

**Dietary fat reduction and blood lipids: a community based intervention study**

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Reduction in dietary fat intake to 30% energy from fat is recommended for the Australian population. The effectiveness of this dietary change on blood lipids in free living individuals without hyperlipidemia is not well documented. This study aimed to determine the effect of a 25-30% energy from fat diet in free living individuals recruited through newspapers, and a number of worksites in Melbourne. After a baseline period subjects were randomly allocated to follow a low fat diet (LF) for 12 weeks (Group 1) or continue on their usual diet for six weeks followed by six weeks of a low fat diet (Group 2). Three measurements of weight, blood pressure and blood lipids were taken during the baseline period and three in each six week phase at fortnightly intervals. Subjects completed a four day measured food record in each six week phase (total three), which was analysed using computer dietary analysis program Diet 1 (Xyris Software).

Five hundred and eight people attended at least one visit, 332 were randomised and 215 completed the study (110 males, 105 females), mean age 40.4 (10.8)(SD) years, (range 20-81 yrs). The mean % energy from dietary fat (%EDF) before dietary intervention was  $38.2 \pm 0.35\%$  and fell to  $30.6 \pm 0.51$  ( $P < 0.0001$ ) after dietary advice. There was a modest fall in total cholesterol (TC) of  $3.7 \pm 0.5\%$  ( $P < 0.0001$ ), from  $5.79 \pm 0.07$  mmol/L to  $5.56 \pm 0.07$  mmol/L after intervention in both groups combined and this was accompanied by a small weight loss of  $0.64 \pm 0.0$  kg ( $P < 0.0001$ ).

	Group 1 (n=113)			Group 2 (n=102)	
	Baseline	6 weeks LF	12 week LF	Baseline	6 weeks LF
TC (mmol/L)	5.88 ± 0.10	5.62 ± 0.10 ***	5.72 ± 0.10 **	5.70 ± 0.10	5.39 ± 0.10 ***
HDL (mmol/L)	1.35 ± 0.04	1.28 ± 0.04 ***	1.32 ± 0.04	1.37 ± 0.03	1.31 ± 0.03 ***
LDL:HDL	3.22 ± 0.16	3.08 ± 0.13	3.01 ± 0.13 +	2.83 ± 0.10	2.81 ± 0.11
Weight (kg)	76.6 ± 0.3	76.0 ± 1.3 *	75.9 ± 1.3 **	76.3 ± 1.6	75.6 ± 1.6 **
%EDF	37.9 ± 0.5	29.5 ± 0.7 ***	31.1 ± 0.74 ***	38.7 ± 0.5	30.2 ± 0.7 ***
Energy (MJ)	8.7 ± 2.76	7.3 ± 2.7 ***	7.3 ± 2.3 ***	8.9 ± 2.5	7.3 ± 2.1 ***

mean ± sem \*P<0.05 \*\*P<0.01 \*\*\*P<0.001 Baseline v 6 wks \*\*P<0.01 \*\*\*P<0.001 Baseline v 12 wks

The fall in TC was greatest during the first six weeks on the diet (Table). Females had a greater fall in TC 4.6% ( $0.29 \pm 0.05$  mmol/L v 2.8% in males ( $0.17 \pm 0.04$  mmol/L)( $P < 0.05$ ). Females also reported a greater fall in %EDF ( $8.9 \pm 0.7\%$  v  $6.3 \pm 0.8\%$ ) ( $P < 0.02$ ), but there was no difference in %EDF between males and females after dietary intervention.

A reduction in dietary fat is achievable in free living individuals in the community. Reducing dietary fat intake from 38% to 30% energy from fat resulted in a modest reduction in total cholesterol levels, however a significant component of this reduction was related to a reduction in HDL, although there is an indication that some of this fall may only be transitory. The greater fall in TC seen in females may relate to their higher initial HDL levels and slightly greater reduction in dietary fat.