

Find True *Satisfaction*

New research shows that
eggs promote satiety



The incredible edible egg™
American Egg Board

Eggs and Satiety Article

Find True Satisfaction

Satisfaction is a word steeped with so many potential definitions and points of view. There is satisfaction in a job well done. Satisfaction is derived from making a quality purchase for a good price. A satisfying meal not only tastes good; it also staves off hunger for a decent length of time. The egg as an ingredient satisfies on every level.

Further processed eggs satisfy the requirements of food manufacturers that need a readily available ingredient that is easy to incorporate into production. First, they are removed from their shells in USDA-inspected facilities. Available products can include whole eggs, whites, yolks and various blends with or without non-egg ingredients included to provide greater functionality. Further processed eggs come in liquid, frozen and dried forms for convenience, ease in handling and storage. Most importantly for the food manufacturer, egg products can lend ultimate satisfaction in the form of a natural, functional ingredient with great taste that helps promote satiety.

Satiety's link to weight management touches every age, gender and ethnic group. As dietitians and consumers alike express growing concern over medical issues linked to diet, such as obesity and diabetes, the foods we eat undergo greater scrutiny. A sedentary lifestyle requires fewer calories to maintain proper weight. As we age, we require fewer calories and great physical activity to maintain a healthy weight. Foods that fill us up, or provide a greater level of satiety, can play an important role in weight management.

The good news is that nutrient-dense ingredients such as eggs are easy to fit into the diet and into formulated foods. And these nutrient-dense foods can help promote that feeling of satiety to help consumers control their eating habits.

In fact, new research suggests that starting the day with an egg breakfast can reduce hunger and help reduce caloric intake by more than 400 calories over the next 24 hours. In a study published in the *Journal of the American College of Nutrition*, the researchers discovered that compared to a bagel-based breakfast of equal weight, the egg breakfast induced greater satiety and significantly reduced food intake the rest of the day. short-term food intake.

The researchers followed a group of otherwise healthy, overweight women who were fed an egg breakfast or a bagel breakfast on alternate days to measure the satiety effects and subsequent energy (caloric) intake over the next 36 hours.

The egg breakfast consisted of two eggs scrambled, two slices of toast, and one tablespoon of reduced calorie fruit spread. The bagel breakfast consisted of one bagel, two tablespoons of cream cheese and three ounces of low fat yogurt. The breakfasts contained the same number of calories and both weighed in at 188 grams.

The volunteers who ate the egg breakfast reported greater levels of satiety and consumed an average of 164 calories less for lunch and 418 fewer calories overall than those who

ate the bagel breakfast over the course of the next day. Dropping more than 400 calories per day could have a significant positive impact on a person's weight and overall health.

The researchers believe that the higher protein content of the egg breakfast (5 grams more than the bagel breakfast) accounts for only part of the reason for the increased sensation of satiety, stating and stated, "Clearly, the satiety impact of various foods is impacted by additional factors beside simple macronutrient composition."

Eggs have an impressive macronutrient composition to contribute to their satiety impact. A registered dietitian and culinary instructor at the Institute of Culinary Education in New York called eggs a 'nutritional powerhouse.' And no wonder, eggs provide some of the highest quality protein of any food, as well as being one of the few nondairy sources of vitamin D.

Eggs also serve as a good source of the B vitamin riboflavin and contain varying amounts of a number of other nutrients, including vitamins A, B₁₂, D and E and folate, and the mineral iron. Other nutrients in eggs show great promise in other research to help combat varying maladies, including choline, lutein and zeaxanthin.

The calorie reduction observed in the egg breakfast study correlates to results obtained in another study examining the effect of dietary protein on weight loss. A study published in the *American Journal of Clinical Nutrition* in 2005 concluded that a 15% increase in dietary protein with a constant carbohydrate intake can result in clinically significant weight loss. Overall, as the study subjects arrived at the point of self-regulated energy intake throughout a 12-week regimen, they sustained a caloric intake decrease at 441 +/- 63 kcal/day resulting in a constant rate of weight loss. This caloric decrease is almost identical to that observed in the egg/bagel breakfast study.

The researchers attributed the protein in the diet as the explanation for the weight loss observed in a low-carbohydrate diet because the increased protein offsets the higher fat content of such diets. According to the study conclusion, providing increased satiation and weight loss benefits while minimizing the higher fat consequences a diet higher in protein, with constant carbohydrate intake, may be an effective weight management tool.

Yet another study published the same year in the August 2005 *Journal of Nutrition* shows that a diet rich in high-quality protein, such as the protein found in eggs, coupled with a moderate exercise program, helped study participants improve body composition and lose weight.

The essential amino acid leucine helps to reduce loss of muscle tissue, promote loss of body fat, and stabilize blood glucose levels. Researchers discovered that the women in the study eating the higher protein meal, which included eggs, lost more weight than those who ate the higher carbohydrate meal—and most of the weight loss was fat. According to this research, both the amount of high quality protein consumed, as well as the time of day it is consumed, may play an important role in weight loss. Subjects in

this study who exercised and ate a protein-rich diet lost more total weight, lost more fat and maintained muscle tissue while maintaining higher HDL (good) cholesterol levels.

Consumer studies indicate a proactive rather than a reactive consumer population managing daily health and preparing for a healthier future. They are almost as aware of labels and ingredients as food marketers. Egg products contribute to a natural image and help create a clean ingredient label. They also project the familiar aura of a comfort food. And, a growing body of research helps illustrate how egg ingredients could create a more nutrient-dense food product that helps promote satiety.

Further processed egg products provide multiple choices for the formulator interested in creating nutrient-dense foods that can help manage weight control.

Whether refrigerated liquid, frozen or dried, the egg's nutritional quality remains the same. When properly stored, these processed egg ingredients will maintain a stable shelf life for months.

Some of the advantages of processed eggs include:

- Reduced risk of contamination
- Extended shelf life
- Convenience
- Consistent performance
- Product stability
- Functionality

Now food marketers can add satiety to that list of advantages with the secure knowledge that a growing body of research supports this quality. Eggs—come find your ultimate formulation 'satisfaction.'

Short-Term Effect of Eggs on Satiety in Overweight and Obese Subjects

Vander Wal et al. *Journal of the American College of Nutrition* 2005; 24: 510-515.

Weigle DS et al. A high protein diet induces sustained reductions in appetite, ad libitum caloric intake and body weight despite compensatory changes in diurnal plasma leptin and ghelin concentrations. *American Journal of Clinical Nutrition* 2005; 82:41-8.

Layman D, Evans E, Baum J, Erickson D, Goileau R. Dietary protein and exercise have additive effects on body composition during weight loss in adult women. *Journal of Nutrition* 2005; 135: 1903-1910.