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Inflammatory biomarkers and oxidative stress enzymes in young women undergoing muscular hypertrophy training

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INFLAMMATORY BIOMARKERS AND OXIDATIVE STRESS ENZYMES IN YOUNG WOMEN UNDERGOING MUSCULAR HYPERTROPHY TRAINING

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KEYWORDS: Chemokines, hypertrophy, oxidative stress enzymes and strength training

The strength training is a fundamental part of a general training performance (sport, health and etc) as well as the muscular hypertrophy is one of its main adaptation. The aim of this study was to identify the levels of chemokines and the oxidative stress enzymes in plasma of young women undergoing muscular hypertrophy training. The untrained women volunteers (n=11) were submitted to training in a knee extensor bench for 3 times/week (in a total of 10 weeks) with a progressive series starting with 3 and ending with 5 series, of the 6 repetitions, at 60% of 1RM (maximum repetition). Each movement was executed in 6 seconds (3s of concentric and 3s of eccentric muscular actions) and recovery of 180s. The quadriceps hypertrophy was estimated by computerized magnetic resonance imaging and the maximal strength by 1RM test, before and after training. The circulating oxidative enzymes (CAT, SOD, FRAP and TBARS) were evaluated by colorimetric method while the inflammatory chemokines (IL-8, CCL2 and CCL5) by enzyme immunoassay. All biomarkers were evaluated before and 30 minutes after the exercise at the 1st, 15th and 29th training sessions. Our data shown the muscle hypertrophy and the maximal strength at the end the training period. We observed high levels of CCL2 and FRAP on the first training session and high levels of CCL5 and CAT on the last training session. We also observed an increase of TBARS level in association with the acute exercise response. In summary, the strength train-

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ing performed in young untrained women, following this described protocol, resulted in hypertrophy and increases in maximal strength in quadriceps, increase on the CCL5 and CAT with training and decrease on the CCL2 and FRAP to 15th training's session.