

Effect of Consuming a High Protein, High Fiber Shake on Measures of Satiety: A Randomized, Controlled, Cross-Over Study in Healthy Overweight and Obese Subjects

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Objectives: To estimate the time for hunger scores to return to baseline levels for the Control and high protein, high fiber shakes.

Methods: A total of 80 subjects were recruited for this double-blind, randomized, controlled study (50F:30 M; BMI 30.3 ± 3.7 kg/m²). Overnight fasted subjects consumed equicaloric portions (120 kcal) of the high protein, high fiber Chocolate Nutrisystem shake (NSh) and a low protein, low fiber chocolate beverage (Control). For premenopausal females, both visits were scheduled during the follicular phase of their menstrual cycle. The motivation-to-eat questionnaire was completed before and at 15, 30, 45, 60, 90, 120, 150, 180, 210 and 240 min after starting to consume the test meal. Throughout the 4.5 h visit, participants were seated quietly and were not be allowed to use any electronic devices. Time to baseline and differences in scores for the 4

satiety questions (Hunger, Desire to Eat, Prospective Consumption and Fullness) and the Average Appetite were analyzed.

Results: Five subjects dropped out and n = 75 were included in the final analysis. Per protocol analysis: Time to baseline for hunger scores after NSh, 183 ± 11 min, was the same as Control, 183 ± 12 min (n = 53; NS), however time to return to baseline for Fullness after NSh, 218 ± 10 min, was greater than Control, 198 ± 10 min, (n = 63; p = 0.036). When all 75 subjects were included in the analysis, there was no difference for hunger, but time to baseline for Fullness after NSh, 3 h and 20 min (200 ± 11 min) was significantly longer than Control, 2 h and 54 min (174 ± 11 min, p = 0.037). The % of subjects whose ratings were still above baseline after 4 h did not significantly differ for Hunger, Desire to Eat, Prospective Consumption or Average Appetite but was higher for Fullness after NSh, 44%, than Control, 28% (p = 0.041).

Conclusions: Hunger scores remained above baseline for over 3 h after a serving of Chocolate Nutrisystem shake and levels of fullness persisted for over 3.5 h. Fullness levels were significantly greater after consumption of the Nutrisystem shake than Control. The Nutrisystem shake may therefore be a helpful aid to increasing feelings of fullness.

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