



Letter to the Editor

Diabetes-related nutrition knowledge and dietary intake among adults with type 2 diabetes

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The estimated worldwide prevalence of diabetes was 382 million in 2013⁽¹⁾, and this value is projected to increase to 592 million by 2035, with most persons affected living in developing countries^(1–3). This worrisome increase, type 2 diabetes entailing over 90% of cases, is closely linked to changes in diet and lifestyle towards high-energy intake and reduced physical activity, in parallel with the obesity epidemic in the past decades⁽⁴⁾. There is strong evidence demonstrating that dietary modifications may decrease the incidence of type 2 diabetes^(5–7), as well as of the contribution of specific dietary components on the development of the disease⁽⁸⁾.

In this issue of the *British Journal of Nutrition*, Breen *et al.* present a well-written and comprehensive study examining nutrition knowledge among a sample of persons with type 2 diabetes using a validated instrument, food label use and weight satisfaction⁽⁹⁾. The authors explore the relationship between this knowledge and nutrient intake. Although the need of including education on dietary and other lifestyle-related determinants of type 2 diabetes is currently evident and recommended in major guidelines^(10,11), there is startling scarcity in the literature on this subject.

There is no doubt that dietary modifications are fundamental in the management of type 2 diabetes, aiming to encourage the adoption of a healthy balanced diet in order to optimise metabolic control. However, available tools to examine diabetes knowledge include dietary proficiency as part of a general score⁽¹²⁾ or include only few and general questions about dietary components⁽¹³⁾, without addressing the understanding on specific dietary relevant information. Similarly, diabetes risk models are not focused on diet or do not fully capture the overall dietary patterns⁽¹⁴⁾.

In the study by Breen *et al.*⁽⁹⁾, the level of nutrition knowledge was lower than awareness relating to other aspects of type 2 diabetes, such as development and management of diabetes complications. This is not surprising, provided that previous studies have suggested that dietary adherence is among the most difficult cornerstones of diabetes management⁽¹⁵⁾. Information on nutritional components has grown extensively in the past decades, and it is challenging to translate the complex messages resulting from nutritional investigations into practical guidance to patients. This may lead to the general confusion about specific components, such as the lack of information on diverse types of fats found by the authors⁽⁹⁾. Moreover, reduction of the chronic

overnutrition is extremely challenging because it is linked to central reward mechanisms⁽¹⁶⁾, which favours that the patients deny or undervalue dietary information.

Several clear deficits on basic nutrition knowledge among persons with diabetes are addressed in the study, such as the lack of awareness that starchy foods may increase blood sugar against the general understanding of the relationship of sugar and blood glucose, the confusion relating to energy content and impact of diverse fats and oils and the fact that label use was limited to checking the sugar content of foods ignoring the energy value of food labels. All these observations assert the urgent necessity of improvement and emphasis of specific, practical and regular dietary education among persons with type 2 diabetes. Similarly, the finding that over half of the participants had not received any dietary advice in the previous year from the diabetes health provider indicates that considerably more attention might be devoted to novel educational strategies that regularly reinforce dietary information.

Notwithstanding the limitations of being a cross-sectional study based on self-reported data with potential under-reporting, the study by Breen *et al.*⁽⁹⁾ adds new knowledge to the existent literature and advocates that more research in this field is urgently needed. In fact, the connection between specific nutrition knowledge and dietary intake has not been generally assessed previously in persons with type 2 diabetes. The fact that participants with higher nutrition knowledge had a higher fruit and vegetable intake, as well as a lower use of foods with a high glycaemic index, points to the benefit of dietary knowledge to help improve metabolic control, weight management and energy balance. Furthermore, the emphasis in recent person-centred guidelines is put on the contribution of patient's awareness of the disease and self-care management^(10,15). Dietary education is one of the key components of these strategies, which is very often overlooked. This probably reflects the difficulties in translating the knowledge regarding the effects of dietary components on the management of type 2 diabetes, which often encounter barriers for adherence to recommended dietary guidelines, such as economic affordability (i.e. food security), acceptability (i.e. food choices according to the cultural context) and overall accessibility. The education on appropriate dietary choices of persons with diabetes and the strategies to overcome these potential barriers

are crucial public health concerns. In this respect, it is still evident that medicine might be winning the battle of glucose control, through the development of new antidiabetic drugs, but is losing the war against diabetes, at the base of which lies the dietary wrong habits and lack of education of persons with diabetes, which is still not appropriately considered. Recently proposed physiopathological mechanisms such as gut microbiota and epigenetic modifications⁽¹⁶⁾ seem to be closely linked to dietary composition as well, which once again underscore the importance of dietary education in persons with diabetes.

The pandemic of type 2 diabetes, and resultant extraordinary human and economic costs, is showing no signs of abatement, and therefore new approaches are urgently required to prevent, slow the progression and limit the consequences of this devastating disease.

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