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Dietary intake, physical activity and waist circumference in pre-adolescent children

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Greater central adiposity in childhood may increase the propensity for cardiovascular risk factors in later life^(1–3). The aim of the present study was to examine associations between anthropometric measures, nutrient intakes and physical activity levels in pre-adolescent schoolchildren.

Healthy and overweight children aged 7–13 years were recruited from Inner London schools. The purpose and the requirements of the study were explained to the children (*n* 441) at school and those interested in taking part were given a study information pack. Written informed consent was received from parents or guardians for ninety-five children (response rate of 22%).

Anthropometric measurements (height, body weight and waist circumference) were taken from each child. Subjects completed a 3 d weighed-food diary and a 7 d physical activity diary. Nutrient intake was estimated by dietary analysis software (CompEatTM version 5.8.0; Nutrition Systems, Grantham, Lincs., UK). Data from thirty of the ninety-five subjects were included in the study because of incomplete food and physical activity diaries. Mean nutrient intakes were compared with dietary reference values (DRV)⁽³⁾ using one sample *t* tests.

	Boys (<i>n</i> 21)			Girls (<i>n</i> 9)		
	Mean	SD	% DRV	Mean	SD	% DRV
Age (years)	9.4	1.4	–	9.0	1.2	–
BMI (kg/m ²)	18.6	3.7	–	18.9	3.0	–
Waist (cm)	62.0	11.1	–	61.0	6.6	–
Energy (kJ/d)	8150	1766	99	7573	1602	104
SFA (% EI)	12.4	2.9	113	11.5	3.9	105
Sugar (% EI)	23.3	8.9	212	29.7	11.9	270
Time in VLA (h/d)	17.6	2.0	–	17.1	2.4	–
Time in MVPA (h/d)	0.95	0.68	–	0.61	0.35	–

EI, energy intake; VLA, very light activity; MVPA, moderate–vigorous activity.

Mean energy intakes were within the DRV for age and gender. However, mean percentage energy intake from SFA was significantly above the recommended guideline of 11% ($P=0.03$). In addition, percentage energy from sugar significantly exceeded guidelines ($P=0.00$). One in three of the subjects measured were overweight (waist circumference >91st centile). These overweight boys and girls with excess intakes of dietary SFA and sugar and low levels of physical activity may be at increased risk of ill-health in later life.

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2. McCarthy HD, Ellis SM & Cole TJ (2003) *Br Med J* **326**, 624–627.
3. McCarthy HD, Jarrett KV, Emmett PM *et al.* (2005) *Int J Obes (Lond)* **29**, 157–162.
4. Department of Health (1991) *Dietary Reference Values for Food Energy and Nutrients for the UK*. London: H. M. Stationery Office.