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

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ABSTRACT

Recently, a novel whey protein isolate (WPI) processing technique has been introduced, 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 body composition 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±12.6kg) participated in this randomized, double-blinded investigation. Participants were matched according to fat-free mass (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) immediately after each resistance training session (4x/week). At baseline and following 8-weeks of training, participants were assessed for body composition (FFM, dry lean mass [DLM], fat mass [FM], and bodyfat percentage [BF%]). The resistance-training program consisted of two lower-body and two upper-body workouts/week for 8 weeks. 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.

RESULTS: No differences existed between the two groups for body composition measures at baseline. The repeated measures ANOVA revealed a main effect for time for FFM ($p<0.001$) and DLM ($p=0.05$), but no group x time interactions. Specifically, FFM increased from 68.8±9.3kg to 70.0±9.4kg and from 67.1±9.0kg to 67.8±9.7kg; DLM increased from 19.6±3.7kg to 20.2±3.5kg and from 19.3±3.6kg to 20.1±5.2kg in the Standard WPI and Novel WPI groups, respectively. The paired samples t-test revealed a significant increase in FFM over time in the Standard WPI group ($p=0.001$) and a trend for significance in the Novel WPI group ($p=0.082$). However, when body water was accounted for (DLM), neither group significantly increased DLM over time (Standard WPI: $p=0.164$; Novel WPI: $p=0.185$). There were no main effects for time nor a group x time interaction for FM and BF% ($p>0.05$).

CONCLUSIONS: In resistance-trained males, using a reduced amount (25% less WPI) of novel processed WPI as a post-workout protein supplement elicits changes in body composition similar to using a higher-protein dosed, standard WPI supplement.

BACKGROUND

Whey protein isolate (WPI) supplementation during resistance training augments fat-free mass. Recently, a novel WPI processing technique has been introduced, 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 body composition 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±12.6kg) participated in this randomized, double-blinded investigation. Participants were matched according to fat-free mass (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) daily, including immediately after each resistance training session (4x/week).

At baseline and following 8-weeks of training, participants were assessed for body composition (FFM, dry lean mass [DLM], fat mass [FM], and bodyfat percentage [BF%]). The resistance-training program consisted of two lower-body and two upper-body workouts/week for 8 weeks.

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 body composition measures at baseline. The repeated measures ANOVA revealed a main effect for time for FFM ($p<0.001$) and DLM ($p=0.05$), but no group x time interactions.

Specifically, FFM increased from 68.8±9.3kg to 70.0±9.4kg and from 67.1±9.0kg to 67.8±9.7kg; DLM increased from 19.6±3.7kg to 20.2±3.5kg and from 19.3±3.6kg to 20.1±5.2kg in the Standard WPI and Novel WPI groups, respectively. The paired samples t-test revealed a significant increase in FFM over time in the Standard WPI group ($p=0.001$) and a trend for significance in the Novel WPI group ($p=0.082$).

However, when body water was accounted for (DLM), neither group significantly increased DLM over time (Standard WPI: $p=0.164$; Novel WPI: $p=0.185$). There were no main effects for time nor a group x time interaction for FM and BF% ($p>0.05$).

CONCLUSION

In resistance-trained males, using a reduced amount (25% less WPI) of novel processed WPI as a post-workout protein supplement elicits changes in body composition similar to using a higher-protein dosed, standard WPI supplement.

Table 1:Body Composition Data

	Standard WPI			Novel WPI			
	Baseline	Post-Training	Dependent Cohen's D	Baseline	Post-Training	Dependent Cohen's D	Group x Time Interaction
Body Mass (kg)	78.5 ±12.6	79.3 ±12.2	0.06	76.3 ±12.9	77.4 ±14.0	0.08	0.737
Fat Mass (kg)	9.8 ± 4.7	9.3 ± 4.4	-0.11	9.3 ± 4.7	9.5 ± 5.1	0.04	0.131
Body fat %	12.1 ± 4.4	11.4 ± 4.3	-0.16	11.7 ± 3.8	11.7 ± 4.1	0.0	0.145
FFM (kg)*	68.8 ± 9.3	70.0 ± 9.4	0.13	67.1 ± 9.0	67.8 ± 9.7	0.07	0.308
DLM (kg)#	19.6 ± 3.7	20.2 ± 3.5	0.17	19.3 ± 3.6	20.1 ± 5.2	0.18	0.672

* Main effect for time, $p < 0.001$

Main effect for time, $p = 0.05$

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