Proceedings of the Nutrition Society (2008), **67 (OCE)**, E222 doi:10.1017/S0029665108008549

A Scientific Meeting was held at the West Park Conference Centre, Dundee, Scotland, on 27 and 28 March 2008

AllChange: an exploratory trial of lifestyle interventions in Scottish schoolchildren

A. M. Craigie[1], J. J. F. Belch[1], A. Greene[2], S. A. Greene[1], G. Kennedy[1], F. Khan[1], E. M. Roberts[2] and A. S. Anderson[1]

[1]*University of Dundee, Dundee, UK and* [2]*University of St Andrews, St Andrews, UK*

Scotland has one of the highest incidences of CVD in Western Europe. Its onset is likely to begin in childhood and is influenced by lifestyle. The present study aimed to determine whether a novel school-based intervention, targeting 8–10 year olds, could lead to improvements in diet, physical activity and body size.

The exploratory trial was carried out in four Scottish primary schools with children receiving either the 'AllChange' programme over 8 months (intervention group; *n* 104) or the usual 'lifestyle education' (control group; *n* 106). AllChange targeted diet (fruit, vegetables, *n*-3 fatty acid and non-milk extrinsic (NME) sugar intake) and physical (in)activity, and comprised classroom lessons incorporating take-home challenges and a minimal-contact summer intervention. Supajus (Natural Fruit & Beverage Co. Ltd, Coatbridge, North Lanarkshire, UK), a commercially-available orange juice fortified with *n*-3 fatty acids and vitamin E was also provided as a healthier alternative to soft drinks[(1)]. Pre- and post-intervention measurements of anthropometry (height, weight, triceps skinfold thickness); dietary intake (3 d estimated-weight food diary with interview) and time spent in sedentary leisure activities (7 d screen-time diary) were recorded. Nutrient intake was determined using Wisp V3 (Tinuviel Software, Llanfechell, Anglesey, UK). Qualitative interviews were undertaken throughout to evaluate the implementation process.

The intervention was implemented successfully and feedback from parents, children and teachers was generally positive. Children and parents were enthusiastic about the intervention, particularly the summer-intervention materials. Teachers found the intervention interesting, but had some difficulties putting it into practice with their other commitments.

Over the four schools ninety-two children completed the study measurements (control, *n* 49; intervention, *n* 43; 61 % females; average age 9.6 (SD 0.3) years at baseline). The groups were well matched for socio-economic status with 61 % of the control group and 59 % of the intervention group in the four least-deprived deciles of the Scottish Index of Multiple Deprivation[(2)].

Variables for which significant changes were observed between baseline and follow-up, or for which the change was significantly greater in one of the groups are shown in the Table.

		Control group		Intervention group		Intervention effect	
Variable	*n*	Mean change	SD	Mean change	SD	Mean difference	SD
n-3 fatty acids (% energy)	84	−0.03*	0.09	+0.04*	0.10	+0.08**	0.02
Starch (% energy)	84	+0.3	4.5	+2.1**	4.6	+1.8	1.0
NME sugars (% energy)	84	−0.4	5.8	−2.9**	5.9	−2.5	1.3
Vitamin E (μg/d)	84	−0.2	2.9	+5.5**	8.1	+5.7**	1.3
Fruit and vegetables (g/d)†	84	−30*	91	+13	156	+44	28
Soft drinks (g/d)‡	84	+58	228	−72	273	−130*	55
Screen viewing time (min/d)	66	+25*	59	0	67	−25	16
BMI (kg/m^2)	92	+0.4**	0.6	+0.3**	0.7	−0.1	0.1

*$P<0.01$, **$P<0.01$. †Excludes composite dishes and fruit juice. ‡Excludes Supajus.

Whilst the control group had significantly reduced their intake of *n*-3 fatty acids and fruit and vegetables, and increased their time in front of a television or computer screen, the intervention group had increased their intake of *n*-3 fatty acids, vitamin E and starch and reduced their intake of NME sugars. Between the groups the changes were significantly different for *n*-3 fatty acids and soft drinks only. In addition, the expected increase in BMI in intervention girls was also significantly lower than in girls in the control group (−0.4 kg/m^2, $P = 0.04$).

In conclusion, these findings demonstrate that school-based interventions have the potential to produce changes in diet and body size over a relatively short term and warrants further investigation.

Funded by the Chief Scientist Office (CZB/4/96).

1. Craigie AM, Belch JJF, Greene A, Greene SA, Kennedy G, Khan F, Roberts EM & Anderson AS (2006) *Proc Nutr Soc* **65**, 93A.
2. The Scottish Government (2006) SIMD: overview. http://www.scotland.gov.uk/Topics/Statistics/SIMD/Overview