

5-29-2020

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Peer Reviewed

Published Citation

Greco, Julia, Courtney Campbell, Allison Sloan, Dominka Mis, Christa Palancia Esposito, and Catherine Andersen. "Consumption of Different Egg-Based Diets Impacts Body Composition in Young Healthy Adults." *Current Developments in Nutrition* 4, no. Supplement_2 (2020): 633. https://doi.org/10.1093/cdn/nzaa049_026.

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Consumption of Different Egg-Based Diets Impacts Body Composition in Young Healthy Adults

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Objectives: Consumption of whole eggs vs. egg whites has been associated with differential effects on satiety and post-exercise skeletal muscle synthesis. We investigated whether daily intake of whole eggs, egg whites, or an egg-free diet differentially altered markers of body composition in a general population of young healthy adults who were not participating in a standardized exercise program.

Methods: Young, healthy men and women (18–35y, BMI < 30 kg/m², *n* = 26) participated in a randomized crossover intervention trial where they followed an egg-free diet for 4 weeks, then were randomized to consume either 3 whole eggs or 3 egg whites per day for 4 weeks. Subjects then followed a second 4-week egg-free diet washout period before switching to the alternative egg treatment. All subjects were instructed to maintain their baseline physical activity practices throughout the study. At the end of each diet period, body composition was measured by bioelectrical impedance and dietary

nutrient intake was analyzed. Fasting serum samples were collected to measure fasting serum lipids, glucose, and markers of protein status.

Results: There were no differences in dietary intake of total calories, carbohydrates, or protein between the egg-free, whole egg, and egg white diet periods. There were similarly no differences in fiber, sucrose, or animal vs. vegetable protein intake between diet periods. Conversely, whole egg intake resulted in greater intake of vitamin D, cholesterol, and total, saturated, and monounsaturated fat. In assessing body composition, modest increases in body weight and body mass index were observed during the egg white period as compared to the whole egg and egg-free diet period. However, while changes in fat-free mass and muscle mass between diet periods did not reach significance, body fat mass was modestly increased following the whole egg diet as compared to the egg-free diet. No differences in fasting serum lipids, glucose, or markers of protein status were observed between diet periods.

Conclusions: Our findings indicate that different egg-based diets are associated with modest changes in body composition in young healthy adults.

Funding Sources: This study was funded by an Agriculture and Food Research Initiative Grant from the USDA National Institute of Food and Agriculture.