

Summer Meeting, 4–6 July 2011, 70th Anniversary: From plough through practice to policy

Comparison between school lunches and packed lunches in secondary schools

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In order to improve the quality of food provided in secondary schools, food-based standards (FBS) and nutrient-based standards (NBS) were introduced in 2007 and 2009, respectively⁽¹⁾. The standards do not apply to packed lunches but schools are encouraged to have a packed lunch policy⁽²⁾. Research in primary schools comparing the nutrient intakes of pupils who consume either a school lunch or a packed lunch has shown that, on average, pupils who consume a school lunch typically have a more favourable intake of key nutrients⁽³⁾, to date no similar comparison has been carried out in secondary schools.

In 2008, the School Food Trust studied the effect in secondary schools of improving school food and the meal experience on pupil's postprandial behaviour in the classroom⁽⁴⁾. Ethical approval was obtained from Kings College London Research Ethics Committee. Lunchtime food and drink choices of pupils consuming either a school lunch or a packed lunch were recorded at eleven secondary schools. Portion sizes were either weighed or estimated by weighing duplicate portions of foods provided at the schools. Leftovers were weighed to calculate the amount of each food eaten by each child. Baseline data from this study were used to compare mean energy and nutrient intakes from school lunches and packed lunches.

Table 1. Mean and standard deviation of nutrients consumed, by type of lunch

	NBS	School lunch		Packed lunch	
		n 358		n 139	
		Mean	SD	Mean	SD ³
Energy intake (kJ)	2704.7 (SD 135.2)	2734.4	1123.4	2292.3*	1059.8
Protein (g)	13.3	22.4	11.5	15.5*	7.6
Carbohydrate (g)	86.1	89.2	38.9	72.2*	34.4
NMES ¹ (g)	18.9	22.0	18.4	20.4	20.6
Fat (g)	25.1	25.1	14.2	23.6	14.3
Saturated fat (g)	7.9	9.0	6.0	9.7	6.7
NSP ² (g)	5.2	5.5	3.0	2.9*	1.7
Na (mg)	714.0	737.9	417.4	748.4	383.0
Vitamin A (µg)	245.0	200.9	222.5	195.7	335.9
Vitamin C (mg)	14.0	32.3	37.6	21.3*	29.5
Folate (µg)	70.0	66.6	36.9	38.6*	19.8
Ca (mg)	350.0	273.5	190.8	242.6	147.3
Fe (mg)	5.2	3.3	1.6	2.2*	1.2
Zn (mg)	3.3	2.5	1.3	1.6*	0.9

¹Non-milk extrinsic sugars ² Non-starch polysaccharides ³ Standard deviation. *Mean values were significantly different from school lunches (ANCOVA adjusted for age, sex and school); *P* < 0.05.

Pupils who chose a school lunch had significantly higher intakes of energy, protein, carbohydrate, NSP, vitamin C, folate, Fe and Zn than those who brought a packed lunch from home.

It is hoped that following the introduction of NBS in September 2009⁽¹⁾, the nutrient profile of secondary school meals will have improved; however, educating parents and pupils to make healthier choices for packed lunches is warranted.

1. The Education (Nutritional Standards and Requirements for School Food) (England) (Amendment) Regulations 2008 (SI 2008/1800). London: TSO. (Accessed 14/02/2011).
2. The School Food Trust. Example packed lunch policy (2010). <http://www.schoolfoodtrust.org.uk/schools/projects/packed-lunches/example-packed-lunch-policy>. (Accessed 23/02/2011).
3. Evans CEL, Greenwood DC, Thomas JD *et al.* (2009). A cross-sectional survey of children's packed lunches in the UK: food- and nutrient-based results. *J Epidemiol Community Health* **0**, 1–7.
4. Storey CH, Pearce J, Ashfield-Watt PAL *et al.* (2011) A randomised controlled trial of the effect of school food and dining room modifications on classroom behaviour in secondary school children. *Eur J Clin Nutr* **65**, 32–38.