POTATO CRISPS EXPERIMENT : COMPARISON OF PLASMA LIPIDS IN HEALTHY SUBJECTS ON PALM OIL COMPARED WITH CANOLA OIL

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Major fat sources in the Australian diet - milks, table spreads, cooking oils and meats - are available now in low saturated fat versions, all important results of cooperation between nutritionists and food producers, which may be the major reason for our decline of coronary heart disease mortality. But snack foods remain typically high in saturated fats and thus a challenge for nutritional reformers and food scientists.

Potato crisps are usually fried in palmolein. Polyunsaturated oils are thought to be unsuitable for technical reasons. Canola oil, predominantly monounsaturated, might make acceptable crisps. Would their taste and keeping properties be competitive and would they make a detectable difference to plasma lipids ? The R & D department of a major manufacturer agreed to fry batches of crisps in canola oil for a human trial. This also provided a rare opportunity to run a double blind human trial and have another look at the effect of palm oil on plasma cholesterol, about which there are conflicting opinions, with Mr Sokolof campaigning against 'tropical oils' and the Malaysian palm industry defensive.

Crisps were either fried in palmolein (fatty acids 46% saturated, 43% monounsaturated, 11% polyunsaturated, 7% linoleic) or in canola oil (fatty acids 6% saturated, 60% monounsaturated, 33% polyunsaturated, 22% linoleic, 7% linolenic) at 188 C. Routine salt (1.8%) and antioxidant were the only additives. The experimenters and subjects did not know which oils were used for the canola or palmolein crisps. 12 subjects have so far completed the 5 week experiment : 3 weeks taking canola crisps and then 2 weeks of palmolein crisps or vice versa (order randomly determined, week 1 for dietary adjustment). Men were asked to take 3 X 50g daily and women 2 X 50g. Subjects were instructed to change the rest of their diet to mostly low and some moderate fat foods and to keep detailed food records throughout. Fasting bloods were taken on the last 3 mornings of both periods and averaged for each period.

	Cholesterol (Mean, mmol/L, range)			Triglyceride
After 2 weeks(n=12)	Total	LDL	HDL	(mM/L, range)
Canola	4.79 (3.17-5.88)	3.04 (1.48-4.35)	1.51 (0.99-2.48)	1.13 (0.50-2.49)
Palmolein	5.19 (3.67-6.79)	3.34 (1.82-5.25)	1.63 (1.00-2.49)	1.12 (0.49-2.96)

Mean plasma total and LDL cholesterol were lower in 10/12 subjects on canola compared to palmolein (Table). The use of canola produces a palatable product which can also reduce plasma cholesterol when compared to palmolein. We are grateful to Dr G Wilson and Mr C Parris of CCA for supplying the experimental crisps.

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