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ADIPOKINES LEVELS IN RESPONSE TO DIFFERENT INTENSITY PHYSICAL EXERCISE PROTOCOLS IN YOUNG HEALTHY MEN

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KEYWORDS: Adipokines, Aerobic Exercise, Intensity.

INTRODUCTION AND OBJECTIVE

Adipose tissue is considered an endocrine organ that secretes bioactive peptides involved in autocrine, paracrine and endocrine functions, named as “adipokines”⁽¹⁾. There are three classical adipokines, adiponectin, leptin and resistin, which, respectively, exert anti-inflammatory actions, food intake control and pro-inflammatory effects². Currently, the modulatory effects of physical exercise on adipokine levels have been recognized⁽²⁾, although there is scarce data comparing protocols of physical exercise with different intensity. Therefore, we assessed the acute effect of high and moderate intensity protocols of physical exercise on plasma and urine levels of adipokines.

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SUBJECTS AND METHODS

Thirteen young healthy physically active men were recruited to four supervised training sessions. Two evaluation sessions were performed to measure body composition, physical activity, aerobic and anaerobic capacities before High-Intensity Interval Exercise (HIIE) and Moderate-Intensity Continuous Exercise (MICE) iso-work exercise sessions on a cycle

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ergometer. The HIIE protocol included a 5-minute warm-up at 60-70% of heart rate peak (HRp) intensity followed by 10 sets of 30 seconds above 90% with 1 minute of recovery and 3 minutes of cool down (both at the same warm-up power). MICE protocol was performed at constant power corresponding at 60-70% of HRp and finalized at the same total work of HIIE. Blood and urine samples were collected before and after the exercise protocols, then stored at -80°C for further analysis of adipokine content (adiponectin, leptin and resistin) by enzyme-linked immunoassay (ELISA).

RESULTS

Plasma and levels of leptin, resistin and adiponectin did not differ in the comparison between baseline concentrations (before exercise protocols) and between levels after both exercise protocols. Urine concentrations of resistin and leptin also did not differ at baseline and after both exercise protocols. However, urine levels of adiponectin significantly increased after HIIE protocol ($p=0.0005$). In addition, the concentrations of adiponectin in urine were significantly higher following HIIE than after MICE ($p=0.0039$).

CONCLUSION

Our study showed that the HIIE protocol induced a more intense increase in urine levels of adiponectin concentration in comparison to MICE. This result suggests that HIIE may be an interesting training intervention in order to improve metabolic profile.

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