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Comparison of reported dietary intakes between Caucasian and South Asian women and extent of under-reporting

H. Sanders, L. Tripkovic, L. Wilson, K. Hart and S. Lanham-New
Department of Nutritional Sciences, School of Biosciences and Medicine, Faculty of Health and Medical Sciences, University of Surrey, Guildford, GU2 7XH

The traditional dietary habits of differing ethnic groups vary greatly; concomitantly nutritional intakes are also likely to vary. Knowledge of differences in nutritional intakes between ethnic groups is important for understanding associated health risks. There is limited data on dietary intakes and patterns of South Asian populations. The aim of this study was to compare nutritional intakes of two ethnic groups; Caucasian (Cauc) and South Asian (SA).

Healthy Cauc and SA women, aged 20–64yrs, were recruited from the county of Surrey onto the D2-D3 study[1–3] and a sub-set of these women were used in these analyses: *n*47 Cauc and *n*47 SA women. Anthropometrics and four-day food diaries were collected at baseline, as part of the D2-D3 study. Under-reporting of dietary intakes were determined by calculating energy intake (EI) to basal metabolic rate (BMR) ratio, and ratios below 1·35 were classified as under-reported[4]. Dietary and statistical analyses were carried out using DietPlan6(2013) and SPSS21(2013) respectively.

The Cauc women had significantly smaller waist circumferences than the SA women (Cauc:79·44 ± 11·33 cm vs. SA:87·62 ± 12·62 cm; $p < 0·001$), however BMI was not significantly different (Cauc: 24·60 ± 3·75 kg/m^2 vs. SA: 25·18 ± 3·85 kg/m^2). As shown in Table 1, there were significantly lower daily intakes of micro-nutrients in the SA women compared to the Cauc women.

Table 1. Daily Dietary Intakes of South Asian (*n*47) and Caucasian (*n*47) women

	South Asian		Caucasian			South Asian		Caucasian	
Macro-nutrients	Mean	SD	Mean	SD	Micro-nutrients	Mean	SD	Mean	SD
Energy KJ	7432·4	2205·6	8269·0	1979·7	Riboflavin mg**	1·25	0·51	1·70	0·60
Protein g	67·7	24·0	74·5	15·1	Thiamine mg**	1·24	0·51	1·55	0·43
Carbohydrate g	203·0	69·0	223·3	62·8	Vitamin B6 mg**	1·60	0·72	1·98	0·60
Total Sugar g	77·5	29·7	94·5	38·7	Vitamin B12 µg	4·22	3·41	4·49	2·63
Total Fat g	75·1	28·2	77·4	25·8	Vitamin C mg	91·6	57·9	102·1	57·3
Saturated Fat g	23·58	11·56	27·43	11·18	Vitamin D µg	2·07	1·87	2·73	2·51
Trans-Fat g*	1·20	0·72	1·70	0·84	Folate µg*	220·1	111·1	265·6	89·2
Fibre g**	14·8	7·9	19·7	5·7	Calcium mg**	683·9	238·7	903·2	296·0
Alcohol g**	0·65	2·72	10·11	11·53	Sodium mg**	2156	747	2849	737
					Potassium mg**	2497	1009	3086	690
					Magnesium mg**	237·7	91·6	292·4	64·9

*$p < 0·05$ **$p < 0·001$

Under-reporting of dietary intakes was present in 46·8% of Cauc women and 57·4% of SA women, however there was no significant difference between ethnic groups (EI:BMR ratios: Cauc:1·40 ± 0·34; SA: 1·29 ± 0·38).

These data suggest that although macro-nutrient intakes of these ethnic groups are similar, the foods from which these are sourced are likely to be different, thus contributing to the differences shown in micro-nutrient intakes. These differences in diets between the ethnic groups could be a contributing factor in the differing health and disease rates between ethnicities. The levels of under-reporting across both ethnic groups were high but nonetheless lower than those reported in our National surveys. Further analysis of the data is currently underway to investigate differences in intake when adjusted for total energy intake given

1. The D2-D3 Study: Ergocalciferol vs Cholecalciferol Food Fortification: Comparative Efficiency in raising 25OHD Status in Caucasian & Asian women. Funded by the BBSRC DRINC (Grant No. BB/I006192/1).
2. Tripkovic *et al.* (2014) *Proc Nutr Soc* Submitted 2014.
3. Wilson *et al.* (2014) *Proc Nutr Soc* Submitted 2014.
4. Goldberg *et al.* (1991) *Eur J Clin Nutr* **55**, 569–81