The Good Egg
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Egg Nutrition Council

EDITORIAL

At the recent DAA Conference in Perth, we were delighted to see many interested dietitians at the Egg Nutrition Council stand, some of whom posed valuable questions we thought would be worthwhile sharing in our newsletter. One particular query related to the safe food handling of eggs and this topic is addressed in the Masterclass section of this edition of the newsletter - see the article overleaf for some handy tips on enjoying your eggs safely.

In our lead article, we provide an overview of a selection of results from the 2011-2012 National Nutrition and Physical Activity Survey which continues to provide valuable insights into the dietary patterns and nutrient intakes of Australians. In the latest release of results, which compared usual nutrient intakes with Nutrient Reference Values, a number of at risk nutrients were highlighted. One of these was iron, found to be lacking in several vulnerable age groups, and in this edition of The Good Egg, we take a look at how eggs can be a surprisingly useful source of iron, especially for children. One serve of eggs provides 1.7mg of iron, which represents 17-20% of the Recommended Dietary Intake (RDI) for children aged 2-8 years, and up to 28% of that for babies and toddlers (1-3 years).

Finally, we highlight some of the latest research of interest and relevance in "Egg-Vestigator".

Enjoy this issue and please let us know if you have any feedback.

The Egg Nutrition Council team.

Eggs, a valuable source of iron for kids

In April of this year, the Australian Bureau of Statistics released the second set of results in more than two decades on what Australian's are eating and drinking. Drawn from the 2011-12 National Nutrition and Physical Activity Survey[1], the data presents a comparison of usual nutrient intakes (from foods and excluding supplements) with Nutrient Reference Values (NRV) set for Australia.

Results from the survey show iron was a nutrient found to be lacking in the diets of women and children. One in four women (23%) had inadequate iron intakes, and in the reproductive age range, this figure rose to around 40%.

Children aged 2-8 years had adequate intakes of all nutrients from foods, except for iron[1].

As iron is needed for important physiological functions in all of these age groups, it is pertinent to consider strategies for increasing iron intake.

One such strategy is to consider the contribution that eggs can make to overall iron intake, particularly for young children. One serve of eggs (2x60g eggs) provides 1.7mg of iron, which represents approximately 10% of the Recommended Dietary Intake (RDI) for non-pregnant women, and 17-20% RDI for children[2]. Toddlers (1-3 years) need 9mg of iron each day, meaning a serve of eggs provides almost 20% RDI for this group. The form of iron in eggs is a combination of haem and non-haem iron.

Children in particular may benefit from a greater intake of eggs across the week to assist in boosting intakes of important nutrients, such as iron, omega-3's and B vitamins. Of relevance is the finding that the proportion of children eating eggs on a daily basis has remained at a low level over the past seven years. The 2007 Australian National Children's Nutrition and Physical Activity Survey found that only 11-14% of children and teenagers consumed eggs or egg dishes, and that the average daily intake was only 5-11g[3]. The median intake of eggs and egg dishes reported in this survey was 37-43g, which is still less than one egg a day. The 2011-2012 National Nutrition and Physical Activity Survey showed similar figures, with only around one in ten 2-18 year olds eating eggs or egg dishes with an average daily intake of 6-12g[1]. However, the median intake of eggs did rise from 2007 to 42-51g in 2011-2012, meaning those who are already eating eggs, are now eating a greater amount. This trend is in line with the latest Australian Dietary Guidelines which state eggs can be consumed daily without any increased health risks[4].

In summary, eggs are sometimes forgotten as an ideal food for inclusion in children's diets however, they are nutrient dense and provide a valuable source of iron, amongst many other nutrients including protein, vitamins A, D, E, B1, B2, B12, folate, selenium and phosphorus. Eggs are included in all government recommendations promoting healthy eating habits. In the Australian Guide to Healthy Eating, eggs are a core food within the 'meat and alternatives' group of foods, and in the 2013 Australian Dietary Guidelines, eggs are described as a highly nutritious food that can add variety to the diet[4]. The Australian Dietary Guidelines also acknowledge that consumption of eggs everyday is not associated with increased risk of cardiovascular disease[4]. Finally, eggs are versatile and generally accepted by children's tastes, so they also pass the all important YUM test!

References:
1. ABS. Australian Health Survey 2014
2. NHMRC. Nutrient Reference Values (2006)
3. CSIRO. Australian National Children's Nutrition and Physical Activity Survey (2007)
4. NHMRC. Australian Dietary Guidelines (2013)

EGG-VESTIGATOR

An egg a day reduces inflammation in diabetes

A trial involving 29 adults with type 2 diabetes has found that eating an egg a day at breakfast for over a month had no detrimental effects on blood glucose (BGL) or cholesterol levels[1]. Subjects were randomised to either the egg meal or an oat porridge breakfast. After a wash out period they were then crossed-over to the alternate condition, with each intervention lasting 5 weeks. No significant differences were noted for BGL or cholesterol levels including particle size and sub-fraction ratios, insulin or glycated haemoglobin. However, various inflammatory markers, including the potent tumour necrosis factor (TNF-alpha) were reduced after the egg intervention. This result is of particular interest as chronic low-grade inflammation is an underlying factor of concern in diabetes.

Egg consumption and type 2 diabetes

The Jackson Heart Study is a large observational study that tracks the habitual dietary habits and health status of African American adults. In the latest analysis of this data, surprising links were found between egg consumption and type 2 diabetes[2]. While the likelihood of having diabetes increased with higher egg consumption, the risk of developing type 2 diabetes over the average 7.3 years of follow up was not associated with egg intake. This suggests that in an African American population, individuals who already had type 2 diabetes ate more eggs than people without diabetes, but that egg consumption per se was not related to the development of diabetes.

Protein intake and weight management

An overview of the literature on higher protein diets and body weight has highlighted the role of dietary protein in both short and long term weight management[3]. To date, several meta-analyses of shorter-term, well designed trials have demonstrated greater weight and fat loss, whilst preserving lean muscle mass in higher protein versus lower protein energy restricted diets. These studies have also reported favourable effects on lipid levels, blood pressure and satiety. However, mid to longer term studies have been less consistent in their findings, in part due to variable dietary compliance over the longer study durations. Overall, though, the evidence does indicate that higher protein diets of 1.2-1.6g protein/kg body weight/day, and possibly meal specific quantities of 25-30g protein, confer benefits for appetite, body weight and cardiometabolic risk factors.

References:
1. Ballesteros, MN et al. Nutrients 11;7(5):3449-3463 (2015)
2. Djousse, L et al. Clin Nutr S0261-5614(15)00126-0 (2015)
3. Leidy, HJ et al. Am J Clin Nutr. pii:ajcn084038 (Epub ahead of print)

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MASTERCLASS

Eggs and food safety

Like any fresh foods, safe food handling of eggs is very important, especially for dishes using raw eggs. While the frequency of outbreaks is very low[1], if not handled correctly, foods made with raw or lightly cooked eggs can be a source of microbial infection. Microorganisms lie on the surface of eggshells, and can originate from dirt or chicken excrement. Salmonella for example does not exist inside a fresh egg that has a whole and intact shell. However, if cracks occur in the shell or a whole cracked egg comes into contact with a contaminated shell, Salmonella may enter the egg.

Hygienic practises which minimise the risk of contamination include the following tips[2] :

- Use uncracked eggs that are free from dirt
- Keep food surfaces, utensils and hands clean and dry before and after handling eggs
- Wash your hands after touching eggshells or raw eggs
- Use an egg separator rather than the eggshell to separate the yolks from the whites
- Store eggs in their cardboard carton in the fridge and use them before the best before date.

These guidelines for minimising risk are especially important when preparing foods for people with a lowered immune system, including pregnant women, children under 2 years and those aged over 70 years. For these groups the NSW Food Authority[2] also recommends that eggs are cooked thoroughly (the yolk and the white are firm and scrambled eggs are not runny) before eating and dishes with raw eggs like homemade mayonnaise and dessert mousse are avoided.

References:
1. FSANZ. Public health and safety of eggs and egg products in Australia (2009)
2. NSW Food Authority www.foodauthourity.nsw.gov.au