

EGG NUTRITION COUNCIL MEDIA STANDBY STATEMENT

16 August 2012

Statement

The Egg Nutrition Council is aware of the study released online in the journal *Atherosclerosis*, titled 'Egg yolk consumption and carotid plaque' but disagree with certain aspects of the conclusions drawn by the authors.

The study has a lot of weaknesses. Important variables are not measured – total dietary intake, physical activity level. The stated study strengths of large number of patients, range of egg consumption and objective end-point do not outweigh the weaknesses.

The measure of cumulative egg-yolk consumption is associated with many factors (table 2) but not serum cholesterol. This raises a question of what mechanisms might be at work relating egg-yolk consumption to formation of carotid plaque area and these are not known.

Without assessing these important variables, it is difficult to isolate egg yolk intake as the key factor associated with carotid plaque progression, a predictor of cardiovascular events such as stroke and heart attack.

The results are far from conclusive and the authors acknowledge that a prospective study with more detailed information about diet, and other possible confounders such as exercise and waist circumference is needed. As such, this certainly does not justify the comment that "regular consumption of egg yolk should be avoided by persons at risk of cardiovascular disease".

When assessing the totality of research in the area, no clear relationship between egg consumption and risk of coronary heart disease, stroke, death or heart attack exists.

Given the nutrient-density of eggs and the high quality protein they contain, the majority of people have far more to gain by including eggs in their diet, rather than excluding them.

The Heart Foundation has recommended that up to six eggs a week can be consumed as part of a healthy diet, low in saturated fat¹.

About the research

- The research was published online in the journal *Atherosclerosis*
- The research was led by Dr. David Spence of Western University, Canada
- Surveying more than 1200 patients

Study reference: Spence JD, et al. Egg yolk consumption and carotid plaque, *Atherosclerosis* (2012), <http://dx.doi.org/10.1016/j.atherosclerosis.2012.07.032>

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Summary

This study investigated whether egg yolk consumption relates to vascular damage by assessing the association of egg consumption with carotid plaque area. In the study 1231 patients recorded data on egg consumption and pack-years of smoking and carotid total plaque area was measured. The study found that the total plaque area among people who consumed 2 or fewer eggs per week was approximately 7mm smaller than those consuming 3 or more eggs per week. Those consuming 3 eggs or more were older than those who consumed 2 eggs or fewer, but when this was accounted for a relationship between egg yolks and carotid plaque area was still significant. This study suggests that the consumption of egg yolk should be limited in patients with carotid plaques.

What is carotid plaque area?

Carotid plaque area is a measurement (conducted by ultrasound) of the size of a plaque contained in the carotid artery. Research suggests that carotid plaque area may be a predictor of cardiovascular events such as stroke, death or myocardial infarction (heart attack).

Critique of Study – Prepared by the Egg Nutrition Council

- This study is an observational study in a population of individuals who had already developed plaques and were attending vascular clinics. The study included no healthy controls. This makes the findings difficult to interpret and of limited application.
- This study found an association between egg consumption and the difference in carotid plaque area, not a relationship regarding the development of a carotid plaque per se.
- While a 7mm difference is statistically significant the authors do not provide any commentary on whether this amount of difference is clinically significant (ie, does this type of difference actually translate to a reduced/increased risk of cardiovascular events?)
- This study lacked data on a number of factors which are associated with coronary heart disease risk including level of exercise, alcohol consumption, waist circumference and dietary intake of saturated fat. Since no data existed, these were not controlled for in the study.
- Egg consumption was looked at in isolation – no other aspects of the subjects' diets were assessed.
- This is the first study to find this particular relationship and no mechanism of action was suggested by the authors. The study found LDL-cholesterol was not a significant predictor of carotid plaque area.
- While the study found that the shape of the curve for the relationship of carotid plaque area and tobacco smoking and the curve of the relationship of carotid plaque area and egg consumption were similar, in that they were both exponential, the actual risk of the two were not found to be equal so it is misleading to report it as such.
- When assessing the totality of research in the area, no clear relationship between egg consumption and risk of coronary heart disease exists.

- A number of studies have found no significant relationship between egg consumption and risk of stroke, death or heart attack.
- The stated study strengths of large number of patients, range of egg consumption and objective end-point do not outweigh the weaknesses

About the Egg Nutrition Council

The Egg Nutrition Council (ENC) is an independent group of health and nutrition experts who provide unbiased and accurate information to the Australian Egg Corporation Limited (AECL) on the nutritional and health qualities of eggs.

As part of its role, the ENC reviews scientific research papers, studies and reports on eggs and nutrition from Australia and around the world. It then provides scientifically substantiated guidance and advice as well as developing position papers on the different aspects of egg nutrition for Australian Healthcare professionals and consumers.

¹ National Heart Foundation of Australia, Position statement. Dietary fats and dietary sterols for cardiovascular health. 2009.