

INTRODUCTION

We are a group of medical professionals focusing on reducing the amount of carbohydrate in diets and replacing it with nutrient dense, high-quality protein to manage people with type 2 diabetes which extends to and includes metabolic associated fatty liver disease (MAFLD), prediabetes, essential hypertension, chronic kidney disease and atherogenic dyslipidaemia. This approach directly addresses the pathophysiology of insulin resistance which underpins these long term conditions. Thank you for the opportunity to provide a submission to this important inquiry. We would like to address Terms of Reference 2, 4 and 5.

TERMS OF REFERENCE 2: NEW EVIDENCE-BASED ADVANCES IN THE PREVENTION, DIAGNOSIS AND MANAGEMENT OF DIABETES, IN AUSTRALIA AND INTERNATIONALLY.

The latest scientific evidence supports low carbohydrate diets as a therapeutic management approach for patients with type 2 diabetes and obesity. Low carbohydrate diets are amongst the most researched eating patterns in patients with type 2 diabetes and obesity.

This dietary therapy allows patients to stop or reduce insulin and other diabetic medications whilst seeing improvements in HbA1c, dyslipidaemia, MAFLD along with reduced weight and blood pressure. Many can put their type 2 diabetes into remission. Prediabetes can be reversed in up to 97% in the Virta trial at 2 years (McKenzie *et al.*, 2021). A UK general practice was able to achieve remission in 20% of their patients with type 2 diabetes using a low carbohydrate approach. (Unwin *et al.*, 2023). This is in stark contrast to the outcomes of usual care which leads to a chronic progressive disease and remission is rare (Karter *et al.*, 2014).

This low carbohydrate nutritional therapy is evidence based practice and is now approved by the American Diabetes Association with their 2019 consensus statement concluding “*Reducing overall carbohydrate intake for individuals with diabetes has demonstrated the most evidence for improving glycemia and may be applied in a variety of eating patterns that meet individual needs and preferences.*” (Evert *et al.*, 2019) Indeed the American Diabetes Association has a guideline for health professionals on how to implement a very low carbohydrate diet to treat type 2 diabetes. (<https://shopdiabetes.org/collections/health-care-professionals/products/low-carbohydrate-and-very-low-carbohydrate-eating-patterns-in-adults-with-diabetes-a-guide-for-health-care-providers>). Diabetes Australia also approves – see https://www.diabetesaustralia.com.au/wp-content/uploads/2021_Diabetes-Australia-Position-Statement_Type-2-diabetes-remission_2.pdf pages 4-5 and The Australian National Diabetes Strategy 2021-2030, page 18 ,see https://www.health.gov.au/sites/default/files/documents/2021/11/australian-national-diabetes-strategy-2021-2030_0.pdf). But these ideas need to be more widely promoted; most health professionals are unaware of them.

Secondly, the use of continuous glucose monitors (CGM) in patients with type 2 diabetes is shown to be a powerful tool as the glycaemic response to foods can be seen immediately. Trialing this, even for a few months, will result in improved HbA1c even in those not needing insulin (Cowart, Updike and Franks, 2021).

2 CASE REPORTS FROM DR RON SCHWEITZER which highlight this therapeutic approach and represent what we experience routinely in our clinical practices.

Case study 1:

Adem is a 47 year old man with Type 2 diabetes diagnosed 12 months ago. He has been managed with diet and metformin 500mg mane. In March 2023 his weight was 107.5 Kg and HbA1C 7.7%. In March Adem came to see Dr. Ronald Schweitzer. He changed to a low carb eating approach and started wearing a CGM. Adem's comments from wearing the CGM include:

- Today the graph is flat lining; yesterday I cheated just a little and boom, hit 10 immediately, just the carbs. It was a big proof of how carbs affect me
- This device is perfect. I can see how every different kind of food effects my blood sugar level.
- This device helps a lot. I am pleased that you recommended it.
- This device helps me understand what kind of food effects my sugar level.
- It is very user friendly.
- I can manage my diabetes on real measurement instead of guess work.
- It has no effect on your daily routine, sometimes I forget that I'm wearing it.
- If you want to have knowledge of how your body responds to food, it's an excellent device.

Adem wore one device for the two weeks which upskilled him on the impact of food on his glucose levels.

In July 2023, 4 months after starting low carb and wearing the device for 2 weeks, Adem's weight had dropped by 7 Kg to 100.5 Kg and his HbA1C to 6.5%.

Case study 2:

Wally is a 75-year-old woman who was diagnosed with T2D in 1993 (30 years ago). She has been treated with insulin since 2003 (for 20 years). In February 2022 she was on 59 units of long-acting insulin. In February 2022 she started eating more low carb food and decreased her insulin to 48 units. She was encouraged to use a CGM patch but too expensive. Her family decided good control of her diabetes was very important. Luckily her family are in a position where they can pay for the CGM patches. They started paying for the CGM patches for her in April 2023. This gives her "instant feedback on the effects the various foods have on my glucose readings." In the three months since Wally has been using the patch, Wally has been able to decrease her insulin dose from 48 units to 20 units. Her HbA1C was 8.6% in October 2022 and 8.8% in March 2023. In June 2023 her HbA1C was 6.3% (non-diabetic range) on one third the dose of insulin. Over this period her weight has dropped 4.4 Kg from 69.8 to 64.4 Kg. As Wally becomes more insulin sensitive, it is likely she will be able to decrease the dose of insulin even more with improved glycaemic control. Recently the patch showed that her blood

glucose went up to 15.4mmol/L following eating a bagel – a friendly reminder to her that she is still very much carbohydrate intolerant.

This improvement in control from the low carb eating with the CGM provides multiple benefits. Firstly, it becomes much safer to manage someone on insulin to avoid the dangers of a hypoglycaemic episode. There is the economic benefit of lower cost for medications which saves the Government money. There is the further economic benefit for the Government of less risk of complications from T2D e.g. amputations, blindness, dialysis etc. All of these complications are very expensive to manage. And of course, there is the personal benefits – Wally finally feels in control of her diabetes and is now confident of how to manage her diabetes by eating foods that she can see do not raise her blood glucose.

TERMS OF REFERENCE 4 :ANY INTERRELATED HEALTH ISSUES BETWEEN DIABETES AND OBESITY IN AUSTRALIA, INCLUDING THE RELATIONSHIP BETWEEN TYPE 2 AND GESTATIONAL DIABETES AND OBESITY AND THE EVIDENCE BASE IN THE PREVENTION ,DIAGNOSIS AND MANAGEMENT OF OBESITY

Lifestyle advice forms the foundation of management of obesity and T2D. As hyperinsulinemia and insulin resistance underpins the pathophysiology of T2D and in many cases obesity and gestational diabetes, strategies directed towards reducing insulin and improving sensitivity are critical. As carbohydrates increase blood glucose levels and promote insulin secretion, people with insulin resistance can be considered “carbohydrate intolerant”. It is this basic physiology and biochemistry that forms the basis for the low carbohydrate approach.

People with type 2 diabetes, pre-diabetes, MAFLD and obesity should be made aware of this dietary option that will support best practice so that they can make an informed choice. Not informing people of this lifestyle option is like not telling people of a possible treatment for their cancer - the treatment option is not to be forced on the patient, but they should be allowed to make an informed decision. Without being told of the possibility of remission via a low carb approach, they are not able to make an informed decision.

The low carb approach follows what Diabetes Australia describes on its “Carbohydrate, Protein and Fat” page (see <https://www.diabetesaustralia.com.au/living-with-diabetes/carbs-protein-fats/>) and takes it to its logical conclusion. DA states here:

“When carbohydrates are digested they break down to form glucose” and

“Of the three key nutrients in our food – fat, protein and carbohydrate – carbohydrate is the nutrient that will have the biggest impact on your [blood glucose levels](#).” As carbohydrates have the biggest impact on a person’s blood glucose levels, it makes sense to limit the intake of carbohydrates. And this is now backed by the research.(Unwin *et al.*, 2020) ,(Athinarayanan *et al.*, 2019).

We feel strongly that this therapeutic approach should be offered as early as possible to patients showing signs of prediabetes, diabetes, MAFLD and for those with obesity. This is both prevention and management.

TERMS OF REFERENCE 5: THE EFFECTIVENESS OF CURRENT AUSTRALIAN GOVERNMENT POLICIES AND PROGRAMS TO PREVENT, DIAGNOSE AND MANAGE DIABETES.

Current dietary advice for prevention and management of type 2 diabetes relies on the Australian Dietary Guidelines. This is inappropriate as the guidelines are not therapeutic and applicable only for healthy Australians. The Australian Dietary Guidelines say in bold on the bottom of page 2: “The Guidelines do not apply to people with medical conditions requiring specialised dietary advice ...” see: <https://www.health.gov.au/sites/default/files/australian-dietary-guidelines.pdf>. These guidelines are clearly inappropriate for people with type 2 diabetes - a medical condition that absolutely requires specialised dietary advice. As listed above low carbohydrate eating patterns have the most evidence of benefit in type 2 diabetes and also prediabetes. Strong evidence of benefit for obesity also exists. This should be the focus of nutritional advice as a prevention and management tool.

CONCLUSION

1. Insulin resistance and hyperinsulinemia underpins the pathophysiology of type 2 diabetes, prediabetes, much obesity, metabolic associated fatty liver disease, hypertension, gestational diabetes and other long term conditions.
2. Low carbohydrate diets target this abnormal physiology and all patients with type 2 diabetes, obesity, MAFLD, metabolic syndrome and insulin resistance should have the chance to learn about a low or very low carbohydrate diet before medications are prescribed. Recent scientific evidence for this approach is robust and growing. (Terms of Reference point 2)
3. Current Australian Dietary Guidelines should NOT be offered to type 2 diabetes patients due to lack of evidence of benefit in this group. (Terms of reference 5)
4. All dietitians and health professionals need to offer therapeutic carbohydrate restriction as a **CHOICE** to patients with type 2 diabetes. (Terms of Reference 4)
5. CGM for even a few months will help support behaviour change in type 2 diabetes and prediabetes as patients will see the glucose remaining normal after a lower carbohydrate meal. (Terms of reference 2)

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