

Influence of resistance training on muscle lipid content in ovariectomized rats #52

Richard Diego Leite¹, Jonato Prestes¹, Guilherme Borges Pereira¹, Celene Fernandes Bernardes², Gilberto Eiji Shiguemoto¹, Mateus Moraes Domingos¹, Rodrigo Ferro Magosso^{1,3}, Vilmar Baldissera^{1,3} Sergio Eduardo de Andrade Perez¹.

¹*Department of Physiological Sciences, Laboratory of Exercise Physiology, Federal University of São Carlos – SP, Brazil;* ²*Department of Biochemistry - PUC-Campinas-SP, Brazil/* ³*Pos-graduation program in Bioengineering-USP- São Carlos-SP, Brazil.*

E-mail: rixleite@gmail.com

The aim of this study was analyze the effect of the resistance training on muscle soleus lipid content in ovariectomized rats. Wistar adult female rats were grouped into: sedentary (S); ovariectomized sedentary (Sovx); resistance trained (T) and ovariectomized resistance trained (Tovx). A 12-week strength training that consisted to climb a 1.1-m vertical ladder with weights secured to rats in tail was used. The session was performed once every 3 days with a 4-9 climbs and 8-12 dynamic movements per climb. The muscle soleus lipid content (mg/100mg tissue) was determined by sulfo-vanilin reaction. For statistical analyzes ANOVA was used with $p \leq 0.05$. The muscle soleus lipid content was significantly higher in S (2.61 ± 0.31), Sovx (4.28 ± 0.44) and Tovx (3.54 ± 0.36) groups when compared with the T group (0.75 ± 0.15). The S group showed lower values compared with Sovx and Tovx groups. Resistance training decreased lipid content in ovariectomized rats (Tovx) as compared with Sovx group (Figure 1).

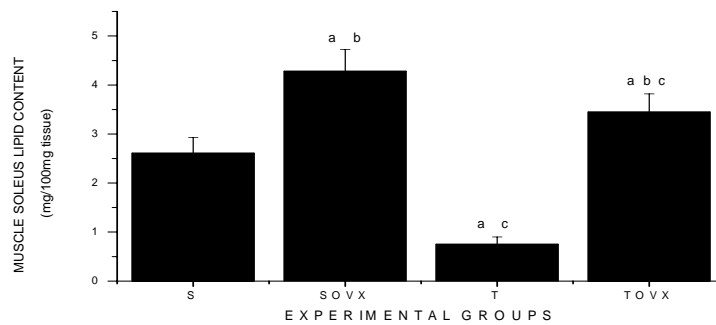


Figure 1. Results of muscle soleus lipid content in the experimental groups after 12 weeks of resistance training. ^aStatistically significant difference compared with S; ^bStatistically significant difference as compared with T; ^cStatistically significant difference as compared with Sovx ($p \leq 0.05$). S = sedentary group; Sovx = sedentary ovariectomized group; T = trained group; Tovx = ovariectomized trained group. Ovariectomy increase soleus muscle lipid content, which is decreased by resistance training. Resistance training alone decrease muscle lipid content, indicating an important clinical effect.

Key words: stair climbing exercise; muscle lipid content; ovariectomy.