



The Effects of Whey Protein Isolate vs. a Reduced Volume of Proprietary Processed Whey Protein Isolate Supplementation in Conjunction With Resistance Training on Maximal Strength in Resistance Trained Males

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ABSTRACT

Whey protein isolate (WPI) is regarded as the most effective form of supplemental protein in sports nutrition. Recently, a novel whey protein isolate (WPI) processing technique has been introduced to the market, which may improve absorption, digestibility, and ultimately training adaptations. Utilizing this WPI processing technology, the purpose of this investigation was to determine the effects of two different types of whey protein dietary supplements (standard whey protein isolate [Standard WPI] vs. a reduced volume of a proprietary processed whey protein isolate [Novel WPI]) on maximal strength in conjunction with an 8-week resistance-training program in resistance trained males.

METHODS: 32 resistance-trained males (22.2±4.3 years; 177.3±7.8 cm; 77.6±12.6 kg) participated in this randomized, double-blinded investigation. Participants were matched according to FFM and randomized to the Standard WPI (n=18) or the Novel WPI (n=14). The Standard WPI group was provided with 27g of WPI per serving and the Novel WPI group was given a reduced volume of WPI (20g of uniquely processed WPI+7g maltodextrin to match the volume of the Standard WPI serving size). Both protein supplements were taken immediately after each training session (4x/week). Both groups performed the same training program, and maintained a protein intake of 1.5-2.5g/kg/d to facilitate recovery from and adaptation to training. At baseline and following the 8-week training program, participants were assessed for maximal strength on the back squat, bench press, and deadlift. The program consisted of two lower-body and two upper-body workouts/week for an 8-week period. Data were analyzed via a 2-factor [2x2] between-subjects repeated measures ANOVA using SPSS v22.0. The criterion for significance was set at p≤0.05.

RESULTS: No differences existed between the two groups for strength measures at baseline. The repeated measures ANOVA revealed a main effect for time for the back squat (p<0.001), bench press (p<0.001), and deadlift (p<0.001) exercises, but no group x time interactions were observed for absolute or relative strength between groups. Specifically, back squat increased from 131.2±25.5kg to 144.8±25.1kg (improvement of 10.4%) and from 131.6±37.6kg to 145.5±35.4kg (improvement of 10.6%); bench press increased from 100.3±19.0kg to 108.0±19.5kg (improvement of 7.7%) and from 96.0±19.9kg to 100.9±20.2kg (improvement of 5.1%); deadlift increased from 151.0±33.3kg to 162.0±31.1kg (improvement of 7.3%) and from 149.6±31.9kg to 158.7±35.3kg (improvement of 6.1%) in the Standard WPI and Novel WPI groups, respectively.

CONCLUSIONS: In resistance-trained males, using a reduced amount (25% less WPI) of novel processed WPI as a post-workout protein supplement elicits the same increases in strength as a higher-protein dosed, standard WPI supplement.

BACKGROUND

Whey protein isolate (WPI) is regarded as the most effective form of supplemental protein in sports nutrition. Recently, a novel WPI processing technique has been introduced to the market, which may improve absorption, digestibility, and ultimately training adaptations.

Utilizing this WPI processing technology, the purpose of this investigation was to determine the effects of two different types of whey protein dietary supplements (standard whey protein isolate [Standard WPI] vs. a reduced volume of a proprietary processed whey protein isolate [Novel WPI]) on maximal strength in conjunction with an 8-week resistance-training program in resistance trained males.



METHODS

32 resistance-trained males (22.2±4.3years; 177.3±7.8cm; 77.6±12.6 kg) participated in this randomized, double-blinded investigation. Participants were matched according to FFM and randomized to the Standard WPI (n=18) or the Novel WPI (n=14).

The Standard WPI group was provided with 27g of WPI per serving and the Novel WPI group was given a reduced volume of WPI (20g of uniquely processed WPI+7g maltodextrin to match the volume of the Standard WPI serving size). Both protein supplements were taken daily, including immediately after each training session (4x/week).

Both groups performed the same training program, and maintained a protein intake of 1.5-2.5g/kg/d to facilitate recovery from and adaptation to training. At baseline and following 8-week training program, participants were assessed for maximal strength on the back squat, bench press, and deadlift. The program consisted of two lower-body and two upper-body workouts/week for an 8-week period.

Data were analyzed via a 2-factor [2x2] between-subjects repeated measures ANOVA and pre to post changes within each group were analyzed by a paired-samples t-test. The alpha criterion for significance set at 0.05.

RESULTS

No differences existed between the two groups for strength measures at baseline. The repeated measures ANOVA revealed a main effect for time for the back squat (p<0.001), bench press (p<0.001), and deadlift (p<0.001) exercises, but no group x time interactions were observed for absolute or relative strength between groups.

Specifically, back squat increased from 131.2±25.5kg to 144.8±25.1kg (improvement of 10.4%) and from 131.6±37.6kg to 145.5±35.4kg (improvement of 10.6%); bench press increased from 100.3±19.0kg to 108.0±19.5kg (improvement of 7.7%) and from 96.0±19.9kg to 100.9±20.2kg (improvement of 5.1%); deadlift increased from 151.0±33.3kg to 162.0±31.1kg (improvement of 7.3%) and from 149.6±31.9kg to 158.7±35.3kg (improvement of 6.1%) in the Standard WPI and Novel WPI groups, respectively.

CONCLUSION

In resistance-trained males, using a reduced amount (25% less WPI) of novel processed WPI as a post-workout protein supplement elicits the same increases in strength as a higher-protein dosed, standard WPI supplement.

Table 1: Maximal Strength Data

	Standard WPI			Novel WPI			Group x Time Interaction
	Baseline	Post-Training	Dependent Cohen's D	Baseline	Post-Training	Dependent Cohen's D	
Back Squat* (kg)	131.2 ±25.5	144.8 ±25.1	0.54	131.6 ±37.6	145.5 ±35.4	0.38	0.964
Bench Press* (kg)	100.3 ±19.0	108.0 ±19.5	0.40	96.0 ±19.9	100.9 ±20.2	0.24	0.156
Deadlift* (kg)	151.0 ±33.3	162.0 ±31.1	0.34	149.6 ±31.9	158.7 ±35.3	0.27	0.607

* Within-group pre-post training differences, p < 0.001



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