

Letters to the Editor

“Conventional” and high carbohydrate/high fibre/low fat diets in adults with established Type 1 (insulin-dependent) diabetes

Sir,

Dr. McCulloch and colleagues have concluded that a high carbohydrate/high fibre/low fat diet confers no additional advantage to Type 1 diabetic patients who had been given imaginative and practical advice concerning a low carbohydrate diet and instructed in detail how to achieve optimal glycaemic control on a twice daily insulin regime [1]. We would submit that for the following reasons their study does not justify these conclusions:

1. The study exemplifies the totally glycaemic approach to the management of patients with diabetes. There is no reference to any metabolite other than glucose. Reducing the cardiovascular risk associated with diabetes is a major aim of the high fibre/low fat dietary advice, and any investigation of this kind should at least include a consideration of cholesterol values.
2. The design is flawed in that Group C is finally assessed 19 months after the study started, as against 15 months for Groups A and B. One sympathises with the authors' feeling that the groups should all be finally studied after a 6-month period free of imposed dietary instruction, but in order to avoid possible confounding factors Groups A and B should have been assessed again after a further 4 months.
3. It is incorrect to assume, because there is not a conventional statistically significant difference between the initial mean values for two groups, that this difference can have no influence on the outcome. If the variability of the initial and final values is high, the smaller initial glycosylated haemoglobin value for Group B might influence the outcome.
4. It should also be noted that two patients in the control Group B (17%) defaulted. Defaulters are known to differ from those who stay the course and, given the small size of the groups, their haemoglobin A_{1c} measurements could well have altered the results.
5. A final statistical concern relates to the discrepancy between the measures of variability given in Figure 3 and the text. The error bars in the figure do not appear to be consistent with values given for the standard error of the mean in the text.
6. Even if these design and statistical flaws do not confound the final results, the composition of the experimental group does not justify conclusions which can be generalised. It consisted of 12 patients with a mean duration of diabetes of 14 years who were subjected to a multiphase research project for 19 months. They made little effort to try foods containing gel-forming fibres, an important aspect of the recommended high fibre/low fat diets. Only four made any attempt to eat pulses more frequently, and only two had tried more than three of the high fibre recipes provided. It seems quite inappropriate to extrapolate to the entire population of Type 1 diabetic patients from this very small group of long-standing diabetic patients, particularly since they were clearly unprepared to alter long-established dietary habits and were probably weary of research towards the end of a 19-month protocol.

Yours faithfully,
T. D. R. Hockaday and J. I. Mann

Reference

1. McCulloch DK, Mitchell RD, Ambler J, Tattersall RB (1985) The prospective comparison of “conventional” and high carbohydrate/high fibre/low fat diets in adults with established Type 1 (insulin-dependent) diabetes. *Diabetologia* 28: 208–212

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Reply from the authors

Dear Sir,

The Oxford Group have published a number of short-term studies showing a generally beneficial metabolic effect (lower glucose and lipid levels) of high carbohydrate/low fat/high fibre diets. The problem is whether diabetic patients can be persuaded to eat such diets. We were disappointed that our group of highly compliant long-standing insulin-dependent diabetic patients (which Drs. Hockaday and Mann pejoratively describe as small although it was larger than their own [1]) were only able to increase dietary carbohydrate from 38 to 45% of total energy fibre from 20 to 32 g and made little effort to try foods containing gel-forming fibres. We agree that it is inappropriate to extrapolate our findings to the entire population of Type 1 diabetic patients. Nevertheless, what little evidence there is about the long-term acceptability of high fibre diet would tend to suggest that our patients are not unusual in their resistance to long-term changes in their eating habits. In a follow-up in Oxford [2] only 15 of 22 study patients even tried to continue with a 60% carbohydrate, high fibre diet. After 2 years those who made the effort averaged a carbohydrate intake providing 41% total energy and a daily dietary fibre intake of 27 g, slightly worse than our patients of whose efforts Drs. Hockaday and Mann are so scornful.

We agree that the totally glycaemic approach to the management of diabetes is wrong but it is an article of faith rather than scientific fact that a high fibre/low fat diet reduces the cardiovascular risk associated with diabetes – hyperinsulinaemia may well be the most important atherogenic factor. We did not measure serum cholesterol levels because we did not wish to espouse the totally metabolic approach to diabetes, believing with Nuttall [3] that “The quality of life associated with having eggs and bacon for breakfast rather than beans or a high-fibre cereal may be worth a modest possible reduction in life expectancy”. It has been suggested that what diabetic patients particularly resent is the “Strict imposition of dietary monotony” [4] and it may well be true that our patients were fed up with diet after a 19-month protocol. Perhaps one might extrapolate this to the generality of diabetic patients who face a lifetime of dietary restriction without holidays. What needs to be proved by the Oxford Group is that ordinary people in Western society are prepared to eat beans for breakfast, not just for the 6 weeks of a research protocol, but for the 10 years or more which would be necessary for the modest improvement in blood glucose and lipids to have any effects on their life expectancy.

Yours sincerely,
R. B. Tattersall and D. K. McCulloch