

## High carbohydrate and high monounsaturated fat dietary targets produce similar outcomes in the management of type 2 diabetes mellitus with concomitant reduced saturated fat intakes

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Dietary intervention is the cornerstone of treatment for type 2 diabetes mellitus (T2DM). American recommendations are defined in terms of macronutrient energy proportions: 10–20% Protein, < 10% saturated fatty acids (SFA), ≤ 10% polyunsaturated fatty acids with the remaining 60–70% to comprise carbohydrate (CHO) and monounsaturated fatty acids (MUFA) (1). The decision to include more MUFA or CHO is based on the need to control energy intake, but not overload a CHO sensitive system (2). In this study we compare the effects of two dietary approaches which fit within the current guidelines: a high CHO, low SFA diet and a high MUFA, low SFA diet.

Fifty six men and women diagnosed with T2DM in the last 2 years were recruited from the Illawarra Diabetes Service. Subjects were randomised to either a high carbohydrate (53% CHO/ 12% MUFA) or a high MUFA (43% CHO / 22% MUFA) diet, with both diets comprising < 10% SFA, ≤ 10% PUFA and 15% Protein under weight maintenance conditions. Diet histories and 3 day food records were done at baseline and 3 monthly intervals for 12 months. Outcome variables were changes from baseline in weight, waist circumference, HbA1c, and in plasma cholesterol, triglycerides and HDL cholesterol. On completion, data were available from 19 MUFA- and 23 CHO- group subjects.

There were no significant differences between groups for usual dietary intakes on entry to the study. Subjects in both groups needed to reduce their SFA intakes (mean baseline intakes 12 ± 2% energy). By 12 months both groups had achieved reduced SFA intakes (no difference between groups), and the MUFA diet group were consuming significantly more MUFA than the high CHO group ( $p < 0.05$ ). The high CHO group were consuming more CHO than the MUFA group, but this difference was not significant. There were no significant differences between groups in changes in clinical measures at 12 months. Both groups showed a significant increase from baseline in HbA1c \* ( $p < 0.05$ ) indicating deterioration in metabolic control, but no change in weight, waist circumference or plasma lipids.

Change variable	High MUFA diet <sup>1</sup>	High CHO diet <sup>1</sup>
Weight (kg)	-0.69 (0.53)	-0.26 (0.71)
Waist circumference	-1.8 (0.87)	-1.4 (0.76)
HbA1c (%)	+0.92 (0.42)*	+0.63 (0.28)*
Cholesterol (mmol/L)	-0.14 (0.22)	-0.03 (0.14)
Triglyceride (mmol/L)	-0.10 (0.19)	-0.20 (0.30)
HDL cholesterol (mmol/L)	-0.02 (0.06)	+0.06 (0.03)

<sup>1</sup>mean (SEM) \* significant change at  $P < 0.05$ .

This study suggests that the current allowance for some flexibility in the CHO / MUFA component of the diet produces similar clinical outcomes, but further efforts are needed to improve glycaemic control.

1. ADA Nutrition recommendations for people with diabetes mellitus. Diabetes Care, 2001.
2. Storlien LH, Tapsell LC, Calvert GD. Diabetic diets: whither goest? Nutr Rev 1999; 14: 865–867.