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Rice Protein Performance Similar to Whey in Sports Study

As the building material for muscles, protein is vital to athletes. In the past, sports nutrition literature has indicated that low doses of plant-based proteins do not increase muscle protein synthesis compared to animal-based proteins.^{1,2} While whey has long reigned as the go-to sports protein, greater awareness of environmental issues and a desire to resort to more "natural" ingredients have paved the way for more plant-based products rather than animal-based. Additionally, scares related to the meat and dairy industries with hormone contamination and chemical-infused manufacturing processes are some of the reasons consumers may be turning away from whey.

Until recently, nothing was known about rice protein's ability as a sports nutrition supplement, though its novelty, hypoallergenic nature and prospective health benefits have made it a valuable candidate in today's food ingredient market. For the first time, researchers at the University of Tampa investigated the effects of rice protein vs. whey protein paired with resistance exercise in a group of trained athletes. The objective of the study, published June 2013 in *Nutrition Journal*, was to determine if high doses of rice protein isolate could increase recovery and elicit adequate changes in body composition compared to equal amounts of whey protein isolate, if given following periodized resistance-training.³

Design

Twenty-four healthy, college-aged males with a minimum of one year of strength training experience were recruited, and randomly and equally divided into two groups. Each group consumed isocaloric supplements containing either 48 g of rice protein isolate (Growing Naturals utilizing Oryzatein® created by David Janow and manufactured by Axiom Foods) or whey protein isolate (NutraBio) immediately following training. The training protocol was provided three times a week for eight weeks under direct supervision. Two weeks before and throughout the study, subjects were placed on a weight-maintenance diet by a registered dietitian who specialized in sports nutrition. The diet consisted of 25 percent protein, 50 percent carbohydrates and



25 percent fat, and was closely monitored to ensure compliance. To measure acute recovery, participants gave ratings for perceived recovery, soreness and readiness to train before and after the first training session. Otherwise, participants were measured and recorded for muscle thickness, body composition, bench press and leg press strength at baseline (week 0), midway (week 4) and end (week 8).

Results

Results showed there were no significant differences in the ratings between the groups supplemented with rice versus whey for recovery. In other words, both supplements produced a similar effect. Moreover, both groups experienced significant changes in body composition, strength and power from week 0 to week 8. Specifically, muscle mass, strength and power increased while

body fat decreased and the changes observed were similar for both groups. Whey protein did not confer additional benefit over rice protein.

Despite rice protein's suspected inferior quality, it was able to perform similarly to whey in this study. The authors assert that protein type or composition is of less significance when key nutrients are adequately provided. In this case, the one key nutrient was leucine. The leucine levels provided by the brown rice protein supplement appeared to be above the 2-3 g threshold needed to maximize muscle protein synthesis.⁴

Conclusion

Although more research is needed, these results indicate that at 48 g, rice protein can serve as a substitute for whey protein for building muscle and strength. This would be especially beneficial for those athletes who follow a vegan or other plant-based lifestyle, are unable to easily digest dairy proteins and/or are looking for an alternate protein source.

While the trend toward more natural products surges, Oryzatein appears to have utility over some dairy-based and soy-based proteins because it is not genetically modified (non-GMO), does not contain lactose or major food allergens, is manufactured without hexane, does not come from an animal known to be treated with growth hormones (rbST/bGH), anabolic steroids (AAS), estrogens and other hormones, antibiotics or other chemicals known to, suspected of, affecting or having an impact upon human health.

References:

- 1 Wilkinson SB, Tarnopolsky MA, Macdonald MJ, et al. Consumption of fluid skim milk promotes greater muscle protein accretion after resistance exercise than does consumption of an isonitrogenous and isoenergetic soy-protein beverage. *Am J Clin Nutr*. 2007; 85: 1031-1040.
- 2 Norton LE, Layman DK, Bunpo P, et al. The leucine content of a complete meal directs peak activation but not duration of skeletal muscle protein synthesis and mammalian target of rapamycin signaling in rats. *J Nutr*. 2009; 139: 1103-1109.
- 3 Joy J, Lowery RP, Wilson JM, et al. The effects of 8 weeks of whey or rice protein supplementation on body composition and exercise performance. *Nutrition J*. 2013; 12:86.
- 4 Norton LE, Layman DK. Leucine Regulates Translation Initiation of Protein Synthesis in Skeletal Muscle after Exercise. *J Nutr*. 2006; 136(2): 533S-537S.

