ABSTRACT

SWIMMING TRAINING EFFECTS ON CARDIOVASCULAR SYSTEM AND HYPERTROFIC CARDIAC MOLECULAR MARKERS IN WISTAR FEMALES

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Swimming training leads to a cardiac volume overload that induces excentric cardiac hypertrophy (CH) with an increase in cardiac mass and diameter. Cardiovascular system adaptations and expression of genes relatated with pathological CH were investigated in swimming training CH. We studied 42 wistar females, divided in sedentary control (SC) group, protocol 1 trained group (P1) and protocol 2 trained group (P2). The P1 training program was once a day for 5 times/week for 10 weeks. P2 was the same as P1 until 8th week. In 9th week it was twice a day and in 10th week 3 times a day. Trained groups, in contrast with SC, showed rest bradycardia, improvement in physical performance, maximum oxygen uptake and CH, with no alteration in the medium arterial pressure and in the expression of atrial natriuretic factor and skeletal alpha actin genes. Moreover, P2 showed an increase in cardiac diameter and decrease in the expression of beta myosin heavy chain gene. This expression result is different of patological CH literature wich shows an increase of this gene expression and also in the others genes we had investigated. P2 CH results were similar to those recently found in endurance-type athletes, sugesting this is a good model to investigate mechanisms involved in endurance-type athletes CH.

Keywords: cardiac hypertrophy, swimming training, maximum oxygen uptake, real-time PCR, skeletal alpha actin, atrial natriuretic factor, beta myosin heavy chain