

Admin, LACO

Subject: FW: Corrected Comment on Inquiry on type 2 diabetes

Comment on Inquiry into the role of diet in type 2 diabetes prevention and management

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Dietary carbohydrate restriction remains the most effective method of treating type 2 diabetes — if there is no end-organ damage it is often a cure — and the most effective adjunct to pharmacology in type 1 — blood glucose excursions are dramatically reduced and lower drug doses are required. The approach follows from the underlying biochemistry — both forms of diabetes represent carbohydrate intolerance — other effects derive from the disruption of the glucose-insulin axis. The disconnect between the record of success of low-carbohydrate strategies and the negative response of government and private health organizations stands as a major barrier to our ability to confront the epidemics of diabetes and obesity. The cost in money, loss of intellectual honesty and most of all, patient suffering is immense. The problem has become extreme in Australia and several other countries where professional organizations have attacked health providers personally and professionally. Two cases are particularly troubling. Gary Fettke, MD was recently finally exonerated by APHRA but Jennifer Elliott, RD, a health provider for more than 30 years and author of a highly thought-of book was deregulated by DAA and is still not able to practice. Both were simply recommending low-carbohydrate diets to patients. That the situation is so irrational, that allowing carbohydrate in the diet of people with diabetes is so counter-intuitive and the benefits of low-carb diets so palpable makes it a unique kind of medical problem. Conversely, implementing an under-used technique is likely to provide immediate substantial results.

I teach medical students at the State University of New York Downstate Medical Center.. Although it is a basic science curriculum, I use low-carbohydrate diets as a teaching method because of the global effects of the hormone insulin. We do not make recommendations but the effectiveness of carbohydrate restriction is soon clear to students and they recognize that it is not part of traditional medicine and are, of course, not used to controversial subjects. I usually begin my lectures with an introduction along these lines: "Do you think there has ever been a time in the history of medicine when the great majority of researchers and doctors held to an idea that was not only false but dangerous and resisted change even in the face of contradictory evidence? Do you think there has ever been such a time?" Well, of course, they do. There are many examples. I suggest then that "if you do think there has been such a period in history, you must at least consider the possibility that this is another such time." To make progress on diabetes, we have to face the possibility that we got it wrong.

Students recognize in the basic biochemistry the therapeutic potential for carbohydrate restriction as well as the anomaly of a medical community that ignores this potential while bemoaning the continuing scourge of diabetes. "What do they say?," students ask and I admit that "they" don't talk to me much, or more precisely, I cannot engage them in serious scientific discussion in the literature or even in person.

I am the submitting author of a major review co-authored by 25 of the major researchers and clinicians using low-carbohydrate diets. [https://www.nutritionjrn.com/article/S0899-9007\(14\)00332-3/pdf](https://www.nutritionjrn.com/article/S0899-9007(14)00332-3/pdf) We cited 12 points of evidence supporting "Dietary carbohydrate restriction as the first approach in diabetes management: Critical review and evidence base." Among the twelve points of evidence:

Point 1. Hyperglycemia is the most salient feature of diabetes. Dietary carbohydrate restriction has the greatest effect on decreasing blood glucose levels

Point 2. during the epidemics of obesity and type 2 diabetes, caloric increases have been due almost entirely to increased carbohydrates

Point 3. benefits of dietary carbohydrate restriction do not require weight loss.

This is important in that it is common for health agencies to target weight loss as a primary goal which can become discouraging to patients

Point 4. although weight loss is not required for benefit, no dietary intervention is better than carbohydrate restriction for weight loss.

It is common to say that carbohydrate restriction is good in the short term but there are now many long term trials and low-carb diets outperform others for as long as they are compared.

Point 5. adherence to low-carbohydrate diets in people with type 2 diabetes is at least as good as adherence to any other dietary interventions and is frequently significantly better.

Point 9. the best predictor of microvascular and, to a lesser extent, macrovascular complications in patients with type 2 diabetes, is glycemic control (HbA1c).

Perhaps most important for patient satisfaction and reduction in cost,

Point 11. Patients with type 2 diabetes on carbohydrate-restricted diets reduce and frequently eliminate medication. People with type 1 usually require lower insulin

Point 12. Intensive glucose lowering by dietary carbohydrate restriction has no side effects comparable to the effects of intensive pharmacologic treatment.

The review has largely been ignored. Never refuted. Indeed, the twelve points were chosen as the most widely agreed on principles. They are not questioned by workers that I address personally. A recent editorial in a medical journal decried the high cost of synthetic insulins and proposed methods for using human insulin. I wrote to the author pointing out the reduction in cost from simply requiring less medication as in point 11. We even discussed the issue personally some time later and yet there seemed to be no recognition of the value of the nutritional approach.

Several very recent papers have provided further experimental demonstrations that the principles of the 12-points of evidence paper play are solid and reliable. Hallberg, *et al.* (2018) <https://doi.org/10.1007/s13300-018-0373-9> in particular, studied 349 people with type 2 diabetes. Ninety-five per cent of the patients reduced or eliminated insulin or other drugs. Lennerz, *et al.* <http://pediatrics.aappublications.org/content/early/2018/05/03/peds.2017-3349> similarly showed that people with type 1 diabetes are capable of normal blood glucose with addition of a low-carbohydrate diet. Nonetheless, there is substantial resistance and the flip side is that tremendous improvement I almost guaranteed with wider support for dietary carbohydrate restriction.

How did this happen? How did we miss the opportunity to use intuitive and tested methods. High blood glucose is the most salient symptom but also the causal role in downstream effects. Carbohydrate restriction or total calorie restriction (possibly due to de facto reduction in carbohydrate) we're standard treatments before the discovery of insulin which, despite its miraculous effects, may have misled us. Diabetes became cast as a hormone deficiency disease and replacement allowed a "normal" diet. What was not understood was that it was as much a system disease and regulation was as important as controlling absolute levels.

Type 2 is, in some sense analogous to an electronic circuit with feedback that in as been driven into saturation. Drugs cab help but targeting one component of a feedback system is always tricky.

What can be done? I think of Claude Bernard, who in the nineteenth century discovered glycogen and at least the basics of gluconeogenesis, His biographer, F. G. Young said of him that “his strength appears to lie in his ability to discard a theory once its experimental basis had been undermined. Even though he was apt not to state frankly that he had been wrong, he nevertheless did change his ideas.” We can avoid recriminations but backing into carbohydrate restriction slowly, finding a politically correct solution, will not be adequate. A real change is required and it can be effected by education and social and cultural factors, better cooperation among researchers and clinicians — and, of course, we have to re-define (or better, give up the term) “healthy” eating. Regulatory measures, in my experience, rarely encourage. They tend to harden positions, reduce cooperation and have ambiguous effects on compliance.

In summary, in terms of stated goals, we have the tools and experience to (a) substantially reduce the cost of type 2 diabetes to the community. To do so, we must recognize the limits of (b) The adequacy of prevention and intervention programs that are currently in place. We have to face the current failure of dietary recommendations to control the course of disease. In this, dietary approaches based on carbohydrate restriction can immediately provide progress. The use of (c) restrictive diets, to eliminate, or at least substantially reduce the need for type 2 diabetes has been consistently demonstrated. “healthy” has to be re-defined based on observed experiments and, in my view, education, (e) social and cultural factors and (f) self- management are, in my view more likely to be productive than (d) regulatory measures.

Finally, all of the groups listed in the inquiry can benefit form one or another regiment based on carbohydrate restriction. Implementation will have to be tailored to individual the method has found success in numerous different age and ethnic groups.

If I can be of any further assistance please let me know.