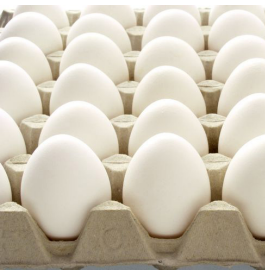

AUSTRALIAN EGG CORPORATION LIMITED

AECL Research Update September/October 2013

RESEARCH UPDATE

COOKED EGGS IN DIFFERENT FORMS AND EGG ALLERGY

Source: L. Libbers, B. M. J. Flokstra – de Blok, B. J. Vlieg – Boerstra, S. van der Heide, G. N. van der Meulen, J. Kukler, M. Kerkhof, A. E. J. Dubois. No matrix effect in double-blind, placebo-controlled egg challenges in egg allergic children. Clinical & Experimental Allergy,2013; (43) 1067–1070

Evidence shows that peanut containing foods that have a higher fat content increase the severity of the allergic reaction in those with peanut allergy. The authors tested this with eggs to examine the effect of different fat contents of cooked-egg containing foods on the dose and reaction severity in egg allergic children undergoing double-blind, placebo-controlled food challenges (DBPCFC). Fifty-nine sensitised egg allergic children underwent DBPCFC with vanilla pudding, pancake and minced meat that provided fat contents of 22.8%, 31.9% and 52.7% respectively. Each child received a dose challenge of egg protein beginning at the lowest dose of 1.75mg, 3.5mg, 14mg, 70mg, 350mg and 1750mg and the challenges were terminated when a reaction was observed. The results showed no significant relationship between the dose of egg protein in the different types of food and the rate of response or severity of reaction. The authors concluded that the fat content of cooked-egg containing foods does not affect the severity of the allergic reaction in egg-allergic children despite the amount of egg protein present.

KEY FINDING: The fat content of foods containing cooked eggs did not affect the severity of the allergic reaction in egg-allergic children.

APPLICATION: Adds to the evidence regarding the potential role of cooked eggs in egg allergies.

Levels of Evidence: III-2

Suitable for eDM

EATING EGGS AND INSULIN SENSITIVITY

Source: Lee CC, Liese AD, Lorenzo C, Wagenknecht LE, Haffner SM, Rewers MJ, Hanley AJ. Egg consumption and insulin metabolism in the Insulin Resistance Atherosclerosis Study (IRAS). Public Health Nutr 2013 Jun 19:1-8 [Epub ahead of print]

This cross-sectional study examined the relationship between egg consumption and measures of insulin sensitivity. A subgroup of 959 overweight participants without diabetes from the Insulin Resistance Atherosclerosis Study were categorised according to their weekly egg consumption of <1, 1 to <3, 3 to <5 and ≥5 eggs. The results showed a positive association between egg consumption and body mass index (BMI) such that the more eggs a person ate, the more likely they were to be overweight. The authors found an inverse relationship between egg consumption and insulin sensitivity and clearance. However, after adjusting for dietary cholesterol intake and BMI, this association was no longer significant. Further research is needed to clarify the association between egg consumption such as cooking method of eggs and insulin sensitivity.

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KEY FINDING: Egg consumption is associated with an increase in BMI and a reduction in insulin sensitivity. However, this relationship may be more related to dietary cholesterol or BMI.

APPLICATION: Continue to monitor the relationship between eggs and insulin sensitivity.

Levels of Evidence: IV
Suitable for eDM

EGG WHITE VS WHOLE EGGS IN SATIETY

Source: Reimers K, Meyer M, Ward T, Andon M, Egg White Breakfast Is More Satiating Than an Equal Calorie Whole Egg Breakfast. Journal of the Academy of Nutrition and Dietetics. 2013:133(9);Supp A-35

This is an abstract of a poster presentation that will be presented at the Food & Nutrition Conference & Expo at Houston, USA on 20th October 2013. This is a randomised controlled trial where 52 healthy adults were assigned a breakfast with whole eggs or egg whites in a random order. The test breakfasts provided 1400kJ and were composed of 2 slices of toast, 10g of spread, 284ml of low-kilojoule drink, and either 282mL of cooked egg white or 2 cooked large whole eggs. 282mL of cooked egg white provided the same amount of energy (total energy 585kJ) as 2 cooked eggs. Three hours after consuming breakfast, lunch was provided. Participants rated their satiety level before breakfast and rated their hunger before lunch. The findings showed that participants felt more full after the egg white breakfast compared to the whole egg breakfast. After consuming the egg white breakfast, participants consumed significantly less kilojoules for lunch (2077 ± 184kJ) than after the whole egg breakfast (2395± 184kJ). The authors concluded that egg whites are more satiating as they provide 2.9 times the volume and 2.2 times more protein than whole eggs of the equivalent amount of energy.

KEY FINDING: Consuming egg whites for breakfast is more satiating than eating whole eggs.

APPLICATION: Adds to the benefits of incorporating eggs for breakfast, in particular egg whites.

Levels of Evidence: II
Suitable for eDM

EATING BREAKFAST DAILY REDUCES THE RISK OF METABOLIC ABNORMALITIES

Source: Odegaard AO, Jacobs Jr DR, Steffen LM, Horn LV, Ludwig DS, Pereira MA. Breakfast Frequency and Development of Metabolic Risk. Diabetes Care 2013:36(10);3100-3106

This cohort study of 3,598 non diabetic adults followed up for 18 years examined the relationship between the frequency of breakfast consumption and metabolic conditions. Participants were categorised into infrequent (0-3 days/week), frequent (4-6 days/week) and daily breakfast consumers. Over 18years, daily breakfast consumers gained 1.9kg less weight than infrequent breakfast consumers. After adjusting for waist measurements and BMI differences, daily breakfast consumers were at a lower risk of obesity, metabolic abnormalities, high blood pressure and type 2 diabetes mellitus.

KEY FINDING: Consuming breakfast daily reduces the risk of metabolic abnormalities.

APPLICATION: Adds to the evidence for the health benefits of eating breakfast daily. **Level of Evidence: III-2**
Suitable for eDM

MEAT AND EGG CONSUMPTION AND RISK OF HIP FRACTURES

Source: Zeng F, Fan F, Xue W, Xie H, Wu B, Tu S, Ouyang W, Chen Y. The association of red meat, poultry, and egg consumption with risk of hip fractures in elderly Chinese: A case-control study. Bone 2013:56(2);242-248

This case-control study analysed the relationship between eating red meat, poultry and eggs with the risk of developing hip fracture. The study included 646 Chinese elderly with hip fractures between the ages of 50 to 80 years together with 646 gender and age matched controls with no fractures. Their diets were assessed using food frequency questionnaires completed at a face-to-face interview. The results showed that men and women with hip fractures consumed a daily average of 20g and 23g of eggs, respectively; 21g and 19g of poultry respectively; and 81g and 74g of red meat respectively. In men, red meat, poultry and egg intake was significantly lower in the control group. For women, only red meat intake was significantly less in the control group. After adjusting for age, gender and total energy intake, there was no association between egg or poultry intake and hip fractures, but there was a positive association between the consumption of red meat and hip fractures. The authors concluded that there was no relationship between egg or poultry consumption with the risk of hip fractures. Fatty red meat, but not lean red meat was associated with an increased risk of hip fractures.

KEY FINDING: Consuming eggs or poultry is not associated with hip fractures in older Chinese people. However, greater consumption of fatty red meat may increase the risk of hip fractures.

APPLICATION: Consuming eggs is not associated with hip fractures in Chinese elderly. **Levels of Evidence: III-3**
Suitable for eDM

OMEGA-3 AND DEPRESSION IN WOMEN

Source: Beydoun MA, Fanelli Kuczmarski MT, Beydoun HA, Hibbeln JR, Evans MK, Zonderman AB. Omegea-3 Fatty Acid Intakes Are Inversely Related to Elevated Depressive Symptoms among United States Women. The Journal of Nutrition. First published online 4 Sept, 2013 doi:10.3945/jn.113.179119

This cross-sectional study assessed the relationship between dietary omega-3 fatty acid intake and depressive symptoms in US women. This study included 1,746 adults aged between 30 and 65 years old. Dietary omega-3 intake was assessed using two 24-hour recalls. Depressive symptoms were assessed using the 20-item Center for Epidemiologic Studies-Depression Scale. The results showed that elevated depressive symptoms were prevalent in 18% of men and 26% of women studied. After adjusting for differences, women who consumed more omega-3 fatty acids (1% of total energy intake) were 50% less likely to develop depressive symptoms than those who had little omega-3 fatty acids (<0.5% of total energy intake). Omega-3 to omega-6 ratio was found to be inversely related to elevated depressive symptoms in women. The authors concluded that higher intakes of omega-3 were related to a lower risk of elevated depressive symptoms.

KEY FINDING: Higher dietary omega-3 intake is associated with less depressive symptoms in women.

APPLICATION: Add to the benefits of dietary omega-3 which are found in eggs. **Level of Evidence: IV**
Suitable for eDM

HIGH PROTEIN DIETS AND MUSCLE MASS DURING WEIGHT LOSS

Source: Pasiakos SM, Cao JJ, Margolis LM, Sauter ER, Whigham LD, McClung JP, Rood JC, Carbone JW, Combs Jr GF, Young AJ. Effects of high-protein diets on fat-free mass and muscle protein synthesis following weight loss: a randomized controlled trial. The FASEB Journal 27(9):3837-3847.

This randomised controlled trial investigated the effects of different amounts of dietary protein on muscle mass during a reduced-energy diet for weight loss. Thirty-nine adults were all on a 10 day weight maintenance diet and then randomly assigned to 21 days of consuming a 40% energy reduced diet containing 0.8g/kg, 1.6g/kg or 2.4g/kg of protein. The findings showed that all participants lost a similar amount of weight (-3.2kg ±0.2 kg) regardless of the amount of protein in their weight loss diet. Consuming 1.6g/kg or 2.4g/kg of protein during weight loss maintained muscle mass compared to the participants consuming 0.8g/kg. The authors concluded that protein intake of 1.6g/kg per day or more protects muscle mass and promotes body fat loss during short-term weight loss.

KEY FINDING: Higher protein intake during weight loss can protect against muscle loss.

APPLICATION: Eggs are a source of protein which may be useful during a weight loss diet.

Level of Evidence: II
Suitable for eDM

VITAMIN D AND THE RISK OF LUNG CANCER

Source: Cheng TD, LaCroix AZ, Beresford SAA, Goodman GE, Thornquist MD, Zheng Y, Chlebowski RT, Ho GYF, Neuhouser ML, Vitamin D intake and lung cancer risk in the Women's Health Initiative. Am J Clin Nutr First published Online: August 21, 2013

This prospective cohort study of 128,779 postmenopausal women, investigated the association between vitamin D intake and lung cancer and explored the effect of vitamin A modification. Women who never smoked and had a daily vitamin D intake of ≥400 IU had a lower risk of lung cancer. A daily supplementation of 1 g calcium and 400IU vitamin D3 in women who consumed less than 1000µg/day of vitamin A equivalents resulted in a lower risk of lung cancer. Calcium and vitamin D supplements may be beneficial to postmenopausal women with low vitamin A intakes.

KEY FINDING: Daily vitamin D intake ≥400 IU for women who have never smoked reduces their risk of lung cancer. Calcium and vitamin D supplements may be beneficial to women with low vitamin A intakes.

APPLICATION: Provides evidence of the benefits of adequate daily vitamin D intake in women.

Levels of Evidence: IV
Suitable for eDM

For further advice regarding the content of this research update, contact Annette Wong - Research Dietitian at Food & Nutrition Australia directly on beisenhauer@foodnut.com.au

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