

Consultation on the draft report:

Lower carbohydrate diets for adults with type 2 diabetes

Comments Form

Organisation	Viva!Health
Name of commentator and contact details	Dr Justine Butler

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General comments	Comments
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Focus	Focussing on carbohydrates as a uniform category would be misleading because whilst simple carbohydrates are not ideal and excessive consumption is detrimental to our health and poses a problem for diabetics, complex carbohydrates promote good health and can help in the management of type 2 diabetes.
Complex carbohydrates	<p>Plant-based diets, centred around complex carbohydrates, protein and essential unsaturated fats have been shown to be extremely helpful in diabetes management. As McMacken and Shah (2017) state: <i>“Evidence from observational and interventional studies demonstrates the benefits of plant-based diets in treating type 2 diabetes and reducing key diabetes-related macrovascular and microvascular complications. Optimal macronutrient ratios for preventing and treating type 2 diabetes are controversial; the focus should instead be on eating patterns and actual foods. However, the evidence does suggest that the type and source of carbohydrate (unrefined versus refined), fats (monounsaturated and polyunsaturated versus saturated and trans), and protein (plant versus animal) play a major role in the prevention and management of type 2 diabetes. Multiple potential mechanisms underlie the benefits of a plant-based diet in ameliorating insulin resistance, including promotion of a healthy body weight, increases in fiber and phytonutrients, food-microbiome interactions, and decreases in saturated fat, advanced glycation end-products, nitrosamines, and heme iron.”</i></p> <p>McMacken M, Shah S. 2017. A plant-based diet for the prevention and treatment of type 2 diabetes. <i>Journal of Geriatric Cardiology</i>. 14 (5): 342–354</p>
HbA1c	<p>Yokoyama et al. (2014) analysed six randomized controlled trials, five of them assessed the effects of a vegan diet and one examined the effects of a lacto-ovo-vegetarian diet. Their analysis showed that these plant-based diets resulted in a statistically significant reduction in HbA1c (–0.39 percentage points) compared with control diets. In one of the studies, the reduction in HbA1c was up to -0.9 percentage points (Kahleova et al., 2011). According to a following analysis by Salas-Salvadó et al. (2019), the effect of plant-based diets on HbA1c was on average –0.41 percentage points. These authors concluded that: <i>“The beneficial effects of these dietary patterns may be explained by mechanisms specifically related to the increased intake of fiber, PUFAs, MUFAs, and antioxidant and anti-inflammatory micronutrients, and the reduced intake of SFAs, heme iron, sodium, nitrites, and nitrates. In conclusion, the overall evidence suggests that patients with T2D will benefit from adopting dietary patterns emphasizing the consumption of plant foods. The components of these dietary patterns might confer benefits on glycemia by counterbalancing the detrimental effect of animal foods.”</i></p>

	<p>Yokoyama Y, Barnard ND, Levin SM, Watanabe M. 2014. Vegetarian diets and glycemic control in diabetes: a systematic review and meta-analysis. <i>Cardiovascular Diagnosis and Therapy</i>. 4 (5): 373-382.</p> <p>Kahleova H, Matoulek M, Malinska H, et al. 2011. Vegetarian diet improves insulin resistance and oxidative stress markers more than conventional diet in subjects with Type 2 diabetes. <i>Diabetes Medicine</i>. 28 (5): 549-559.</p> <p>Salas-Salvadó J, Becerra-Tomás N, Papandreou C, Bulló M. 2019. Dietary Patterns Emphasizing the Consumption of Plant Foods in the Management of Type 2 Diabetes: A Narrative Review. <i>Advances in Nutrition</i>. 10 (Suppl_4): S320-S331.</p>
Dietary guidelines	<p>A recent review and meta-analysis of randomized control trials undertaken in order to update the European Association for the Study of Diabetes (EASD) clinical practice guidelines for nutrition therapy (Viguiliouk et al., 2019) came to the same conclusions. The results showed that plant-based diets based on wholefoods significantly improve glycaemic control in people with type 2 diabetes, lower the risk of diabetes-associated health complications and should therefore be included in diabetes management guidelines.</p> <p>Viguiliouk E, Kendall CW, Kahleová H, et al. 2019. Effect of vegetarian dietary patterns on cardiometabolic risk factors in diabetes: A systematic review and meta-analysis of randomized controlled trials. <i>Clinical Nutrition</i>. 38 (3): 1133-1145.</p>
High carbohydrate diets	<p>A recent study examined a fully plant-based diet emphasising brown rice, pulses, fruit and vegetables (and therefore rich in complex carbohydrates) and its effects on patients with type 2 diabetes. After 12 weeks, the participants' HbA1c fell by 0.5-0.9 percentage point – significantly more than in the control group – demonstrating that limiting all carbohydrates should not be the focus of diabetes dietary management (Lee et al., 2016).</p> <p>Lee YM, Kim SA, Lee IK, et al. 2016. Effect of a Brown Rice Based Vegan Diet and Conventional Diabetic Diet on Glycemic Control of Patients with Type 2 Diabetes: A 12-Week Randomized Clinical Trial. <i>PLoS One</i>. 11 (6): e0155918.</p>
Food focus rather than nutrient focus	<p>Harvard University scientists support this approach (Ley et al., 2014): “<i>The quality of dietary fats and carbohydrates consumed is more crucial than is the quantity of these macronutrients. Diets rich in wholegrains, fruits, vegetables, legumes, and nuts; moderate in alcohol consumption; and lower in refined grains, red or processed meats, and sugar-sweetened beverages have been shown to reduce the risk of diabetes and improve glycaemic control and blood lipids in patients with diabetes.</i>”</p>

	<p>Ley SH, Hamdy O, Mohan V, Hu FB. 2014. Prevention and management of type 2 diabetes: dietary components and nutritional strategies. <i>Lancet</i>. 383 (9933): 1999-2007.</p>
Dangers of low-carbohydrate diets	<p>Low carbohydrate diets may produce promising results in the short-term but if followed for long periods of time, they have a whole range of unpleasant adverse effects such as constipation, headaches, kidney fatigue, bad breath, increased cholesterol levels, increased risk of heart disease, cancer and even premature death (Bilsborough and Crowe, 2003; Fung et al., 2010; Banach, 2018; Farhadnejad et al., 2019; Mazidi et al., 2019).</p> <p>Furthermore, low carbohydrate diets don't improve glycaemic control in type 2 diabetes sufferers more than plant-based diets – in fact, they appear less effective - and they don't improve any of the health parameters linked to diabetes complications, such as blood cholesterol and blood pressure (Huntriss et al., 2018).</p> <p>Bilsborough SA, Crowe TC. 2003. Low-carbohydrate diets: what are the potential short- and long-term health implications? <i>Asia Pacific Journal of Clinical Nutrition</i>. 12 (4) 396-404.</p> <p>Fung TT, van Dam RM, Hankinson SE, Stampfer M, Willett WC, Hu FB. 2010. Low-carbohydrate Diets and All-Cause and Cause-Specific Mortality: Two Cohort Studies. <i>Annals of Internal Medicine</i>. 153(5): 289-98.</p> <p>Banach M. 2018. Low-carbohydrate diets and all-cause and cause-specific mortality: a population-based cohort study and pooling prospective studies. European Society of Cardiology – study presented at ESC Congress 2018.</p> <p>Farhadnejad H, Asghari G, Emamat H, Mirmiran P, Azizi F. 2019. Low-Carbohydrate High-Protein Diet is Associated With Increased Risk of Incident Chronic Kidney Diseases Among Tehranian Adults. <i>Journal of Renal Nutrition</i>. 29 (4) 343-349.</p> <p>Mazidi M, Katsiki N, Mikhailidis DP, Sattar N, Banach M. 2019. Lower carbohydrate diets and all-cause and cause-specific mortality: a population-based cohort study and pooling of prospective studies. <i>European Heart Journal</i>. 40 (34) 2870-2879.</p> <p>Huntriss R, Campbell M, Bedwell C. 2018. The interpretation and effect of a low-carbohydrate diet in the management of type 2 diabetes: a systematic review and meta-analysis of randomised controlled trials. <i>European Journal of Clinical Nutrition</i>. 72 (3): 311-325.</p>
Summary	<ul style="list-style-type: none"> • Lower-carbohydrate diets do not necessarily improve glycaemic control in people with type 2 diabetes.

	<ul style="list-style-type: none"> • The emphasis in diabetes nutrition management should be on promoting the consumption of complex carbohydrates and limiting simple carbohydrates, rather than limiting carbohydrates in general. • Focusing on the source of nutrients – foods – may bring about better results than focusing on single nutrients. • Plant-based diets centred around wholefoods and complex carbohydrates have been shown to significantly improve glycaemic control in diabetes sufferers, as well as their cardiovascular and kidney health.
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