

The Effects of Pre- and Post-Exercise Whey vs. Casein Protein Consumption on Body Composition and Performance Measures in Collegiate Female Athletes

Kristin Dugan†, Mallory McAdamst†, Morgan Lewing†, Cliffa A. Foster†, Lem W. Taylor†, Colin D. Wilborn†.

University of Mary Hardin-Baylor, Belton, TX 76513

Two of the most popular forms of protein on the market are whey and casein. Both proteins are derived from milk however the two differ concerning their absorption in the body. This difference between whey and casein proteins could affect the response seen in conjunction with training. **PURPOSE:** To investigate the potential effects of two types of protein ingestion in conjunction with a controlled resistance training program utilizing college female basketball players. **METHODS:** 16 NCAA Division III female basketball players were matched according to weight and double-blind randomly assigned to consume 24 grams whey protein (WP) (N = 8, 20 ± 1.9 years, 158 ± 27.3 cm, 66 ± 4.9 kg, 27 ± 4.9 %BF) or 24 grams casein protein (CP) (N = 8, 21 ± 2.8 years, 153 ± 2.9 cm, 68 ± 2.9 kg, 25 ± 5.7 %BF) pre- and post-exercise for eight weeks. Subjects participated in a supervised 4-day per week undulating periodized training program. At 0, 4, and 8 weeks, subjects underwent DEXA body composition analysis. At 0 and 8 weeks subjects underwent 1RM strength, muscle endurance, vertical jump, 5-10-5 and broad jump testing sessions. Data analysis using repeated measures ANOVA are presented as mean \pm SD changes from baseline after 60 days. **RESULTS:** No significant group \times time interaction effects were observed among groups in changes in any variable ($p > 0.05$). A significant time effect was observed for body fat (WP: -2 ± 1.1 %BF; CP: -1 ± 1.6 %BF, $p < 0.001$), lean mass (WP: 1.5 ± 1 kg; CP: 1.4 ± 1 kg, $p < 0.001$), fat mass (WP: -1.3 ± 1.2 kg; CP: -0.6 ± 1.4 kg, $p < 0.001$), leg press 1RM (WP: 88.7 ± 43.9 kg; CP: 90 ± 48.5 kg, $p < 0.001$), bench press 1RM (WP: 7.5 ± 4.6 kg; CP: 4.3 ± 4.5 kg, $p = 0.01$), vertical jump (WP: 1.6 ± 0.74 in; CP: 1.4 ± 3 in, $p < 0.001$), 5-10-5 (WP: -0.3 ± 0.2 sec; CP: -0.09 ± 0.42 sec, $p < 0.001$), and broad jump (WP: 4.1 ± 2.6 in; CP: 5.1 ± 2.8 in, $p < 0.001$). **CONCLUSION:** The combination of a controlled undulating resistance training program with pre- and post-exercise protein supplementation is capable of inducing significant changes in performance and body composition. There does not appear to be a difference in the performance enhancing effects of whey versus casein proteins.