

# Nutrition therapy for type 2 diabetes: confirmed efficacy on individualized management

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## Dear editor

We read with great interest the article titled “Success of nutrition-therapy interventions in persons with type 2 diabetes: challenges and future directions” by Franz and Macleod,<sup>1</sup> recently published in your journal *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*. We would like to comment on the article by explaining the key recommendations reported by the Academy of Nutrition and Dietetics Nutrition Practice Guideline for Type 1 and Type 2 Diabetes in Adults.<sup>2,3</sup> Compared with their valuable review in 2014,<sup>4</sup> Franz and Macleod have summarized the intervention recommendations for nutrition therapy in detail in this article, including energy intake, macronutrient composition, carbohydrate management strategies, fiber intake, glycemic index and glycemic load, nutritive sweeteners and nonnutritive sweeteners, protein intake and protein intake for diabetic kidney disease, cardioprotective eating patterns, vitamin, mineral, and/or herbal supplementation, alcohol consumption, physical activity, and glucose monitoring. It is clear that the authors have done a lot of work to make diabetes management and self-management easier for professionals and patients, respectively, and they also provide a practical alternative for use of insulin and glucose-lowering medications and surgery in clinic. A crucial question is how nutrition therapy can be effectively implemented in the individual patient. The authors provide a promising solution involving “eHealth” and “e-patient”. It will be interesting as well as innovative to apply modern digital health technology to solve this problem in the future.

We also reviewed few other studies regarding nutrition therapy for type 2 diabetes, and would like to focus on three recommendations based on literature review and also our single-center experience, which does not seem to be fully addressed in the above study but is very beneficial for applying a proper and successful nutrition therapy. First, combined efficacy monitoring is important. Nutrition therapy would be helpful to patients with type 2 diabetes when it is applied alone or combined with other therapies for different severity of diabetes. A meta-analysis showed that a Mediterranean diet improves hemoglobin A1c (HbA1c) but not fasting blood glucose.<sup>5</sup> Thus, examining two indexes at least for a short-term period among fasting blood glucose, fasting insulin, and HbA1c was considered to be useful and necessary. Second, individualized nutrition therapy guided by a dietitian is important. Dietitian or trained professionals can provide more comprehensive and specific recommen-

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dations than just dietary advice given by other doctors or nurses. A meta-analysis demonstrated that a dietitian-guided nutrition therapy led to a greater improvement in HbA1c, weight, and low-density lipoprotein cholesterol.<sup>6</sup> Third, the level of weight loss is important. Weight loss is an important recommendation for overweight and obese adults with type 2 diabetes; however, a weight loss of <5% was shown to not result in beneficial metabolic outcomes.<sup>7</sup> Therefore, a weight loss of >5% achieved by proper nutrition therapy especially physical activity is necessary to improve HbA1c, lipid level, and blood pressure.

Clearly it is important that readers further understand nutrition therapy, and type 2 diabetes patients can benefit from its application in individualized management in clinical practice.

## Disclosure

The authors report no conflicts of interest in this communication.

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## Authors' reply

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## Dear editor

We thank the writers of the letter for their comments on our article regarding nutrition therapy for type 2 diabetes. Of importance are their review of important considerations for successful diabetes nutrition therapy. We would enthusiastically agree that strategic glucose monitoring is critical to assessing the efficacy of the treatment plan for type 2 diabetes and determining how to adjust the therapy plan as was well illustrated in the citation Carter et al referenced by the writers.<sup>1</sup> We also agree that ideally diabetes medical nutrition therapy be provided by a dietitian or similarly trained professional for all persons with diabetes. However, it is essential that all members of the health care team providing care be familiar with the basic of diabetes nutrition therapy in order to best support the individual's holistic treatment plan.

However, we would raise concerns regarding the emphasis on weight loss instead of a reduced energy (calorie) eating plan. From the review of the effectiveness of nutrition therapy for type 2 diabetes, it is clear what emerges in successfully improving glycemia is "how much" individuals are consuming.<sup>2</sup> It should be remembered that weight loss is the outcome and a reduced energy intake is the nutrition therapy intervention. For some individuals, likely those who have not implemented this strategy before or for some who have gained weight after weight loss, this will lead to weight loss. For some who have lost weight, it may prevent weight regain. The

glycemic outcome of a reduced energy intake is also dependent on how long an individual has had type 2 diabetes and whether the individual is hyperinsulinemic or insulin deficient. If the individual has progressed to an insulin-deficient state, weight loss may or may not improve glycemia. It should also be remembered that our bodies have hormonal adaptations that encourage weight gain after diet-induced weight loss and these hormonal changes likely continue for an extended period of time.<sup>3</sup> Weight loss also results in adaptive thermogenesis (decreased resting metabolic rate) which is also maintained for long term. It is clear that after a reduced energy intake leading to weight loss our bodies adapt to prevent future weight loss and thus prevent starvation. Emphasizing the "scale" rather than food eaten can be a very frustrating experience for individuals when they maintain a low calorie eating plan and do not continue to lose weight. Therefore, the focus of nutrition therapy for individuals with type 2 diabetes is on a reduced energy intake with an emphasis on nutrient-dense, fiber-rich foods, and, of course, not be forgotten is the importance of regular physical activity.

We also strongly support the importance of health professionals and persons with type 2 diabetes understanding nutrition therapy and the importance of individualized diabetes management. Again, we thank the letter writers for their excellent letter.

## Disclosure

The authors report no conflicts of interest in this communication.

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