

DIETARY INTAKE AND ADIPOSE TISSUE FAT COMPOSITION - A PREDICTOR QUESTION WHICH DETERMINES THE QUALITY OF FAT INTAKE.

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A question which is often posed concerns the quality of the fat in our diet and the health consequences which flow from too high an intake of saturated fats. To determine a subject's intake requires completion of a dietary history and subsequent analysis of the foods for their nutrient composition. This requires time and is tedious to accomplish. Various groups have attempted to develop a fast and reliable brief questionnaire which would accomplish this task. We have utilised a single question and compared it with a traditional questionnaire but also determined adipose tissue composition as a biological marker. The question we asked was: Does the answer to the question 'what kind of fat do you spread on bread or crackers?' reflect polyunsaturated fatty acid (PUFA) intake (and its inverse, saturated fat intake) as assessed by a traditional questionnaire and as reflected in adipose tissue PUFA composition?

Subjects (213) were part of a case-control study looking at the role of diet in melanoma. A sample of adipose tissue was obtained at operation and analysed for fatty acid composition. The subjects completed a questionnaire and answered the question above from a choice of 4 responses: butter(47); table margarine(13); polyunsaturated margarine(141); other(12). Results are presented for the butter and polyunsaturated margarine groups only (Table).

Type of fat used	saturated fat		polyunsaturated fat		P/S
	g	%E	g	%E	
Butter (n=47)	49.3 (3.3)	16.5 (0.5)	14.3 (1.2)	4.8 (0.3)	0.3 (0.02)
Poly(n=141)	36.6 (1.9)	13.4 (0.2)	21.7 (1.0)	8.2 (0.2)	0.6 (0.02)
Adipose tissue fatty acids, Mean % (SEM)					
	Σ sat		Σ poly		P/S
Butter (n=47)	35.6 (0.9)		10.2 (0.5)		0.30 (0.02)
Poly(n=141)	33.4 (0.4) NS		14.9 (0.3)		0.46 (0.01)

All results (Mean (SEM)) significantly different ($P < 0.05$) between butter and poly by ANOVA, except where indicated NS.

Those who indicated butter use had higher saturated fat intake (mass and % of energy) and lower dietary P/S ratio and polyunsaturated fat intake than the polyunsaturated fat users. This was also evident in adipose tissue, where the butter users had a lower proportion of PUFA and a lower P/S ratio. The question did not differentiate total fat intake but clearly discriminated between those with a high intake of saturated versus polyunsaturated fat, a difference which was also reflected in depot fat composition. Only 1/47 (2%) butter users and 12/141 (9%) polyunsaturated users were misclassified to the highest and lowest quartile of P/S ratio respectively, indicating the useful nature of the question in determining the quality of fat intake. This question could be incorporated in the national census to provide an indication of the quality of the nation's fat intake.