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Dietary intake and physical activity level of children aged 9–12 years and the influence of peers on these behaviours

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Diet and physical activity behaviours adopted during youth can have a major influence on chronic disease occurrences in later life[1]. Changing these habits, however, is difficult once they are established. There are few longitudinal studies that have assessed BMI, physical activity, dietary intake and the role of other factors such as peer influence longitudinally, although successful prevention and intervention rely on such findings.

A total of 192 (females 115, males 77) children were recruited from three primary schools in south-west London (mean age 9.9 (SD 0.4) years). The study took place over 3 years and followed the children as they made the transition to secondary school. All children were asked to annually complete a questionnaire, a 3 d food and activity diary and wear a pedometer (Yamax Digiwalker SW-200; Yamasa Tokei Keiki Co. Ltd, Tokyo, Japan). Height and body mass measurements were also taken in order to determine BMI (kg/m^2) and BMI Z score according to paediatric international cut-offs[2]. A total of eighty-three (females 49, males 34) children completed all aspects of the survey. The main findings are outlined in the Table.

	Year 1				Year 2				Year 3			
	Males		Females		Males		Females		Males		Females	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
BMI Z score	0.2	1.5	−0.0	0.9	0.3	0.9	−0.2	1.0	0.5†	0.9	−0.1†	1.1
Energy intake (MJ/d)	6.40	2.03	5.53	1.62	7.15	2.08	6.46	2.06	6.03†	1.56	6.08	1.76
Physical activity (steps per d)	16 074	6049	14 209	4066	12 661	4765	11 739	3686	12 843	4537	10 855*	4408
Fruit and vegetable intake (portions per d)	2.0	1.2	2.2	1.4	2.5	1.8	2.3	1.1	1.4	0.9	2.1	1.6
Na (mg/d)	1661	512	1954	644	2060	479	2173	826	2072	627	2009	695
Saturated fat (% energy)	14	3	14	3	13	3	13	3	15	5	14	3

Mean value was significantly different from that for year 1:*$P<0.05$. Mean values were significantly different from those for year 2:†$P<0.05$.

Compared with the first year, in the final year of the survey male BMI Z score rose whereas female BMI Z score significantly declined. Additionally, male energy intake (MJ/d) and female physical activity (steps per d) levels were at their lowest once the transition to secondary school had taken place. Reference nutrient intake[3] values for energy intake or fruit and vegetable targets were not met in any year by any of the participants. Na and saturated fat intakes exceeded those recommended[3] and although both boys and girls met physical activity targets for health[4] in the first year of the study (12 000 and 15 000 steps per d for boys and girls respectively), both genders failed to reach these targets at any other time point over the observation period. Peers were found to influence physical activity behaviour but not dietary intake or behaviour across both genders throughout the study.

Poor diet and physical activity levels continued over time, which may result in a heightened risk for overweight, obesity and other comorbidities in the future[5]. The results suggest that boys engage in different but similarly unhealthy behaviours when compared with girls. Prevention and intervention strategies will therefore need to target each gender differently. It is concluded that the provision for peer influence in interventions designed to increase physical activity in youth may markedly increase their efficacy.

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