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Egg nutrition research reveals positive impact on metabolic syndrome and satiety

Lessons from Experimental Biology 2012

Park Ridge, IL (April 24, 2012) - This week at Experimental Biology (EB) 2012 in San Diego, experts are convening to discuss the latest science in a variety of health and disease-related areas, including nutrition. Research on whole egg consumption in individuals with metabolic syndrome as well as the positive effects of a higher-protein breakfast is further revealing the potential benefits of including eggs in the diet.

Whole Egg Consumption May Improve Markers of Metabolic Syndrome

A University of Connecticut study presented this week suggests that eating eggs may actually have favorable effects on HDL metabolism in men and women with metabolic syndrome.(i) Participants in the study followed a carbohydrate-restricted diet with some individuals eating three whole eggs per day and others eating an equivalent amount of egg substitute. After 12 weeks, the group eating whole eggs experienced an improvement in HDL measures showing significantly greater increases in the number and size of HDL particles. HDL or "good" cholesterol scavenges for fat throughout the bloodstream and returns it to the liver, making it less likely that fatty deposits will build up in the blood vessels and lead to atherosclerosis.

Related findings were also presented in separate sessions that suggest that consuming whole eggs as part of a carbohydrate-restricted diet may help to further improve markers indicative of inflammation, such as tumor necrosis factor-alpha, in individuals with metabolic syndrome.(ii)

Higher-Protein Breakfast Reduces High-Fat Snacking

A study by researchers at the University of Missouri found that teen girls reported greater feelings of satiety and experienced improved hormone responses related to hunger and satiety after consuming a higher-protein breakfast, containing about 35 grams of protein from egg or beef-based foods. Teen girls who consumed a high-protein breakfast also ate fewer snacks, especially those higher in fat, later in the day.(iii) These findings build on past research showing the benefits of high-quality protein on satiety, further supporting the science behind what makes eggs such a satisfying breakfast choice.(iv)

Clarifying Cholesterol Confusion

Many Americans avoid the dietary cholesterol found in eggs for fear of raising their risk of heart disease, but more than 40 years of research has shown that healthy adults can enjoy eggs without concern for increasing their risk for heart disease. Additionally, an analysis from the United States Department of

Agriculture's Agricultural Research Service showed that eggs have 14 percent less cholesterol (down from 215 mg to 185 mg) than previously measured.(v) Established research also has shown that saturated fat intake may be more likely to raise a person's blood cholesterol than dietary cholesterol intake and eggs contain relatively little saturated fat.(vi) The findings presented at this week's meeting in combination with the decades of science demonstrating the health benefits of eating eggs further support the role of eggs in a nutritious diet.

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About the Egg Nutrition Center (ENC)

ENC is dedicated to providing accurate information on eggs, nutrition, and health, and sponsors scientific research on this topic. Research grants are openly solicited and reviewed by a Scientific Advisory Panel of authorities in health research and clinical practice. Independent scientists guide many of the research projects and provide analysis and interpretation of scientific literature. The ENC is funded by the American Egg Board, which uses funds from egg farmers for promotion and research. The U.S. Department of Agriculture provides oversight of its activities. ENC is located in Park Ridge, Ill. Visit www.EggNutritionCenter.org for more information.

About the American Egg Board (AEB)

AEB connects America's egg farmers with consumers, communicates the value of the incredible edible egg™ and receives funding from a national legislative checkoff on all egg production from companies with more than 75,000 hens 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's direction. AEB is located in Park Ridge, Ill. Visit www.IncredibleEgg.org for more information.

References:

- i Andersen CJ, Blesso CN, Park Y, Barona J, Pham T, Lee J and Fernandez ML. Carbohydrate restriction favorably affects HDL metabolism in men and women with metabolic syndrome: addition of egg yolk further increases large HDL particles. *Experimental Biology* 2012. San Diego, CA. April 23, 2012.
- ii Blesso CN, Andersen CJ, Barona J, Volk B, Volek JS and Fernandez ML. A moderate carbohydrate-restricted diet results in weight loss and improves clinical parameters of metabolic syndrome in adult men and women and addition of egg yolk further improves inflammation. *Experimental Biology* 2012. San Diego, CA. April 23, 2012.
- iii Leidy HJ, Ortinau LC, Douglas SM, Hoertel HA. Effects of Increased Dietary Protein at Breakfast on Appetite Control & Energy intake Throughout the Day in Overweight 'Breakfast Skipping' Teen Girls. *Experimental Biology* 2012. San Diego, CA. April 23, 2012.
- iv Leidy HJ, Racki EM. The addition of a protein-rich breakfast and its effects on acute appetite control and food intake in 'breakfast-skipping' adolescents. *International Journal of Obesity*. E-pub ahead of print February 2010.
- v US Department of Agriculture, Agricultural Research Service, 2011. USDA National Nutrient Database for Standard Reference, Release 23. Online. Available at: Nutrient Data Laboratory Home Page, http://www.ars.usda.gov/main/site_main.htm?modecode=12-35-45-00. Accessed October 24, 2011.
- vi Siri-Tarino PW, Sun Q, Hu FB, Krauss RM. Saturated fat, carbohydrate, and cardiovascular disease. *Am J Clin Nutr*. 2010;91: 535-546.