

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

CHANGES IN BLOOD NEUTROPHIL/LYMPHOCYTE RATIO AND TOTAL LEUKOCYTES RELATED TO DIFFERENT EXERCISE INTENSITIES IN THOROUGHBRED HORSES

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At the beginning of the exercise, the hypothalamic pituitary-adrenal axis is activated, raising the plasma concentrations of catecholamines and cortisol. These hormones play an important role mediating the body responses to the exercise, including changes in the immunity, affecting the total leukocyte counts as well as the neutrophils and lymphocytes ratio. Therefore, the goal of this trial was to use the white blood cell differential count to study the effects of increasing intensities of race training on the thoroughbreds' immunity and wellbeing. The experiment was performed under a total randomized design with 16 replications in the first, second and third treatments and 10 replications in the fourth treatment. The study used 16 two-year-old thoroughbred horses housed in individual stalls at Paraná's Jockey Club, in Brazil. The horses were exercised 5 days per week for an average time of 20 minutes during a period of 5 months, which has been divided into 4 increasing levels of intensity. The first and the second level of exercise intensity lasted 2 months and were characterized respectively by: 2000 meters of trot and 1000 meters of canter, and 500 meters of trot and 2000 meters of gallop. The third level of exercise intensity lasted 1 month and was characterized by: 900 meters of trot and 1000 meters of fast gallop, and the horses' first official race was considered the highest exercise intensity. Blood samples were collected 24 hours after the highest physical effort of the animals at each stage of training. The blood samples were immediately stored at 4°C and transported to the Laboratory of Clinical Pathology of Universidade Federal do Paraná, where the leukogram with differential leukocyte count was determined. The analysis of changes in total leukocyte, neutrophil, and lymphocyte counts was done with an ANOVA procedure with post-hoc Tukey test. There was a significant increase in Neutrophil/Lymphocyte ratio during the intense exercise training and the first official race, and a significant increase in the total leukocytes number after the first official race. As all the results of the hemogram exams during the entire experiment were enclosed in the normal physiological parameters, could be concluded that, although the different training intensities have significantly influenced the leukogram, these changes were not enough to cause immune suppression. So, the animals were not being over trained and the exercise intensities of the training protocol did not cause suppression of the animals' immunity.

Keywords: differential leukocyte count, equine, immunity, leukogram

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