

**BREAKFAST CHOICES IMPACT HUNGER AND CALORIE CONSUMPTION
THROUGHOUT THE DAY**
***Breaking Research at Experimental Biology 2009
Supports the Benefits of Eating Eggs for Breakfast***

New Orleans (April 20, 2009) – New studies presented this week at Experimental Biology 2009 enhance the growing body of evidence supporting the nutritional benefits of eggs. Research presented at the meeting demonstrates that choosing eggs for breakfast can help adults manage hunger while reducing calorie consumption throughout the day. Additional research shows that teens who choose a protein-rich breakfast are less hungry and eat fewer calories at lunch.

Among the findings presented at Experimental Biology:

Eggs for Breakfast Helps Manage Hunger and Calorie Consumption

A study led by Maria Luz Fernandez, Ph.D., professor in the department of nutritional sciences at the University of Connecticut, investigated the differences in post-meal hunger and daily caloric intake when eating a breakfast of either protein-rich eggs or carbohydrate-rich bagels. Although the two breakfast options contained an identical amount of calories, the researchers found that adult men who consumed eggs for breakfast:

- consumed fewer calories following the egg breakfast compared to the bagel breakfast
- consumed fewer total calories in the 24-hour period after the egg breakfast compared to the bagel breakfast
- reported feeling less hungry and more satisfied three hours after the egg breakfast compared to the bagel breakfastⁱ

This study supports previous research published in the *International Journal of Obesity*, which found that eating eggs for breakfast as part of a reduced-calorie diet helped overweight dieters lose 65 percent more weight and feel more energetic than dieters who ate a bagel breakfast of equal calories and volume. The study also found no significant difference in blood levels of LDL- and HDL-cholesterol and triglycerides between the individuals who ate the egg breakfast and those who ate the bagel breakfast. ⁱⁱ

Protein for Breakfast Helps Teens Control Appetite

Researchers from the University of Kansas Medical Center assessed the impact of a protein-rich breakfast on appetite and overall calorie consumption among teens who traditionally skip breakfast. While each test breakfast contained 500 total calories, the researchers examined variables including the protein form

(solid food or beverage) and the amount of protein versus carbohydrate in the breakfast.ⁱⁱⁱ

- Teens consumed fewer calories at lunch when they ate a protein-rich breakfast of solid foods compared with a protein-rich beverage breakfast
- Post-meal hunger was significantly reduced when the teens ate a protein-rich breakfast of solid foods

It is important to encourage children and teens to consume a healthy breakfast. According to data from the Nationwide Food Consumption Surveys and Continuing Survey of Food Intakes by Individuals, skipping breakfast has been associated with a higher BMI in this population.^{iv} Previous research published in the *British Journal of Nutrition* found that consuming high-quality protein foods for breakfast, such as eggs, can keep individuals satisfied longer, and may help them consume fewer calories throughout the day.^v

Cracking Open Heart Health Myths

Florida State University researchers examined the relationship between cardiovascular disease (CVD) risk factors such as body mass index, serum lipids and levels of high-sensitivity C-reactive protein (hs-CRP), and the degree to which these factors are influenced by dietary intake of fiber, fat and eggs.

The study found:

- no relationship between egg consumption and serum lipid profiles, especially serum total cholesterol, as well as no relationship between egg consumption and hs-CRP
- a positive correlation between dietary trans-fat intake and CVD risk factors, as well as a negative correlation between fiber and vitamin C intake and CVD risk factors^{vi}

In additional research presented at Experimental Biology, investigators with Exponent, Inc. evaluated egg consumption data from the NHANES III Follow-Up Survey to determine the association between egg consumption and heart health. The researchers developed a statistical model which showed:

- no increased risk of death from coronary heart disease with increased egg consumption
- a reduced risk of mortality among men who consumed one to six eggs/week compared to less than one egg/week
- a significant reduction in risk of stroke among women who consumed one to six eggs/week and one or more eggs/day^{vii}

These studies support more than 30 years of research showing that healthy adults can consume eggs as part of a healthy diet. Eggs are all-natural and packed with a number of nutrients. One egg has 13 essential vitamins and minerals in varying amounts, high-quality protein and antioxidants, all for 70 calories. Eggs are also an excellent source of choline, an essential nutrient required for life's most basic functions and vital for fetal and infant brain development.

For More Information

- Contact the [Egg Media Hotline](#) to speak with a researcher or registered dietitian.
- Visit the [Egg Nutrition Center](#) for information on the nutritional benefits of eggs and the [American Egg Board](#) for egg recipes and preparation tips.

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About the American Egg Board (AEB)

AEB is the U.S. egg producer's link to the consumer in communicating the value of the incredible edible egg™ and is funded from a national legislative checkoff on all egg production from companies with greater than 75,000 layers, in the continental United States. The board consists of 18 members and 18 alternates from all regions of the country who are appointed by the Secretary of Agriculture. The AEB staff carries out the programs under the board direction. AEB is located in Park Ridge, Ill. Visit www.incredibleegg.org for more information.

About the Egg Nutrition Center (ENC)

The Egg Nutrition Center (ENC) is the health education and research center of the American Egg Board. Established in 1979, ENC provides science-based information to health promotion agencies, physicians, dietitians, nutritional scientists, media and consumers on issues related to egg nutrition and the role of eggs in the American diet. ENC is located in Washington, DC. Visit www.enc-online.org for more information.

ⁱ Ratliff J, et al. Macronutrient composition of breakfast influences plasma glucose, satiety hormones and caloric intake in the next 24 h in adult men. *Presented at Experimental Biology 2009*. Supported by the Egg Nutrition Center.

ⁱⁱ Vander Wal JS, et al. Egg breakfast enhances weight loss. *IJO* 2008; 32(10): 1545-1551.

ⁱⁱⁱ Leidy HJ, et al. The incorporation of a protein-rich breakfast on appetite sensations and subsequent food intake in “breakfast-skipping” adolescents. *Presented at Experimental Biology 2009*. Supported by SAH Research Award, KUMC.

^{iv} Siega-Riz AM, et al. Trends in breakfast consumption for children in the United States from 1965-1991. *Am J Clin Nutr*. 1998; 67(suppl): 748S-756S.

^v Leidy HJ, et al. Increased dietary protein consumed at breakfast leads to initial and sustained feeling of fullness during energy restriction compared to other meal times. *BJN* 2009. 101 (6):798-803.

^{vi} Chai SC, et al. No relationship between egg consumption and cardiovascular risk factors in postmenopausal women. *Presented at Experimental Biology 2009*.

^{vii} Scrafford C, et al. The impact of egg consumption on heart health using the NHANES III Follow-up Survey. *Presented at Experimental Biology 2009*. Supported by Egg Nutrition Center and NIH Training Grant.