

Efeito agudo da atividade física aeróbica (natação forçada) nas lesões de mucosa gástrica induzidas por indometacina e nos níveis de cortisol plasmático: estudo experimental em ratos

Lícia Magri Juste¹, Luiz Carlos Bertges² & Angela Maria Gollner³

¹ Programa de Pós-Graduação em Ciências Biológicas: Comportamento e Biologia Animal, Universidade Federal de Juiz de Fora, MG. liciajuste@yahoo.com.br

²Orientador. Departamento de Fisiologia, Universidade Federal de Juiz de Fora. bertges@nutecnet.com.br

³Co-orientadora. Departamento de Patologia, Universidade Federal de Juiz de Fora. gollner.duarte@acessa.com

Abstract. Acute effect of aerobic exercise (forced swimming) on indomethacin-induced gastric lesions: experimental study in rats. The integrity of the gastric mucous membrane involves a dynamic reparative process mediated by the gastric sanguine flow, cellular regeneration, endogenous production of prostaglandins and mucus secretion. Although the mechanisms involved in the protection of the mucous membrane are effective most of the time, there is a flaw due to the ministrations of drugs. Particularly important are the gastrointestinal symptoms experienced by individuals that are physically active or make use of non-steroidal anti-inflammatory. Our aim was to verify the influence of the forced swimming in the lesion of gastric mucous membrane of rats submitted to the administration of indomethacin and in the stress. The experiment was divided into three phases: conditioning, training for swimming and testing. The rats (N= 40) were divided into groups A and B. Each rat from group A received 25mg/kg of indomethacin, and each rat from group B was also submitted to the same dose of indomethacin, followed by an hour of forced swimming. Two days were devoted to the conditioning phase of the experiment, in which the animals were submitted to manipulation only for the provision of water and ration. During the period of training for swimming, the animals were forced to swim daily during the dark photoperiod, filled with warm water to the temperature between 29 and 32°C. They swam for 15 minutes, on the first day; on the second day, for 30 minutes; on the third day, for one hour; on the fourth day, for 30 minutes while carrying, on their tail, a weight which corresponded to 8% of their individual corporal mass; and, finally, on the fifth day, they swam with the same weight attached on the tail, for one hour. Two days were devoted to the tests. On the first day, half of the animals from group A, as well as half of the mice from group B, received 25mg/kg of indomethacin, after a fast of 6 hours each. The rats belonging to the sub-group A1 were kept for 60 minutes without any manipulation. The animals belonging to the sub-group B1 swam for 60 minutes, with an equivalent weight of 12% of their individual corporal mass attached to their tail. On the second day, the other half of the animals from group A and the other half of the animals from group B were submitted to the same procedures. Blood samples were taken for cortisol dosage. The samples were evaluated for the level of stress derived from both the physical activity as well as the procedures of the first day of tests. Results revealed a remarkable increase in the number of gastric lesions suffered by the animals belonging to the group that was submitted to the influence of indometacina and exercise, in relation to the group that was submitted to indomethacin only. It was evident that the lesion of gastric mucous membrane was worsened by physical activity associated with the administration of indometacina. There was a 119% increase in the cortisol dosage mediated by physical activity. Even the animals that have experienced both visual and auditory stimuli during the dark period of the tests, they did not demonstrate an increase in their levels of stress at all.

Keywords: Activity, gastric protection, ischemia, non-steroidal anti-inflammatory drug, splanchnic.