

Compliance with a lipid lowering diet in mildly hypercholesterolaemic subjects: the role of occasional treats

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The objective of this study was to compare the effect of a standard lipid-lowering diet with a similar diet which contained a permissible treat. Our hypothesis was that a lipid lowering diet which contained a chocolate-based treat, would be better accepted by patients without inducing a cholesterol-raising effect and therefore would be more effective in reducing plasma cholesterol concentrations in the long term.

Hypercholesterolaemic volunteers (19 men and 23 women with a mean plasma cholesterol concentration of 6.9 mmol/l) were allocated to a standard lipid lowering diet or to a similar diet which contained a chocolate-based treat for a period of 12 weeks. Those allocated to the chocolate group were advised to use chocolate as a substitute for a treat or snack but not as a supplement. Duplicate blood samples for the analysis of plasma lipids were obtained initially, then at 6 and 12 weeks after dietary therapy. The study protocol was approved by the Central Sydney Area Health Service Ethics Committee.

Analysis of the dietary records showed that dietary therapy resulted in a reduction in the intake of saturated fat in both groups. The reduction in the control group was 6.5 g per day which reached borderline significance ($P < 0.057$; paired t test). In subjects consuming a small amount of chocolate (approximately 25g per day) as part of their diet, the intake of saturated fat was reduced by 8.6 g ($P < 0.013$). When expressed as % of energy, the reduction in the intake of fat was similar in both groups, reaching borderline significance ($P < 0.057$) in those assigned to the chocolate group. There was little impact of dietary modification on the consumption of other nutrients. Diet therapy had variable effects on plasma lipid concentrations (Table). Subjects in both the control and chocolate groups showed reductions in LDL cholesterol concentrations however, the reduction in the control group was significant ($P < 0.03$). In contrast, plasma triacylglycerol concentrations increased significantly in subjects in the control group but were unaffected in those allowed a chocolate treat. HDL cholesterol concentrations fell in both groups.

Table. The effect of diet on plasma triacylglycerol and cholesterol concentrations (mmol/l)

		chocolate group	control group
plasma triacylglycerol	initial	2.03 ± 0.76	1.87 ± 1.10 ^a
	final	2.12 ± 0.74	2.10 ± 1.10 ^a
plasma cholesterol	initial	6.90 ± 1.04	6.79 ± 0.87 ^b
	final	6.74 ± 0.78	6.51 ± 0.84 ^b
plasma LDL cholesterol	initial	4.68 ± 1.00	4.54 ± 0.85 ^c
	final	4.53 ± 0.85	4.28 ± 0.78 ^c
plasma HDL cholesterol	initial	1.30 ± 0.22 ^d	1.36 ± 0.34 ^e
	final	1.24 ± 0.22 ^d	1.29 ± 0.33 ^e

LDL, low density lipoprotein; HDL, high density lipoprotein. Data shown as mean ± SD. Values sharing a common superscript are significantly different using Student's paired t test. a-c: $P < 0.03$; d: $P < 0.04$; e: $P < 0.002$

The inclusion of a chocolate-containing treat in a lipid lowering diet did not prevent the reduction in the intake of saturated fat. In that respect, the group allowed chocolate performed marginally better than the control group. However, in contrast to the control group, this reduction in saturated fat intake was not reflected in a statistically significant reduction in LDL cholesterol concentrations. In order to maximise the plasma cholesterol lowering effect, the composition of the treat will need to be scrutinised and consideration given to treats which are based on carbohydrates or with a higher P:S ratio than those tested in this study.