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EFFECTS OF ORAL GLUTAMINE SUPPLEMENTATION ON PLASMA LYMPHOCYTES COUNT AFTER EXHAUSTIVE RESISTANCE EXERCISE

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KEYWORDS: Glutamine, lymphocytes, resistance exercise

Plasma glutamine, decreases in patients with infection, overtrained athletes and after prolonged and intense aerobic exercise⁽¹⁾. This is accompanied by a transient post exercise drop in lymphocytes count. Restoration to normal levels appears to be faster or is not affected after previous glutamine administration⁽²⁾. During dynamic resistance exercise, however, the physiological requirements may differ from those observed during aerobic effort. Thus our study aimed to examine the acute effects of glutamine supplementation after exhaustive resistance exercise. Ten physically active males (age: 21.4±0.11yrs), able to squat against a weight at least 150% of their body mass, participated in the study. Following a controlled diet and physical activity, participants were administered either 0.1gr L-glutamine·kg⁻¹ diluted in 250ml water (GLN condition-GC) or 250ml water (Control Condition-CC) fifteen days apart, before the execution of a resistance exercise protocol using a double blind and counter balanced design. Resistance exercise involved the execution of multiple sets (until exhaustion) of fifteen repetitions back squats (90° knee flexion) with a load 65% of 1RM, constant paced at 30 reps·min⁻¹, with 1min of rest between sets. Blood samples were obtained (1st) before exercise and the administration of GLN or water, (2nd) immediately after exercise and (3rd) 30mins, (4th) 1hr, (5th) 3hrs and (6th) 6hrs post exercise. WBC increased (p<0.05) immediately after exercise, returned to baseline 30min post exercise but were slightly increased (p<0.05) 3 and 6hrs post exercise for the GC. Lymphocyte count in both conditions and % lymphocytes in CC, increased (p<0.05) immediately after exercise. Lymphocytes decreased below baseline values from 30min (not significantly for GC) up to 1hr post exercise. The % lymphocytes fell below baseline values (p<0.05) from 30min up to 3hrs for CC and 6hrs for GC. Lymphocytes decrease at 1hr post exercise and % lympho-

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cytes decrease 30min and 1hr post exercise were of greater extent ($p<0.05$) in CC compared to GC. Exhaustive resistance exercise seems to result in a transient increase of plasma WBC and lymphocyte count followed by a short-term decrease in the next few hours. Oral glutamine supplementation reduces lymphocyte decrease after exercise and induces a relatively faster return to baseline. Further research is required, however, to examine whether a causal relation exists.