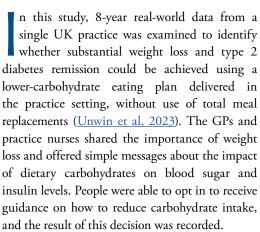


Remission more achievable with lower-carbohydrate diet early after type 2 diagnosis

In this GP service evaluation study published in *BMJ Nutrition, Prevention & Health,* 77% of people with type 2 diabetes who chose to follow a lower-carbohydrate diet within 12 months of diagnosis achieved remission, reducing to 20% amongst those with a 15-year type 2 diabetes history. Overall, 51% of those following the lower-carbohydrate eating pattern achieved remission, which was 20% of the total practice type 2 diabetes register. Of those following this eating pattern, 97% improved their glycaemic control. Advice on a lower-carbohydrate diet was provided in standard one-to-one consultations, group consultations and during telephone follow-up from 2013 until 2021, and the impacts on weight, HbA_{1c}, lipids and blood pressure (BP) were monitored for those who chose to follow this approach. Over an average of 33 months on the diet, mean weight reduced by 10 kg and median HbA_{1c} reduced from 63 to 46 mmol/mol. Reductions in LDL cholesterol (mean 0.5 mmol/L), triglycerides (mean 0.9 mmol/L) and systolic BP (mean 12 mmHg) were also achieved. This approach resulted in significant prescribing savings, with average spend on diabetes drugs of £4.94 per patient per year compared to £11.30 per patient per year for local practices.



Of 473 people with type 2 diabetes on the practice register in April 2021, 186 (39%) had chosen to follow the lower-carbohydrate approach, and had been followed for an average of 33 months. In addition to dietary guidance sheets and usual 10-minute diabetes consultations, 90-minute group consultations (face-to-face, then via Zoom from the beginning of the COVID-19 lockdowns) were offered approximately every 6 weeks. These were accessed by patients

and relatives, with around 25 attending each session. The service delivered and resources used evolved from 2013 to 2021 to meet identified challenges, such as risk of relapse and "food addiction", and many of the resources are shared in the supplementary data with the paper. The only people excluded from being offered the lower-carbohydrate diet option were those with type 2 diabetes and severe mental illness, terminal illness or eating disorders, who were offered individualised management plans.

An international expert consensus defines type 2 diabetes remission as >3 months of HbA_{1c} <48 mmol/mol off all glucose-lowering medication (Riddle et al, 2021). Remission has been demonstrated with a variety of approaches, including a low-calorie meal-replacement diet for 12 weeks in the DiRECT study (Lean et al, 2018) and low- or very-low-carbohydrate diets. The authors of this study attribute their success in helping people achieve remission, weight loss and improved glycaemic control to delivery of the guidance by a trusted health provider, their frank



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discussions of the importance of weight loss, consistent long-term management by the whole primary care team and telephone discussions whenever a rise in HbA_{1c} was detected. Giving people the choice of making dietary changes or taking lifelong medication encouraged people to renew commitment to dietary efforts.

Those making dietary changes within 12 months of diagnosis were most likely to achieve remission (77%), with rates decreasing thereafter. This suggests there is a small window of opportunity in which remission may be easier to achieve. Delayed diagnosis during the pandemic may make remission less achievable in future cohorts.

Over an average of 33 months, mean weight reduced by around 10 kg and median HbA_{1c} reduced from 63 to 46 mmol/mol, with 97% achieving improved glycaemic control, even if remission was not achieved. Substantial diabetes drug prescribing savings of more than £68 000 per year were achieved by the practice, with the average spend on diabetes drugs reduced from £11.30 per patient per year to only £4.94 per patient per year.

The study had limitations. Lack of randomisation means there is a risk that those choosing to participate in the lower-carbohydrate group may also have been more motivated to manage their diabetes. The actual macronutrient intake of those choosing the lower-carbohydrate approach and their adherence to the diet were not monitored, but the significant weight reduction achieved supports significant changes in diet. The absence of a control group means that it is not possible to compare this dietary approach to routine care.

In the supplementary materials, the authors have been generous in sharing their practice protocol, the infographics used to counsel people about the underlying physiology of type 2 diabetes, their lower-carbohydrate diet sheet, their clinicians' guide to behaviour change, and detailed statistical analyses used to support their outcomes.

The confirmation that remission was easier to achieve in the first year after diagnosis suggests there is urgency in helping people reduce their carbohydrate intake and lose weight after diagnosis, and that there may be a short "window of opportunity" after which weight loss and remission may be significantly more difficult to achieve. Perhaps by sharing this message, as well as stating more clearly the importance of weight loss, we may help more people achieve weight loss, remission and improved control. If we don't already, I hope that we will be inspired to include remission discussions in our early consultations for people recently diagnosed with type 2 diabetes and to continue to share the benefits of reducing carbohydrate intake in follow-up reviews in everyone else, particularly those not yet achieving their agreed glycaemic target and those keen not to take additional drug therapies.

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