COMMENTS AND RESPONSES

Egg Consumption and Risk of Type 2 Diabetes in Men and Women

Response to Djoussé et al.

Djoussé et al. (1) found that intake of seven or more eggs per week was associated with a 58% increased risk of type 2 diabetes in men and 77% in women after adjustment for potential confounders compared with that in subjects who denied any egg consumption. Two important caveats need to be made explicit.

Firstly, eggs are often consumed as a breakfast food accompanied by other items that are potentially unhealthy, such as bacon and sausage. This may have confounded the reported results, and eggs may have been an innocent bystander. Although consumption of red meat and saturated, *trans*, and polyunsaturated fatty acids was adjusted for among women, this information was not available for men. Another dietary consideration is that eggs are often fried that significantly increases the calorific and fat content compared with that of boiled eggs.

Secondly, the emphasis on relative measures of increased risk may mislead the general public to avoid egg consumption as a means of avoiding the development of type 2 diabetes. Similar to the debate about how to describe the benefit of statin use (2), absolute measures, such as attributable risk and its reciprocal and number needed to treat or number needed to harm, can better place this issue into a more reasonable perspective (3). Misinterpretation of study results is unfortunately all too common when focusing exclusively on relative risk, as demonstrated rather dramatically by the breast cancer and nonsteroidal anti-inflammatory drugs study from the prospective Women's Health Initiative project (4). That study received a substantial amount of press coverage because of the statement that taking an aspirin a day for at least 5 years reduces the risk of developing breast cancer for postmenopausal women by 20%. This sounds impressive; however, the actual impact of this intervention nets an attributable risk of 0.08% (number needed to treat of 1,250).

Applying this concept to the risk of egg consumption and the development of type 2 diabetes, taking the crude annualized incidence rates reported in the article, and comparing egg consumption with no egg consumption, the number needed to harm values were 321, 376, 910, 1,450, and 1,819 for men for the categories of ≥7, 5–6, 2–4, 1, and <1 eggs/week, respectively. For women, the number needed to harm values were 137, 269, 397, 2,703, and 1,613, respectively. Thus, telling a woman who has similar characteristics to those in the studied cohort that her risk of developing diabetes is 77% higher if she consumes at least seven eggs per week is only one side of the story. She should also be told that each year the development of diabetes will be encountered in only one extra woman out of every 137 women who elect to eat at least seven eggs per week versus those abstaining from eggs completely. Over time, this risk may be unacceptable but likely remains overshadowed by overall poor diet, physical inactivity, and advancing age.

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