Effects of Acute Exercise on Oxidative Stress Parameters in Skeletal Muscle of Young and Old Animals

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Introduction: The ageing is a multifactorial process and the effects of physical exercise on generation of ROS and the corresponding response to muscle oxidative stress seem factors in determining longevity. The aim of the present study was to compare the effects of low and moderate exercise intensity on oxidative stress parameters in the gastrocnemius of young and old animals. Material and Methods: Male Wistar rats with three and eighteen months of age were divided into 6 groups: CJ: control youth; EJB: Young low-intensity exercise; EJA: Young moderate-intensity exercise; CV: old control; EVB: old low-intensity exercise; EVA: year old moderate-intensity. All groups underwent to a single session of exercise with 60 minutes in the speed 0.8km/h and 1.2 km/h. Immediately after exercise session the animals were killed by decapitation and gastrocnemius were surgically removed for further analyses. Were analyzed parameters of oxidative metabolism (expression of succinate dehydrogenase and cytochrome c) and markers of oxidative stress (lipid peroxidation, protein carbonylation, total thiol content, superoxide dismutase-SOD, glutathione peroxidase-GPX and catalase-CAT). Results and Discussion: one session of exercise only with moderate intensity can induce oxidative damage in young animals. However, low and moderate intensity exercise increases these markers in older animals. Conclusion: In conclusion, older animals are more susceptible to oxidative stress that young animals after an exercise session with low intensity.

Key Words: Aging., Stress oxidative., Acute exercise.

Supported by: FAPESC, CNPq and CAPES.