



AECL Research Update January 2013

EGG CONSUMPTION AND CAROTID PLAQUE AREA IN FINNISH MEN

Source: *Voutilainen S, et al., Regular consumption of eggs does not affect carotid plaque area or risk of acute myocardial infarction in Finnish men, Atherosclerosis (2012), <http://dx.doi.org/10.1016/j.atherosclerosis.2012.11.031>*

This is a letter to the editor of the journal which published the 2012 Spence et al article which concluded egg consumption should be limited by those at risk of vascular disease. The authors provide some data from their Finnish study regarding egg consumption and carotid plaque area. These researchers assessed the relationship between egg consumption and smoking with carotid plaque area and risk of heart attack. The study population consisted of 1019 men with an average age of 51.5 years. On average, the men consumed 31g of egg per day (approx 3.9 eggs per week). Egg consumption was not statistically associated with increased carotid plaque area, even suggesting a trend for an opposite effect. After adjusting for a number of variables, the plaque area in the highest egg consumption group (approx 5.3 eggs per week) was lower but not significantly different from the lowest intake group (approx 1.8 eggs per week). Even extremes in egg consumption did not reveal any association. Egg consumption was also not associated with the risk of heart attack. In contrast with the lack of a role of egg consumption on heart disease risk, smoking was found to be a significant risk factor for heart disease. Some key differences between the Finnish study and the Spence study were highlighted including:

- In the Finnish study dietary intakes were assessed at the time of the carotid plaque measurement and prior to heart attacks while in the Spence research dietary intake was assessed earlier.
- Finnish people consume their eggs boiled, fried or in foods but seldom with foods such as bacon which may have unfavourable effects on health highlighting the issue of not controlling for other dietary factors.

KEY FINDING: Data from a Finnish population shows no association between egg consumption and carotid plaque area or risk of heart attack.

APPLICATION: This finding differs from those in the Spence et al research published in 2012.

[Suitable for eDM]

Levels of Evidence: III-2

RISK OF EGG ALLERGY INCREASED IN CHILDREN WITH DERMATITIS

Source: *Miceli Sopo S, Monaco S, Giorgio V, Calvani M, Tripodi S, Onesimo R. Risk of adverse IgE-mediated reaction at the first egg ingestion in children with atopic dermatitis. Results of a case-control study. Allergol Immunopathol (Madr). 2012 Dec 17. pii: S0301-0546(12)00295-9. doi: 10.1016/j.aller.2012.07.015. [Epub ahead of print]*



This study included 79 children who had atopic dermatitis (a skin condition with scaly and itchy rashes) and 45 children without who had never eaten egg. All children underwent skin prick tests for raw and boiled egg and those who reacted positively went on to have an oral food challenge. The researchers found 66% of children with atopic dermatitis and only 11% of children without, had at least one positive skin prick test. Approximately 41% of those testing positively to the skin prick test in the atopic dermatitis group went on to react to the oral food challenge to raw and/or boiled egg. This study suggests that a child with atopic dermatitis has a six times higher risk of sensitisation to egg than a child without atopic dermatitis before the first known ingestion.

KEY FINDING: Children with atopic dermatitis appear to be at increased risk of sensitisation to egg compared to those without.

APPLICATION: Reveals a group of children at higher risk of egg allergy.

[Suitable for eDM]
Levels of Evidence: III-2

EFFECT OF COOKING METHOD ON LUTEIN AND ZEAXANTHIN IN EGGS

Source: Nimalaratne C, Lopes-Lutz D, Schieber A, Wu J. Effect of domestic cooking methods on egg yolk xanthophylls. *J Agric Food Chem.* 2012 Dec 3. [Epub ahead of print]

This study investigated the effect of domestic cooking methods on levels of egg yolk xanthophylls (lutein and zeaxanthin). Both fresh and cooked yolks showed similar profiles but the chemical structure of lutein and zeaxanthin changed in cooked samples. One type of lutein (E-lutein) was the most effected, with 22.5%, 16.7% and 19.3% reductions in boiled, microwaved and fried yolk extracts respectively. Total xanthophylls losses ranged from 6 to 18%. The amount of loss didn't differ significantly with the type of cooking method used.

KEY FINDING: Small losses of lutein and zeaxanthin were found when eggs were cooked. The main change with cooking was the chemical structure of these compounds.

APPLICATION: Common cooking methods change the nutritional profile of eggs compared to fresh.

[Suitable for eDM]

EGGS CONTRIBUTE SIGNIFICANT DIETARY IODINE TO GERMAN PRE-SCHOOLERS.

Source: Johner SA, Thamm M, Nöthlings U, Remer T. Iodine status in preschool children and evaluation of major dietary iodine sources: a German experience. *Eur J Nutr.* 2012 Dec 2. [Epub ahead of print]

This study investigated the iodine status of German preschool children and assessed major sources of iodine in their diet. Urinary iodine excretion (the most accurate marker of iodine intake) was measured in 221 children aged between 3 and 6 years old. The median iodine intakes were below the recommended dietary allowance of 90ug/day. Milk, salt and egg intake were significant predictors of urinary iodine excretion. While the majority of iodine (approx 80%) came from milk and salt, eggs still contributed significantly to iodine intakes.

KEY FINDING: Milk, salt and eggs were the main contributors to iodine intakes in the diets of German preschoolers.

APPLICATION: A serve of eggs contains 43ug of iodine which is 29% RDI (adults) and 47% RDI for children aged 1-8 years old.

[Suitable for eDM]

MODERATE PROTEIN INTAKE BENEFICIAL IN PREGNANCY

Source: Blumfield M, Hure A, Macdonald-Wicks L, Smith R, Simpson S et al. The Association between the Macronutrient Content of Maternal Diet and the Adequacy of Micronutrients during Pregnancy in the Women and Their Children's Health (WATCH) Study. *Nutrients*. 2012 Dec 6;4(12):1958-76. doi: 10.3390/nu4121958.

This research assessed data from 179 Australian women who are part of the Women and Their Children's Health Study. A higher ratio of protein: non-protein energy during pregnancy was positively associated with calcium, zinc, and servings of dairy and meat food groups. It was also negatively associated with energy dense, nutrient poor non-core food groups. Micronutrient intakes were optimised with intermediate protein (18-20% energy as protein), intermediate fat (28-30% energy as fat) and intermediate carbohydrate (50-55% energy as carbohydrate). Results suggest a moderate protein intake may support women to consume the largest variety of nutrients across all food groups. Other research has suggested the ratio of protein: non protein energy during pregnancy is linked to variations in offspring body composition and risk of adult metabolic disease.

KEY FINDING: A moderate intake of protein (18-20% of energy) supports women to consume the largest variety of nutrients across all food groups.

APPLICATION: Eggs are nutrient dense and can provide protein and a variety of other nutrients in the diet of pregnant women.

[Suitable for eDM]
Levels of Evidence: III-2

HIGH PROTEIN DIET EFFECTS KIDNEY FUNCTION

Source: Juraschek SP, Appel LJ, Anderson CA, Miller ER 3rd. Effect of a High-Protein Diet on Kidney Function in Healthy Adults: Results From the OmniHeart Trial. *Am J Kidney Dis*. 2012 Dec 4. pii: S0272-6386(12)01393-5. doi: 10.1053/j.ajkd.2012.10.017. [Epub ahead of print]

In this study 164 healthy adults, participating in the OmniHeart trial were fed 3 different diets for 6 weeks each. The diets were either higher in carbohydrate, protein or unsaturated fat. Protein was either 15% (carbohydrate and unsaturated fat diets) or 25% (protein diet) of energy intake. The protein diet negatively effected one measure of kidney function (known as cystatin C-based estimated glomerular filtration rate (eGFR)) significantly compared to the other diets. This study found that a healthy diet rich in protein may alter kidney function but whether long term consumption of high protein diets leads to kidney disease is still uncertain.

KEY FINDING: A higher protein diet (25% of energy) for 6 weeks negatively effected one measure of kidney function.

APPLICATION: A possible detrimental effect on kidney function remains one potential downside to higher protein diets but further research is needed to ascertain risk.

[Suitable for eDM]
Levels of Evidence: II

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