



COMMENT ON QIAN ET AL.

Metabolic Effects of Monounsaturated Fatty Acid–Enriched Diets Compared With Carbohydrate or Polyunsaturated Fatty Acid–Enriched Diets in Patients With Type 2 Diabetes: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *Diabetes Care* 2016;39:1448–1457

Diabetes Care 2016;39:e204 | DOI: 10.2337/dc16-1613

Lukas Schwingshackl¹ and
Georg Hoffmann²

We read with great interest the meta-analysis by Qian et al. (1). The authors showed consistent evidence that replacing carbohydrates with monounsaturated fatty acids (MUFA) has beneficial effects on metabolic risk factors in patients with type 2 diabetes (T2D) and concluded that these findings have broad implications for dietary recommendations for this population.

Recently, we summarized the evidence from systematic reviews and meta-analyses regarding the effects of MUFA on cardiometabolic risk (2). In patients with abnormal glucose metabolism and T2D, higher intakes of MUFA were associated with lower triacylglycerol and higher HDL cholesterol levels, as well as improvements in glycemic control parameters such as fasting plasma glucose and glycosylated hemoglobin, quite similar to the findings of Qian et al. (1). A very important statement made by the authors is that evidence from observational studies substituting MUFA for carbohydrates and saturated fatty acids yielded inconsistent results, most likely due to the fact that in the Western diet, MUFA intake is largely based on foods from animal origin

(such as meat) rather than edible plants. In a meta-analysis of 32 cohort studies (3), we showed that MUFA of mixed animal and vegetable sources per se did not yield any significant effects on all-cause mortality and risk of cardiovascular disease. However, providing MUFA via olive oil only was associated with reduced risk of all-cause mortality, stroke, and cardiovascular events (3). With respect to randomized controlled trials, monounsaturated fat–enriched diets resulted in reduced triacylglycerol levels, but did not seem to affect total cholesterol and LDL cholesterol, compared to low-fat diets (4). Using meta-regression models, we showed a dose-response relationship between higher intakes of MUFA and increases in HDL cholesterol in overweight/obese individuals, as well as in patients with abnormal glucose metabolism (4,5).

We strongly agree with the conclusions made by Qian et al. (1): replacement of carbohydrates by MUFA represents a useful dietary tool to improve metabolic risk factors. However, future studies should focus on the topic of whether the origin of MUFA in the diet is crucial for fostering their beneficial effects.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

References

1. Qian F, Korat AA, Malik V, Hu FB. Metabolic effects of monounsaturated fatty acid–enriched diets compared with carbohydrate or polyunsaturated fatty acid–enriched diets in patients with type 2 diabetes: a systematic review and meta-analysis of randomized controlled trials. *Diabetes Care* 2016;39:1448–1457
2. Schwingshackl L, Hoffmann G. Monounsaturated fatty acids and risk of cardiovascular disease: synopsis of the evidence available from systematic reviews and meta-analyses. *Nutrients* 2012;4:1989–2007
3. Schwingshackl L, Hoffmann G. Monounsaturated fatty acids, olive oil and health status: a systematic review and meta-analysis of cohort studies. *Lipids Health Dis* 2014;13:154
4. Schwingshackl L, Hoffmann G. Comparison of effects of long-term low-fat vs high-fat diets on blood lipid levels in overweight or obese patients: a systematic review and meta-analysis. *J Acad Nutr Diet* 2013;113:1640–1661
5. Schwingshackl L, Hoffmann G. Comparison of the long-term effects of high-fat v. low-fat diet consumption on cardiometabolic risk factors in subjects with abnormal glucose metabolism: a systematic review and meta-analysis. *Br J Nutr* 2014;111:2047–2058

¹Department of Epidemiology, German Institute of Human Nutrition, Nuthetal, Germany

²Department of Nutritional Sciences, Faculty of Life Sciences, University of Vienna, Vienna, Austria

Corresponding author: Lukas Schwingshackl, lukas.schwingshackl@dife.de.

© 2016 by the American Diabetes Association. Readers may use this article as long as the work is properly cited, the use is educational and not for profit, and the work is not altered. More information is available at <http://www.diabetesjournals.org/content/license>.