

New meta-analysis builds on the power of whey protein for improved body composition

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New research published in the March/April 2014 issue of the *Journal of the American College of Nutrition* shows whey protein, either as a supplement combined with resistance exercise or as part of a weight-loss or weight-maintenance diet, may provide men and women benefits related to body composition.

The meta-analysis included 14 randomized controlled trials with a total of 626 adult participants. When researchers analyzed those weight loss studies that used [whey protein](#) to replace calories in the diet, participants had a decrease in body weight of 4.2 kg (9.2 pounds), on average, compared to baseline values with whey protein intake. Additionally, after analyzing [muscle protein](#) synthesis studies that included [resistance exercise](#) along with whey provisions, researchers found that participants had a statistically significant increase in lean [body mass](#) of 2.24 kg (4.9 pounds,) on average, when whey protein was used in conjunction with resistance exercise.

"There is a growing body of research that supports the benefits of whey protein for weight maintenance and lean body mass," said Dominik D. Alexander, PhD, MSPH , principal investigator. "By conducting this meta-analysis we were able to better evaluate the collective power of each individual study. The results indicate that there is something unique about whey protein, compared to other protein sources and carbohydrates, when it comes to building lean body mass and maintaining or losing weight."

Whey protein is a high-quality protein naturally found in dairy. It is a complete protein containing all of the essential amino acids ("building blocks") the body needs, and is rapidly digestible. Whey protein is also one of the best sources of a subgroup of three [essential amino acids](#), called branched-chain amino acids (BCAAs), which include leucine, isoleucine and valine. Unlike other [amino acids](#), BCAAs are almost exclusively taken up and used by muscle. And, among common food sources of BCAAs, whey protein contains one of the highest levels of leucine, which has been shown to influence muscle growth.

This research is one of several studies supported by the Whey Protein Research Consortium, an international partnership of dairy cooperatives, associations, processors and multinational companies working together to support whey research. The Consortium's first study by Dr. David Baer, USDA, found that daily consumption of whey protein, but not soy protein, led to lower body weight, body fat and waist circumference compared to carbohydrates in free-living overweight and obese adults.

"These research findings support the Consortium's goal to create a strong scientific foundation demonstrating the health and wellness benefits of whey protein," said Bryan Helwig, PhD, Whey Protein Research Consortium. "This research provides further evidence demonstrating the benefits of whey proteins as they relate to [body composition](#)," said Dr. Helwig.

Study Details

The Study: A meta-analysis was conducted to examine the effect of whey protein (WP), with or without resistance exercise, on body weight and body composition in randomized controlled trials (RCTs) conducted in generally healthy adult study populations. A comprehensive literature search was conducted to identify RCTs that investigated WP (concentrate, isolate, or hydrolystate) and [body weight](#), body mass index

(BMI), body fat, lean body mass (LBM), fat-free mass (FFM), and waist circumference. Random effects meta-analyses were conducted to generate weighted group mean differences (WGMD) for between group comparisons (WP vs. other protein sources or carbohydrates) and within-WP group comparisons (i.e., differences from baseline to trial end). Studies were classified into two distinct groups—WP as a supplement without dietary modification (WPS) and WP as a replacement for other sources of calories (WPR)—and were meta-analyzed separately. Subgroup analyses included examining the effect of resistance exercise and type of WP on the relationship between WP and body composition.

Results: Fourteen RCTs were included, with a total of 626 adult study completers. Five studies examined the effects of WPR whereas the remaining nine studies examined the effects of WPS. Body weight (WGMD: -4.20kg, 95% CI: -7.67, -0.73) and body fat (WGMD: -3.74kg, 95% CI: -19 5.98, -1.50) were significantly decreased from baseline in the WPR within-group analyses. In the between-group analyses, the effects of WP were more favorable when compared with carbohydrates than protein sources other than whey, although findings did not reach statistical significance. Results from the subgroup analyses indicated a statistically significant increase in LBM (WGMD: 2.24 kg, 95% CI: 0.66, 3.81) among studies that included a resistance exercise component along with WP provision.

Conclusions: The current body of literature supports the use of WP, either as a supplement combined with resistance exercise or as part of a weight-loss or weight-maintenance diet, to improve body composition parameters.

More information: The meta-analysis can be accessed here:
<http://www.tandfonline.com/doi/full/10.1080/07315724.2013.875365#.U0wBPMf6Ges>

Provided by Whey Protein Research Consortium

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