molecular weight adiponectin (HMWA) concentrations. **Methods:** Forty-three overweight (BMI 32.3 $\pm$ 0.6 kg/m^2), untrained participants (15 males and 28 females) were randomly assigned to either eccentric (ECC), concentric (CON), or traditional resistance exercise (TRE). The exercise session consisted of 1-repetition maximum (1RM) testing followed by three sets of ten repetitions at 75% of their contraction specific 1RM on a knee extension machine and leg curl machine. Blood samples were analyzed for total adiponectin, high molecular weight adiponectin (HMWA), glucose, and insulin. **Results:** There was no significant difference among groups at baseline for total adiponectin A single session of CON exercise elicited a significant increase in total adiponectin concentrations by ~15% from baseline to 1 h post exercise ($p < 0.05$) while no changes were observed with ECC or TRE exercise 1 h post resistance exercise. ECC and TRE groups had significant decreases in total adiponectin concentration from baseline at 24 h and 48 h post exercise. There was no change in HMWA C**onclusion:** The results of the current investigation suggest that the concentric phase of resistance exercise can stimulate an increase in total adiponectin concentrations 1 h post exercise while none of the exercise modes affect HMWA.