

Poster presentation

Effects of a pre- and post-exercise whey protein supplement on recovery from an acute resistance training session

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Background

The purpose of this study was to examine the efficacy of pre- and post-exercise whey protein ingestion on recovery from an acute resistance training session.

Methods

Fifteen male strength/power athletes volunteered to participate in this study. Subjects were randomly divided into a supplement (S; $n = 7$, 19.7 ± 1.5 y, 185.4 ± 3.9 cm, 96.4 ± 11.9 kg) or a placebo (P; $n = 8$, 20.0 ± 1.1 y, 176.7 ± 8.5 cm, 85.8 ± 12.0 kg) group. Subjects reported to the Human Performance Laboratory (HPL) on four separate occasions. On the first visit subjects were tested for maximal strength (1-RM) on the squat exercise. On their second visit (T2) subjects performed a lower body resistance exercise training session that consisted of four sets of the squat, dead lift and barbell lunge exercises. The rest interval between each set was 90 seconds. Each set was performed with 80% of the subject's previously measured 1-RM. Subjects were required to perform no more than 10 repetitions for each set. The supplement (42 g of whey protein; marketed as New Whey Liquid Protein by IDS Sports, Oviedo, FL) or placebo (maltodextrin) was consumed 10 min prior to the exercise session and 15 min following the workout. Subjects then reported back to the HPL 24-(T3) and 48-hours (T4) post-exercise. During these visits subjects performed four sets of the squat exercise, using the same loading pattern and rest interval. Similar to T2, subjects consumed either the supplement or

placebo before and 15 min following the exercise session. Lower body power during each squat protocol was measured with a Tendo™ Power Output unit, which consists of a transducer attached to the end of the barbell measuring linear displacement and time. Both peak and mean power was recorded for each repetition.

Results

No difference was seen in the 1-RM between S (153.6 ± 23.0 kg) and P (152.8 ± 22.2 kg), and no differences were seen between the groups in the number of repetitions performed in the squat exercise during T2 (33.3 ± 6.0 and 33.8 ± 7.4 , respectively). During T3, subjects in P performed 9.5 ± 5.5 repetitions less than on T2, whereas subjects in S performed 3.3 ± 3.6 repetitions less than on T2. This difference was significant ($p < 0.05$). During T4, subjects in P performed 10.5 ± 8.2 repetitions less than on T2, whereas subjects in S performed 2.3 ± 2.9 repetitions less than on T2. This difference was significant ($p < 0.05$) as well. A trend ($p = 0.09$) in Δ mean power was seen between T2 and T3 between S (-47.7 ± 67.2 W) and P (-126.3 ± 167.1 W).

Conclusion

The results of this study indicate that subjects that consume a whey protein supplement before and after a resistance training session have a significantly greater improvement in exercise recovery 24- and 48-hours post-exercise than subjects ingesting a placebo.

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