This edition of Nutrition Research Update highlights research from the Experimental Biology (EB) conference which took place this week in Boston. As always, it was fascinating to see the variety of nutrition research discussed at EB. In this issue, we have highlighted a few of the studies presented which examine the association between intake of eggs or egg nutrients and various indices of health and disease. We hope that you will find these topics interesting and applicable to your practice.

If you have any questions about the studies or concepts presented, do not hesitate to contact us at info@eggnutrition.org.

Regards,

Mitchell Kanter, PhD
Executive Director, The Egg Nutrition Center

Effects of egg intake on HDL composition and function in metabolic syndrome.

By: Catherine Andersen, PhD Candidate & Graduate Research Asst.
University of Connecticut, Department of Nutritional Sciences

Metabolic syndrome (MetS) is a growing health concern that increases an individual's risk of cardiovascular disease and type II diabetes by 2- and 5-fold, respectively. Research studies have consistently demonstrated that carbohydrate-restricted diets effectively ameliorate atherogenic dyslipidemia, insulin resistance, and inflammation in MetS. Read full article.

Eggs Consumption in Older Adults has No Adverse Effect on Serum Lipids

A study involving 45 adults diagnosed with early age-related macular degeneration (AMD) investigated the effects of consuming 12 eggs per week (intervention group) for one year on blood lipids, lipoprotein cholesterol, apolipoprotein A-1 and B, lipoprotein a, and C-reactive protein. The control group did not consume eggs for one year. The investigators...read full article.

Eggs as part of Nutrition Education for Low-Income Women

Investigators examined egg intake patterns among females in federally-funded nutrition education programs and determined amount, source and cost of eggs. Whole eggs alone, egg white alone, visual egg (where eggs were visible as part of a larger food item like an egg sandwich), and hidden egg sources...read full article.

Focusing on Dietary Patterns Versus Specific Foods

Using the NHANES 2001-2008 database, researchers examined foods typically consumed with eggs and developed eight egg consumption patterns. The researchers then studied the differing effects of those egg consumption patterns on nutrient intake, diet quality, BMI, waist circumference...read full article.
Effects of egg intake on HDL composition and function in metabolic syndrome.

By: Catherine Andersen, PhD Candidate & Graduate Research Asst.
University of Connecticut, Department of Nutritional Sciences

Eggs are a good source of dietary PE, as PE is the second most prevalent class of phospholipids in whole eggs. Additionaly, egg intake altered HDL phospholipid composition by promoting phosphatidylethanolaime (PE) enrichment. Studies have suggested that enrichment of HDL with PE may confer greater anti-thrombotic activity of HDL.

In a recent study published in Lipids, we aimed to further assess whether the beneficial changes in HDL from daily egg intake corresponded with changes in HDL lipid composition and a greater cholesterol-accepting capacity of serum from MetS subjects. The cholesterol-accepting capacity of subject serum may be indicative of potential for HDL to retrieve lipids from arteries to reduce cardiovascular disease risk.

Men and women classified with MetS participated in a 12-week moderate carbohydrate-restricted diet (25-30% of energy from carbohydrates) in addition to consuming either 3 eggs per day or the equivalent amount of yolk substitute. Compared to baseline, HDL became more enriched in cholesteryl esters relative to triglycerides in both whole egg and egg substitute groups. Cholesteryl ester-rich HDL are associated with a reduced risk of cardiovascular disease, whereas triglyceride-rich HDL undergo impaired metabolism.

Additionally, egg intake altered HDL phospholipid composition by promoting phosphatidylethanolaime (PE) enrichment. Studies have suggested that enrichment of HDL with PE may confer greater anti-thrombotic activity of HDL.

In summary, we found that daily consumption of 3 whole eggs improved markers of HDL metabolism in this population, including increases in plasma HDL-cholesterol, and reductions in the HDL-associated inflammatory protein serum amyloid A (SAA).

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EggNutritionCenter.org
Nutrition-Unleashed Blog
On Twitter: @IncredibleEggs
Be sure to use #EggChat for a Twitter Chat on the topic of dietary patterns for cardiometabolic health: "Dietary Patterns for Cardiometabolic Health: Unscrambling the Guidance" April 30, 2013 1:00-2:00 PM EST

Next Article >> Eggs & Serum Lipids

To learn more about egg nutrition, the latest research and to download patient education materials, visit us here: www.eggnutritioncenter.org
Eggs Consumption in Older Adults has No Adverse Effect on Serum Lipids

A study involving 45 adults, over the age of 60, diagnosed with early age-related macular degeneration (AMD) investigated the effects of consuming 12 eggs per week (intervention group) for one year on blood lipids, lipoprotein cholesterol, apolipoprotein A-1 and B, lipoprotein a, and C-reactive protein. The control group did not consume eggs for one year. The investigators discovered there were no significant effects on serum lipids and lipoprotein cholesterol levels for the adults consuming eggs compared to the control group after 12 months. The researchers concluded that consuming 12 eggs per week did not have any detrimental effects on health outcomes in adults with early AMD.

Sources:

Eggs as part of Nutrition Education for Low-Income Women

Investigators examined egg intake patterns among females in federally-funded nutrition education programs and determined amount, source and cost of eggs1. Whole eggs alone, egg white alone, visual egg (where eggs were visible as part of a larger food item like an egg sandwich), and hidden egg sources were the four intake categories established. Prices were highest for visual and hidden egg sources and food security was not significantly related to intake or pricing. Visual egg sources were related to higher calorie and fat intake. Without controlling for calories, having a lower level of income, education, food security and eating competence were also associated with greater intake of visual egg sources. The researchers recommend that educational interventions should focus on encouraging low income women to consume more whole egg versus visual egg sources and work to strengthen their eating competence, an intra-individual approach to food-related attitudes and behaviors that lead to positive biopsychosocial outcomes. This may help to lower total calorie and fat intake and improve overall diet quality.

Sources:

Focusing on Dietary Patterns Versus Specific Foods

Using the NHANES 2001-2008 database, researchers examined foods typically consumed with eggs and developed eight egg consumption patterns. The researchers then studied the differing effects of the various egg consumption patterns on nutrient intake, diet quality, BMI, waist circumference (WC) and cardiovascular risk factors in adults such as serum lipids, blood pressure, triglycerides, blood glucose and insulin. The results indicate that most egg consumption patterns resulted in higher saturated and solid fat intake, but a decreased consumption of added sugars. Three out of the eight patterns were associated with a lower quality diet, and two with increased BMI and WC. Only one egg consumption pattern was positively associated with elevated diastolic blood pressure and LDL-C. This study demonstrates the importance of examining the whole diet versus specific foods. It is unrealistic to attribute these health outcomes with only one food component when in reality an individual’s diet is composed of many different foods.

Sources: