





RESPONSE TO COMMENTS ON EVERT ET AL.

## Nutrition Therapy Recommendations for the Management of Adults With Diabetes. Diabetes Care 2013;36:3821–3842

Diabetes Care 2014;37:e102-e103 | DOI: 10.2337/dc14-0077

William S. Yancy Jr.,<sup>1</sup>
Stephanie A. Dunbar,<sup>2</sup>
Jackie L. Boucher,<sup>3</sup> Marjorie Cypress,<sup>4</sup>
Alison B. Evert,<sup>5</sup> Marion J. Franz,<sup>6</sup>
Elizabeth J. Mayer-Davis,<sup>7</sup>
Joshua J. Neumiller,<sup>8</sup> Patti Urbanski,<sup>9</sup>
Cassandra L. Verdi,<sup>2</sup> and
Robin Nwankwo<sup>10</sup>

Dr. Sigal (1) and Jardine et al. (2) summarize several observational studies showing that consumption of animal products is related to incidence of type 2 diabetes. Nutrition therapy for the prevention of type 2 diabetes is an important topic that has substantial evidence supporting its effectiveness based on randomized controlled trials (RCTs) (3,4). The focus of the position statement, however, was on the management of patients already diagnosed with type 1 or type 2 diabetes (5). Therefore, the studies summarized in Sigal and Jardine et al. were excluded from the literature review.

While observational studies were included in the literature review, the position statement placed emphasis on RCTs because of the biases inherent to observational research. For example, people who consume larger amounts of meat may have other behaviors or characteristics that confound the relationship between meat intake and disease. As an example, in the European Prospective Investigation into Cancer and Nutrition (EPIC)-NL study, the relationship between animal protein intake

and diabetes incidence was not statistically significant after adjusting for waist circumference and BMI, and, in fact, the hazard ratios mirrored those for vegetable protein intake (6).

It is also important to consider the totality of evidence. For example, other reports from the EPIC study showed higher incidence of type 2 diabetes with intake of total carbohydrate and dietary glycemic load, no relationship with intake of dairy foods, and lower incidence of type 2 diabetes with cheese intake (7,8). Additionally, the 74-week follow-up of one of the cited RCTs examining a vegan diet (9) did not show a statistically significant difference in hemoglobin A<sub>1c</sub> from the control group in the primary intent-to-treat analysis. In this study, both the intervention and control groups lost weight; weight loss is a difficult-to-address confounder in many studies examining nutrition therapy for diabetes. Further, weight loss must be considered a confounder with dietary changes whether energy intake is explicitly limited in the intervention or spontaneously decreases during the intervention as

occurred in the vegan diet studies described by Jardine et al.

The position statement emphasizes that currently there is not one particular eating pattern with definitive evidence. Further, studies commonly do not clearly identify effects that are independent of energy balance from those that are due to a shift in energy balance and weight loss. Therefore, diabetes management should be individualized based on the individual's metabolic status, health-related goals, and dietary preferences.

The 2013 position statement is the first to include a section dedicated to eating patterns, and it included a plantbased diet as one of several options. Given most evidence for eating patterns is C-level evidence, we based our rating on expert opinion and included a broader statement. This allows health care providers the opportunity to assist individuals to adopt eating patterns honoring their own culture, food preferences, and food availability while still achieving glycemic control and optimizing risk factors for cardiovascular disease and other chronic complications of diabetes. The authors of the position statement encourage

<sup>&</sup>lt;sup>1</sup>Duke University School of Medicine, Durham, NC

<sup>&</sup>lt;sup>2</sup>American Diabetes Association, Alexandria, VA

<sup>&</sup>lt;sup>3</sup>Minneapolis Heart Institute Foundation, Minneapolis, MN

<sup>&</sup>lt;sup>4</sup>Department of Endocrinology, ABQ Health Partners, Albuquerque, NM

<sup>&</sup>lt;sup>5</sup>University of Washington Medical Center, Seattle, WA

<sup>&</sup>lt;sup>6</sup>Nutrition Concepts by Franz, Minneapolis, MN

<sup>&</sup>lt;sup>7</sup>Gillings School of Global Public Health and School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC

<sup>&</sup>lt;sup>8</sup>Department of Pharmacotherapy, Washington State University, Spokane, WA

<sup>&</sup>lt;sup>9</sup>pbu consulting, llc., Cloquet, MN

<sup>&</sup>lt;sup>10</sup>University of Michigan Medical School and the Center for Preventive Medicine, Ann Arbor, MI

care.diabetesjournals.org Yancy and Associates e103

more research on eating patterns and diabetes so we can make a more definitive statement in the future.

Duality of Interest. During the past 12 months, the following relationships with companies whose products or services directly relate to the subject matter in this document are declared. W.S.Y.: research with National Institutes of Health (NIH) and the Veterans Administration >\$10,000, money goes to institution; spouse employee of ViiV Healthcare >\$10,000. J.L.B.: research with Centers of Disease Control and Prevention >\$10,000, money goes to institution. M.C.: consultant/advisory board with Becton Dickinson, A.B.E.: advisory board for Medtronic Diabetes. E.J.M.-D.: research with Abbott Diabetes Care and Eli Lilly >\$10,000, money goes to institution. J.J.N.: research with AstraZeneca, Bristol-Myers Squibb, Johnson & Johnson, Novo Nordisk, Merck, and Eli Lilly > \$10,000, money goes to institution; consultant/ advisory board with Janssen Pharmaceuticals and Sanofi; other research support through NIH and the Patient-Centered Outcomes Research Institute. P.U.: speakers' bureau/honoraria with Eli Lilly; consultant/advisory board with Eli Lilly, Sanofi, Halozyme Therapeutics, Medtronic, YourEncore, Janssen Pharmaceuticals. R.N.: consultant/advisory board with Boehringer Ingelheim, Eli Lilly, Type Free Inc., NIH/National Institute of Diabetes and Digestive and Kidney Diseases Advisory Council. No other potential conflicts of interest relevant to this article were reported.

## References

- 1. Sigal M. Comment on Evert et al. Nutrition therapy recommendations for the management of adults with diabetes. Diabetes Care 2013;36: 3821–3842 (Letter). Diabetes Care 2014;37: e100. DOI: 10.2337/dc13-2901
- 2. Jardine MA, Trapp C, Levin S. Comment on Evert et al. Nutrition therapy recommendations for the management of adults with diabetes. Diabetes Care 2013;36:3821–3842 (Letter). Diabetes Care 2014;37:e101. DOI: 10.2337/dc13-2854
- 3. Salas-Salvado J, Bullo M, Estruch R, et al. Prevention of diabetes with Mediterranean diets: a subgroup analysis of a randomized trial. Ann Intern Med 2014;160:1–10
- 4. Knowler WC, Barrett-Connor E, Fowler SE, et al.; Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 di-

abetes with lifestyle intervention or metformin. N Engl J Med 2002;346:393–403

- 5. Evert AB, Boucher JL, Cypress M, et al. Nutrition therapy recommendations for the management of adults with diabetes. Diabetes Care 2013;36:3821–3842
- 6. Sluijs I, Beulens JWJ, van der A DL, Spijkerman AM, Grobbee DE, van der Schouw YT. Dietary intake of total, animal, and vegetable protein and risk of type 2 diabetes in the European Prospective Investigation into Cancer and Nutrition (EPIC)-NL study. Diabetes Care 2010;33:43–48
- 7. Sluijs I, van der Schouw YT, van der A DL, et al. Carbohydrate quantity and quality and risk of type 2 diabetes in the European Prospective Investigation into Cancer and Nutrition-Netherlands (EPIC-NL) study. Am J Clin Nutr 2010;92:905–911
- 8. Sluijs I, Forouhi NG, Beulens JW, et al.; InterAct Consortium. The amount and type of dairy product intake and incident type 2 diabetes: results from the EPIC-InterAct Study. Am J Clin Nutr 2012;96:382–390
- 9. Barnard ND, Cohen J, Jenkins DJ, et al. A lowfat vegan diet and a conventional diabetes diet in the treatment of type 2 diabetes: a randomized, controlled, 74-wk clinical trial. Am J Clin Nutr 2009;89:1588S–1596S