TACSM Abstract

No Effect of Curcumin Supplementation on Inflammatory Response to Resistance Exercise in Resistance-Trained Young Women

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ABSTRACT

INTRODUCTION: Resistance exercise can often lead to muscle damage and delayed onset muscle soreness (DOMS). The discomfort associated with these side effects could affect training frequency and intensity and thus optimal chronic adaptation. Further, the use of non-steroidal anti-inflammatory drugs to counteract DOMS may affect muscle adaptation responses. However, curcumin (CUR), a polyphenol found in the spice turmeric, has been shown to attenuate these undesirable effects through its anti-inflammatory and antioxidant properties. **PURPOSE:** To determine the effect of 8 days (400 mg/d) of a commercially available CUR supplement on muscle soreness and inflammation following fatiguing back squat exercise in resistance-trained (RT) women. **METHODS:** In this randomized crossover design, 8 RT women (mean±SD; age: 24±4 y; BMI: 24.6±2.4 kg/m^2) were randomly assigned to receive placebo (PLA, rice flour) or CUR supplement for 8 days during their follicular phase. On the 7th day, participants arrived at the laboratory fasted and completed 5 sets of 10 repetitions of back squat exercise at 70% 1RM. Blood was drawn at baseline (0h), 3h-post, and 24h-post exercise, and participants were asked to rate their muscle soreness from a seated-to-stand position using a visual analog scale line. Circulating inflammatory markers (IFNγ, IL-6, TNFα) were measured using the Ella™ Simple Plex™ assay system and data were analyzed using a 2x3 ANOVA. **RESULTS:** Participants experienced a significant increase in perceived muscle soreness from 0h (5.6±8.2mm) to 24h (39.2±26.2mm, P<0.01), but this was not different between PLA and CUR (P=0.99). There were no significant differences in measured inflammatory markers (IFNγ, IL-6, TNFα) between time points or treatment. **CONCLUSIONS:** In this small group of young, resistance-trained women, 8 days of CUR did not influence the inflammatory response to 70% 1RM back squat exercise, despite increased perceived muscle soreness. Previous work has shown a reduction in TNFα following eccentric-damaging exercise with similar CUR dose in untrained adults who were novice to the exercise. Future work should examine the impact of CUR on skeletal muscle metabolism and adaptive responses, as well as the effect of chronic supplementation in both trained and untrained adults.