PROFESSOR PETER BRUKNER

OAM, MBBS, D Sc, FACSP, FASMF, FACSM, FFSEM, FSEM(Ire)

Sports and Exercise Physician

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Submission to the Parliamentary Enquiry on Diabetes

I am a specialist sports and exercise physician, the founding partner of *Olympic Park Sports Medicine Centre* in Melbourne and Professor of Sports Medicine at *La Trobe University*. A founding Executive Member of the *Australasian College of Sports Physicians,* I served two terms as President and played a key role in establishing sports medicine as a medical specialty in Australia. I am the co-author of the widely used text book *Clinical Sports Medicine* and have been team physician for professional football clubs as well as national athletics, swimming, soccer and men's hockey teams including *Olympic* and *Commonwealth Games*. I was the *Socceroos* Team Doctor at the 2010 World Cup in South Africa and subsequently became Head of Sports Medicine and Sports Science at *Liverpool Football Club*. My most recent position has been *Australian cricket team* doctor from 2012-17.

Ten years ago, I was 60 years old, had a strong family history of type 2 diabetes, and was obese despite largely adhering to the recommended low fat, high carbohydrate diet and exercising regularly. I had a fatty liver, high insulin levels and high triglyceride levels. I didn't realise it at the time, but I was pre-diabetic.

A colleague suggested to me that everything that we had been taught about nutrition was wrong and that carbohydrates were the problem, not fats. I was initially sceptical, but the more I researched it, the more intrigued I became. Then I tried an experiment on myself, a three-month trial of a restricted carbohydrate diet eliminating sugars and starchy foods such as cereals, rice, pasta, potatoes, bread and processed foods, and instead eating the way my grandparents would have, focusing on 'real food' such as meat, fish, eggs, dairy, non-starchy vegetables, and the only fruit I ate was berries. What happened? At the end of three months, I had lost 13 kg, all my blood markers returned to normal, and I felt mentally and physically better. It was a life-changing experience.

Since then, I have become a passionate advocate of the low carb approach and have seen numerous people have equally dramatic results. I give regular talks on the topic to community groups of all sizes. A few years ago, I started the not-for-profit *SugarByHalf* with the aim of reducing the intake of added sugars by 50% and published the book *A Fat Lot of Good,* which was on the bestseller list for several weeks.

Then, two years ago, I decided to tackle the "big one" - type 2 diabetes. In conjunction with Dr Paul Mason and dietitian Nicole Moore APD, I developed a program called *Defeat*

Diabetes. The program is loosely based on a successful British low carb program created by diabetes.co.uk with over 400,000 participants.

Defeat Diabetes is a digital program delivered on mobile and web. It aims to educate members on the benefits of carbohydrate restriction in the management and remission of type 2 diabetes through the latest gold-standard evidence. The program also provides practical tools to adopt this eating approach, including simple, accessible recipes and meal plans.

To date, more than 9000 people have joined the Defeat Diabetes program. A recent self-reported member survey showed 66% of members saw a return to a normal HbA1c of <6.5 after starting the Defeat Diabetes Program. We are currently sponsoring an independent assessment of the program through La Trobe University with encouraging early results.

Our comments below relate primarily to type 2 diabetes and to a lesser extent, gestational diabetes.

We will address the five points contained in the Terms of Reference.

1. ***The causes of diabetes (type 1, type 2 and gestational) in Australia, including risk factors such as genetics, family history, age, physical inactivity, other medical conditions and medications used***

Type 2 diabetes is a disease of **carbohydrate intolerance** characterised by high levels of blood sugar, the source of which is dietary carbohydrates.

While there is a small genetic component, carbohydrate intolerance results from many years of high carbohydrate (sugars and starches) intake, which leads to a state of **insulin resistance.** The high intake of carbohydrate forces the pancreas to produce more and more insulin and ultimately the pancreas can no longer keep up.

In addition, the liver and the pancreas are damaged by high intake of fructose (one of the two components of simple sugar) which leads to fatty infiltration and a reduced ability to secrete insulin. This failure results in the high blood sugars seen in type 2 diabetes.

Sugars and highly processed foods are inflammatory in nature, and there is now ample evidence to support that type 2 diabetes, to a large extent, results from chronic low-grade inflammation.

Unfortunately, the recommended diet for Australians (Australian Dietary Guidelines) promotes the intake of high carbohydrate foods (see Number 5 below)

2. ***New evidence-based advances in the prevention, diagnosis and management of diabetes, in Australia and internationally***

Current medical teaching states that type 2 diabetes is a chronic progressive disease and requires life long medication.

However, there is now compelling evidence to support the use of a **reduced carbohydrate intake** in the management of type 2 diabetes.

I have attached a summary (Appendix 1) of this evidence, including RCTs, systematic reviews and other research articles. I also have included the data from the participants in the *Defeat Diabetes* program, as well as preliminary 3-month data from an independent PhD study at *La Trobe University* assessing the efficacy of the Defeat Diabetes program. The preliminary three-month data from 49 subjects has shown improvement of glycemic control in 39/49, with 26 of the 49 having reduced their HbA1c levels to non-diabetic levels - they are in remission. In addition, their average weight loss has been 4.3 kg in three months, and many have reduced their diabetes and/or blood pressure medications.

Studies performed internationally have also shown clearly that it is possible to put type 2 diabetes into remission – something that we have always been taught was not possible. Some studies have shown a **>50% remission rate**. This is enormously encouraging and gives hope to both those diagnosed with type 2 diabetes and the health practitioners treating them.

Recently the *American Diabetes Association (ADA)* has acknowledged low carb as a beneficial approach for treating type 2 diabetes. In their latest guidelines published earlier this year (*Diabetes Care 2023;46(Suppl. 1):S68–S96),* they state that "Reducing overall carbohydrate intake for individuals with diabetes has demonstrated the most evidence for improving glycemia and may be applied to a variety of eating patterns that meet individual needs and preference" and "for select adults with type 2 diabetes not meeting glycemic targets or where reducing anti-glycemic medications is a priority, reducing overall carbohydrate intake with low- or very low-carbohydrate eating plans is a viable approach."

They emphasised the importance of eating non-starchy vegetables to avoid blood glucose spikes, minimising intake of added sugars and refined grains, and choosing whole foods over highly-processed foods.

3. ***The broader impacts of diabetes on Australia's health system and economy;***

The *Diabesity* (diabetes and obesity) epidemic has been described by Professor Paul Zimmet, Australia's leading diabetes expert, as the "**biggest epidemic in human history".** We believe that type 2 diabetes is the single biggest health issue in this country.

Why?

There are currently **1.3 million** Australians diagnosed with type 2 diabetes. This is a massive increase from **380,000** in 1990. It is thought that there are at least another **500,000** undiagnosed. In addition, there are thought to be **2 million** Australians with pre-diabetes, many of whom will go on to develop type 2 diabetes unless they change the way they eat.

Type 2 diabetes results in high blood glucose levels which damage the lining of both small and large blood vessels. As a result, type 2 diabetes is:

- The biggest risk factor for the development of cardiovascular disease (heart attacks, strokes)

- So closely related to Alzheimer's disease that it is sometimes referred to as Type 3 diabetes
- The most common cause of blindness in Australia (>100,000 hospitalisations with eye complications)
- The most common cause of amputations in Australia (>5000/year)
- The most common cause of kidney failure (dialysis, transplants) in Australia (250,000 hospitalised annually with kidney problems)

Diabetes is the cause of more than 1 million hospitalisations annually in Australia including 19,000 Emergency Department visits.

The cost to Australia is many billions of dollars in pharmaceutical, medical and surgical costs, time lost from work, carers etc. The AIHW suggests the cost is up to $2 billion for type 2 diabetes alone.

Imagine the savings to the health budget if 50% of those with type 2 diabetes go into remission with a low carbohydrate diet.

A reduced carbohydrate approach to the management of type 2 diabetes has been shown in the UK to significantly reduce the costs in NHS general practices by reducing medications, allied health services, patient visits and hospital admissions, including surgeries. The savings are both in the management of type 2 diabetes itself and the reduced costs associated with the reduction in the complications mentioned above.

Dr David Unwin, a GP in Southport, UK, has shown that adopting a low carb approach to the management of type 2 diabetes resulted in a reduction in spending on pharmaceuticals of greater than UKP50,000 in his practice compared to neighbouring practices (*BMJ Nutrition, Prevention & Health 2020;0. doi:10.1136/ bmjnph-2020-000072)*

4. ***Any interrelated health issues between diabetes and obesity in Australia, including the relationship between type 2 and gestational diabetes and obesity, the causes of obesity and the evidence-base in the prevention, diagnosis and management of obesity; and***

Obesity and type 2 diabetes are closely linked. Many, although not all, with type 2 diabetes are obese. The association is probably due to common causality – insulin resistance as a result of excessive carbohydrate intake. Visceral obesity (excess fat around one's organs) is associated with excess fat deposition in both the liver and pancreas, which can lead to type 2 diabetes.

Low carbohydrate diets have been shown to be effective in reducing obesity, especially in comparison to the traditional low fat diet.

There have been 67 Randomised Control Trials (RCTs) comparing low carb and low fat diets for weight loss. Fifty-eight out of 67 RCTs show better results for low carb than low fat, of which 36 reached statistical significance. None of those that showed an advantage for low fat were significant (Appendix 2). There are 14 meta-analyses/systematic reviews comparing low carb and low fat which show clearly that low carb is superior (Appendix 3).

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5. ***The effectiveness of current Australian Government policies and programs to prevent, diagnose and manage diabetes.***

Unfortunately, Australian (and international) policies and programs have contributed significantly to the diabesity epidemic.

A. AUSTRALIAN DIETARY GUIDELINES (ADG)

By the government's admission, the ADG is only intended for healthy people. For the 1.3M people living with a disease of carbohydrate intolerance, the recommendation that 60% of diet be consumed in the form of carbohydrates is unethical. Yet, it is still promoted by GPs and dietitians quoting the dietary guidelines. In addition:

- The guidelines demonise saturated fat despite overwhelming evidence (Appendix 4) that saturated fat contained in animal products such as meat and dairy is not harmful
- The guidelines promote the use of polyunsaturated Omega-6 fats such as vegetable oils (contained in most processed foods) which have been clearly shown to be inflammatory in nature thus contributing to the development of chronic disease
- Those in charge of the 2013 guidelines refused to review the evidence regarding both low carb diets and saturated fats

Many Australians including health practitioners, when questioned about diet, simply respond with "follow the guidelines".

Since the release of the 2013 Guidelines, Australians have got fatter and sicker!

B. DIABETES AUSTRALIA

In 2018, Diabetes Australia released a position statement stating there was reliable evidence that lower carb eating can be safe and useful in reducing blood glucose levels, reducing body weight and managing heart disease risk factors such as raised cholesterol and raised blood pressure.

Although Diabetes Australia acknowledges the evidence supporting low carb in the management of type 2 diabetes and remission, the recently released *Diabetes Australia* Strategic Plan 2023-27 does not include a strategy or recommendations for its promotion and adoption by HCPs and primary care workers.

By omitting strategic targets and a plan for the formal promotion of low carb as a treatment protocol, there is no clear roadmap for its adoption by primary care teams struggling to keep up with emerging science.

C. DIETITIANS AUSTRALIA

Despite the overwhelming evidence to the contrary, *Dietitians Australia* continue to promote a low fat, high carbohydrate diet that is guaranteed to ensure that those with type 2 diabetes only get worse. This is typified by the "diabetic diet" in public hospitals which is created by dietitians and contains high levels of carbohydrate resulting in worsening of the patient's diabetes.

D. THE HEALTH STAR RATINGS

The Health Star Ratings were intended to help consumers compare similar products in a category and understand the health benefits they provide. The algorithm that is used to decide how many stars a product receives was developed in collaboration with technical and nutrition experts from government (including FSANZ), industry, public health and consumer organisations.

It assesses components of food considered to increase risk (energy, saturated fat, total sugars and sodium) and offsets these against those components considered to decrease risk (protein, fibre and fruit, vegetable, nut and legume) to calculate a final score that is converted to a star rating.

However, the vested interests of industry appear to have influenced the outcomes of the algorithm to the point where the health star ratings only serve to further confuse consumers.

When a full fat Greek yoghurt gets a 1.5 star rating and a highly processed, sugary food like *Up and Go* gets 4.5, you can see how it is flawed. The health star rating panel should be free of COI, and the criteria for healthy food reflect gold-standard evidence.

ACTIONS THE FEDERAL GOVERNMENT COULD TAKE TO REDUCE THE BURDEN OF TYPE 2 DIABETES IN AUSTRALIA

1. Ensure that the current revision of the *Australian Dietary Guidelines* is based on scientific evidence and considers a separate section for diabetes and other chronic diseases.
2. Fund a public campaign to reduce the incidence of type 2 diabetes by promoting a real food diet.
3. Ensure adequate training in evidence-based nutrition for medical students and general practitioners.
4. Encourage Australians over the age of 35 to have an annual screening test for type 2 diabetes.
5. Encourage (and subsidise) the use of Continuous Glucose Monitors (CGMs) for those diagnosed with diabetes or pre-diabetes.
6. Improve the quality of food in hospitals and other government institutions by reducing sugar and processed foods.
7. Ban advertising of junk foods at times children are likely to be watching television.
8. Promote further research on the effectiveness of a restricted carbohydrate diet and exercise in the management of type 2 diabetes in disadvantaged communities including regional, rural and remote.
9. Promote the use of a low carb approach to the management of type 2 diabetes by promoting and subsidising programs which have been shown to be effective such as *Defeat Diabetes.*

Peter Brukner OAM