

**Acute effects of a short-term and high intensity exercise on serum cytokines concentrations of sedentary women submitted to a circuit resistance training #1**

Cristiane Nicioli, João Elias Nunes, Gabriela Bombarda; Fabiano Candido Ferreira; Guilherme Borges Pereira; Richard Diego Leite; Grazielle Pereira; Vilmar Baldissera; Sérgio Eduardo de Andrade Perez.

*Department of Physiological Sciences, Federal University of São Carlos, São Carlos/SP, Brazil.*

E-mail: [crisnicioli@yahoo.com.br](mailto:crisnicioli@yahoo.com.br)

The aim of this study was to evaluate the acute effects of short-term and high intensity exercise on serum cytokines concentrations, oxygen consumption and power of sedentary women pre and post 10 weeks of circuit resistance training (CRT). 14 women,  $40.23 \pm 3.9$  years old,  $164 \pm 6.6$  cm and  $57.84 \pm 7.7$  kg were evaluated. Ventilatory threshold ( $W_{VT}$ ) and  $VO_{2peak}$  ( $I_{VO_{2peak}}$ ) were determined by ergoespirometric incremental test in a cycloergometer. In pre and post CRT, the women performed a test of cycling exercise with two stages: pedaling 30 minutes on  $W_{VT}$  and 5 minutes on  $I_{VO_{2peak}}$ . The  $VO_{2peak}$  was measured by gas analyzer and the cytokines by flow cytometry. The blood samples were taken at rest and immediately after the two stages to measure the plasmatic concentrations of cytokines (IL-1 $\beta$ ; IL-6; IL-8; IL-10, IL-12p70 and TNF). Paired Wilcoxon's test was used to compare the pre and post values of all variables; The cytokines concentrations at rest, and after the two exercise stages were compared by Friedman's with Tukey post hoc test CRT ( $\alpha=0.05$ ). The  $I_{VO_{2peak}}$  post CRT increased ( $p=0.01$ ) without alteration of the  $VO_{2peak}$ . The IL-6 concentrations were higher after 5 minutes in  $I_{VO_{2peak}}$  compared with the rest, both in pre and in post CRT ( $p<0.05$ ). The alterations in IL-6 plasmatic levels were protocol-dependent; and the proposed CRT increased the power in watts of  $VO_{2peak}$  in cycling exercise, but was not sufficient to trigger an inflammatory reaction indicated by serum cytokines levels in women.

**Key words:** maximal oxygen consume; cytokines; cycloergometer.