Letter to editor

Re: Pre-pregnancy potato consumption and risk of gestational diabetes mellitus: prospective cohort study (BMJ 2016; 352: h6898).

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Using data from the Nurses' Health Study II, Bao et al. (1) found a higher prevalence of gestational diabetes mellitus (GDM) with increasing potato consumption. The authors stated that the high glycaemic index (GI) of potatoes, resulting in sharp postprandial rise in blood glucose concentrations with risk of associated pancreatic β cells exhaustion, could explain this relationship.

However, the use of GI has methodological limitations. Dodd et al. (2) observed that the GI formula of a meal is overestimated compared to the measured GI of the same meal. This overestimation was between 22% and 50% for different meals, and the overestimations were unpredictable and food dependent, i.e., higher for spaghetti than for potato. This means that the reproducibility of GI is very low, because potatoes are almost always consumed during meals.

Secondly, it is not clear from Bao et al. (1) how the GI and glycaemic loads (GL) were calculated, there is no information in the method section. It is also not clear why Bao et al. choose potatoes to test this GI hypothesis. The GI of potatoes range from 60 to 120, depending of the cooking method and the sort of potatoes consumed. It would be easier to relate the GI to GDM with a more homogenous food group, as for example breakfast cereals, with GI between 100 and 120 (3).

Bao et al. found that the adjusted relative risk for GDM associated with baked, boiled, or mashed potatoes consumption before pregnancy was 1.52 (95% CI: 1.11 to 2.07), and for French fries 1.18 (95% CI: 0.91 to 1.53). This discrepancy between results is difficult to explain by the GI theory, because the GI of French fries is higher than for cooked potatoes.

A last point is that, as indicated in Table 1 of Bao et al., the mean (SD) GI and GL for the total dietary pattern across the weekly consumption servings of potatoes remained stable, ranging from 53.1 (3.7) to 55.6 (2.7) and 124.4 (22.9) to 124.1 (20.2), respectively.

As pointed out by Bao et al., women with a higher potato consumption had a higher prevalence of family history of diabetes, smoking, adiposity and were less physical active. They also had a lower score for the Alternate Healthy Eating Index 2010, indicating a less healthy dietary pattern. The mean (SD) BMI for low and high pre-pregnancy potato consumers were 22.9 (4.0) kg/m^2 and 24.2 (4.8) kg/m^2. The mean energetic intake was 2,049 kcal/day versus 2,249 kcal/day, respectively. Unfortunately, there was no information about added sugar consumption across the potato consumption groups.
The authors observed a clustering of unhealthy behaviours associated with high potato consumption. A consequence of a clustering for observational research is that trying to single out a specific contribution of one component is elusive because of associated statistical limitation: even after adjustment, residual confounding may remain, due to inaccurate measurements of variables and, even after hypothetical perfect measurement, risk of multicollinearity is likely to threaten the correct interpretation of multivariate models.

In conclusion, we believe that this Bao et al. reductionism approach of GDM will add to the actual nutritional mess and confusion concerning food. Moreover, this approach will create inappropriate nutritional certitudes, and this by exaggerating the food scientists' knowledge about the relationship between specific food and health. Fetishizing foods on the basis of the nutrient composition has shift the focus to details, and forgetting the essential to stay healthy: a plant-based dietary pattern, not smoking, a healthy weight and physical activity.

References

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