

AEROBIC EXERCISE TRAINING DURING ADOLESCENCE REVERSES THE METABOLIC DYSFUNCTION INDUCED BY THE LITTER REDUCTION MODEL

Filipe Lima Santos¹, Maria N. C. Peres, Scarlett R. Raposo, Willian N. S. Rodrigues, Camila B. Zara, Leticia F. Barbosa, Kerolym L. Cruz, Douglas L. Almeida, Veridiana M. Moreira, Paulo C. F. Mathias

¹filipe.santosbc@gmail.com, PFS/UEM, 0000-0003-0327-1079

Sedentary lifestyle and consumption of high-calorie foods contribute to the development of individuals with risk factors for non-communicable diseases. Aerobic exercise is one of the main non-pharmacological strategies in this confrontation. This work aims to evaluate the effects of moderate-intensity exercise (MIE) on biometric and metabolic parameters of adult male Wistar rats, programmed for obesity during the lactation period. The litters were standardized in 9 pups until the 3rd day of life, and later adjusted in Normal Litters (NL), and Reduced Litters (SL). At 21 days, the offspring were weaned and divided into sedentary (SED) and exercised (EXE) groups, forming 4 experimental groups: NL-SED, NL-EXE, SL-SED and SL-EXE. EXE rats performed a moderate-intensity treadmill running protocol from 30 to 60 years old. All groups were euthanized at 120 days. The results showed that the litter reduction made the animals heavier ($p < 0.0001$), hyperphagic ($p < 0.001$), greater mesenteric fat stock ($p < 0.0001$), insulin resistant ($p = 0.0001$) and glucose intolerant ($p = 0.0001$), when compared to equivalent controls. MIE promoted a reduction in body weight ($p = 0.001$) and mesenteric fat ($p < 0.0001$), better insulin sensitivity ($p = 0.01$) and glucose tolerance ($p = 0.003$). It is concluded, therefore, that MIE performed in adolescence attenuates the deleterious effects observed on body composition and glucose metabolism in adult animals, programmed early for obesity.

Keywords: DOHaD, Adolescence, Aerobic Exercise

Funding: CAPES, INSPAM/JBS

