Performance and body composition changes after 50 days of concomitant arachidonic acid supplementation and resistance training.

M Iosia, M Roberts, C Kerksick, B Campbell, T Harvey, C Wilborn, R Wilson, M. Greenwood, D Willoughby and R Kreider. Exercise & Sport Nutrition Laboratory, Center for Exercise, Nutrition & Preventive Health Research, Baylor University, Waco, TX 76798-7313. Mike_Iosia@baylor.edu.

ABSTRACT

Arachidonic acid (AA) is a polyunsaturated omega-6 (ω-6) fatty acid that is stored within skeletal muscle phospholipids and has been purported to stimulate changes in strength and body composition while resistance training. The purpose of this study was to determine if 50 days of concomitant resistance training and AA supplementation affects performance and/or body composition adaptations in previously resistance-trained males. Thirty-one subjects (22.1 ± 5.0 yrs, 178.9 ± 3.4 cm, 86.1 ± 13.0 kg, 18.1 ± 6.4 % body fat) were randomly assigned to ingest either a corn oil placebo (P: n=16) or AA (n=15). All subjects ingested a total of four capsules each day by ingesting one 0.25 gram capsule every four hours for a total daily dose of 1 gram•d-1 and were given a supplemental protein powder in order attain a protein intake of 2 g•kg-1•d-1. Each subject completed two upper-body and two lower-body workouts each week in a split-body fashion. Total training volumes were calculated from training logs. Body mass, body composition using DEXA, bench press one-repetition maximum (1RM), leg press 1RM and Wingate anaerobic capacity tests were completed at 0, 25 and 50 days. Data were analyzed using repeated measures ANOVA and are presented as mean ± SD changes from baseline after 50-days. No significant differences ($p>0.05$) between groups were noted for training volume. Training significantly increased body mass ($p<0.01$), DEXA lean mass ($p<0.001$), bench press 1RM ($p<0.001$), leg press 1RM ($p<0.001$), Wingate average power ($p<0.001$) and Wingate total work ($p<0.001$) indicating that the subjects experienced positive training adaptations. No significant group x time interaction effects were observed among groups in changes in body mass (AA: 1.6 ± 2.3; P: 1.0 ± 2.1 kg, $p=0.45$), DEXA lean mass (AA: 1.2 ± 1.6; P: 1.0 ± 1.9 kg, $p=0.71$), or leg press 1RM (AA: 25.0 ± 24.7; P: 22.7 ± 34.0 kg, $p=0.83$). **Statistical trends were seen in bench press 1RM (AA: 11.0 ± 6.2; P: 8.0 ± 8.0 kg, $p=0.20$), Wingate average power (AA: 37.9 ± 10.0; P: 17.0 ± 24.0 W, $p=0.16$), and Wingate total work (AA: 1292 ± 1206; P: 510 ± 1249 J, $p=0.087$). A significant group x time interaction effect was observed in Wingate relative peak power (AA: 1.2 ± 0.5; P: -0.2 ± 0.2 W•kg-1, $p=0.015$). In conclusion, AA supplementation during resistance-training promoted significant increases in relative peak power with other performance related variables approaching significance. These findings provide some preliminary evidence to support the use of AA as an ergogenic aid.** More research is needed to explore the effects of AA supplementation on training adaptations.

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