

The Good Food Club: setting up an after school food club to teach practical food preparation using healthy foods, at Key Stage 3

Abstract

This paper describes the content and practical aspects of an extra-curricular after school food club in which children, predominantly from low-income backgrounds, were taught how to prepare healthy foods. The food club formed a controlled intervention that aimed to improve children's diets, and the diets of their families, by teaching the children to prepare healthy foods. One hundred children from five schools participated. The food club ran for two hours one night a week for 20 weeks between September 1999 and April 2000. In each session the children were provided with a healthy snack, prepared two dishes that incorporated many different fruits, vegetables and starchy foods and had the opportunity to taste new and exotic foods. Key elements of success have been identified as adopting an approach that was more hands-on and less formal than a school lesson and providing all the ingredients and containers to take foods home in.

Introduction

In 1996, the Government Nutrition Task Force Report *Eat Well II* stated that 'the development of practical food preparation skills by children is vital to the long term health of the UK' (Department of Health, 1996). Recent research has shown that the majority of parents wish their children to be taught how to cook at school and the majority of teachers believe that it is more important to leave school with food preparation skills than information technology (IT) skills (Meat and Livestock Commission, Unpublished data). Despite this perceived importance, teaching of food technology is no longer compulsory at Key Stage 3 and in a time-pressured curriculum there is limited opportunity to teach practical food preparation skills. Lack of cooking skills and the confidence to use them results in increased reliance on convenience foods. These are often high in fat, salt and sugar, and often served without the addition of sufficient vegetables and fruit and often come at an increased cost compared with raw ingredients. Lack of the basic practical food preparation skills may therefore contribute to a poor diet, especially in those from lower income backgrounds (Department of Health, 1996; Dowler and Calvert, 1995). A possible means to address this problem is through extracurricular teaching of food preparation. In view of this, an after school food club was designed and evaluated. This aimed to test the hypothesis that, equipping children from low-income households with basic skills and confidence to prepare simple dishes can result in improvements in cooking confidence, dietary intake and attitudes towards healthier eating.

The study included 10 schools, five of which participated in an after school food club and five of which served as controls. Dietary intake, cooking skills and confidence, and attitudes and beliefs towards healthier eating were assessed prior to and after the food club project – these results will be published at a later date. Here the practical aspects of setting up and running an after school food club are reported. The aims of this paper are:

- 1) to describe an after school cooking club
- 2) to increase awareness of the practical issues and problems associated with running an after school cooking club
- 3) to report on attendance patterns and
- 4) to summarise the successful and less successful practical aspects of the club.



Methods

The subjects

All pupils in Year 7 from five schools in Tyne and Wear were invited to participate in the study. A letter was sent home to parents inviting their child to take part. Postcodes were collected from all the responses from which deprivation scores were derived based on the Townsend Index of Deprivation (Townsend, Philmore *et al.*, 1987). This enabled us to select, in each school, the 20 pupils with the greatest deprivation scores.

A teacher of food technology was purposely employed by the Human Nutrition Research Centre to design the content of the club in liaison with a nutritionist and to run the food club. Prior to commencing the food club, the teacher visited each school to meet with teaching staff in the Department of Food Technology and with a member of staff who was the contact person for the study. This was essential in order to build a good rapport with the schools and to address any concerns that the teachers had. The pupils who were going to attend the food club were also visited by the teacher to provide them with some information on the food club in advance. The visits provided the opportunity for the children to ask questions about the club. Children commenced the food club at the start of Year 8. The food club ran for 20 weeks from September 1999 to April 2000 and was divided into four blocks of

**Paula Moynihan,
Tracey Cowell,
Rosie Stacy*,
Paul McNamee*
and Ashley
Adamson**

*Human Nutrition
Research Centre,
*School of Health
Sciences, University
of Newcastle upon
Tyne*

five weeks to coincide with each half term. A food club was held in the food preparation area of a different school each evening of every week and each session lasted two hours.

The food club content

As this was an extracurricular activity there was no syllabus or curricular document to follow. The aim of the intervention was, however, to promote the consumption of fruits, vegetables and starchy foods in line with current nutritional recommendations in the Balance of Good Health (Health Education Authority, 1996). As the focus was on lower income groups, the content was based on dishes that were inexpensive and that could easily be recreated at home, without the use of specialist equipment. The foods had to be easy to transport home so they arrived in an appetising condition. This was important because one of the aims of the project was to influence the diet of the family. The recipes chosen took the above factors into account and were also chosen to include familiar foods as well as new ones. The study had a budget of £2 per pupil per week from which all the ingredients were to be provided.

The food club had four main components. On arrival at the club children would be provided with, or would prepare for themselves, a healthy snack and a drink of water. Brightly coloured water jugs and beakers were provided for this purpose. The children were then taught how to prepare two dishes that incorporated a number of fruits, vegetables and starchy foods and were generally low in fat and salt. The food club was progressive in the skills that it taught. For example, when pizza was made on the first occasion the children just made the toppings whereas on a later occasion they also prepared the bread dough. Children were encouraged to sample the foods they were using and to be adventurous in their choice of ingredients. For this reason, there was also an element of choice built into most recipes so that if a child did not like a particular vegetable or fruit, it could be substituted for something that they did like. A list of dishes that the children prepared in the food club is presented in Table 1. On completion of the practical aspects of each session the children had a tasting session of a new food – usually an unusual fruit or vegetable (see Table 1). The aim of this was to increase their confidence at trying new foods and to introduce them to a number of new tastes and foods from around the world. This activity also served as an end to each session, after all clearing-up had been completed by the participants. Each child was provided with a hard covered food club book in which they would paste the recipes. A loose-leaf version of each recipe was also available, on a weekly basis, for the children to take

home. To illustrate the food club books, the children were also given photographs of themselves during the practical sessions. A number of food-related quizzes were also made available.

Outcome measures and statistical analysis

A record of attendance and reasons for absence was kept by the teacher at each food club session. The median (and range) attendance at each club for each school was derived for all pupils and for boys and girls. Individual attendance patterns were also monitored and the Friedman Test was used to determine any changes in attendance patterns as the club progressed. Difference in attendance patterns between boys and girls were investigated using the Mann-Whitney Test.

A record of the cost of foods, equipment and kitchen consumables was kept by the teacher of food technology and this, together with salary costs for the teacher and for technicians enabled the cost of running a 20-week food preparation club to be determined.

Halfway through the study, focus groups were held with the children during which the children ranked the dishes they had prepared in order of preference. Changes in intake of nutrients and foods, perceived cooking skills and confidence and attitudes and beliefs towards healthier eating will be reported in a later publication.

Results and discussion

Attendance patterns

The demographic characteristics of the pupils attending the food club are presented in Table 2. The Townsend scores, that have a potential range of -10 (the least deprived) to +10 (the most deprived), indicate that most pupils fell into the highest quartile of the deprivation scores.

The median attendance at each of the five schools is presented in Table 3. These values refer to the median attendance per child over the 20-week period. The median number of children present each week at the food club is presented in Figure 1. These figures show that although there was rarely a full attendance at the club, those not attending varied from week to week and overall the attendance was high considering the level of commitment required. Data on attendance by sex are presented in Table 3. There was a non-significant trend towards a higher attendance by girls ($p < 0.071$). Median values (and range) for individual attendance patterns over the four, five-week blocks were sequentially 4 (0-5), 3 (0-5), 3 (0-5) and 4 (0-5), showing a significantly higher attendance during the first half term of the club ($p < 0.003$, Friedman Test).

Attendance was good overall. Reasons for non-attendance varied and included attending sports matches, being excluded from school for misbehaviour and having to return home immediately from school to look after younger brothers and sisters. Attendance tailed off during the weeks leading up to Christmas due to other festive activities, demonstrating that it is important to consider the schools' programme of events when time-tabling after school clubs. There was a core of pupils in each school who attended regularly with 43/98 (44%) pupils attending 15 sessions or more. Twenty weeks is a substantial commitment for children of this age, and food club programmes of shorter duration may be worth consideration. A shorter programme would enable rotation amongst children to enable more pupils to benefit from the club. Attendance varied between schools – this may be attributed, in part, to the school ethos and the degree to

which the schools/school teachers became involved in the study. For example at school 2, the deputy head teacher visited the club each week and took a register of attendance.

The content of the food club

As the principal purpose of the food club was to improve the diets of the children and their families, the club content was largely influenced by guidelines on healthy eating. However, it was also important to include feedback and incorporate requests from children for specific dishes in order to maintain enthusiasm. Seasonal celebrations were also included in the content; for example, Christmas baked apple and Valentine's biscuits. Sampling of a new food each week was something that gained popularity as the club progressed. Sometimes the cost element did override health considerations in choice of ingredients. For example, an economical soft margarine was used rather than sunflower margarine. Despite

Table 1: Food club lesson plan for the 20 weeks.

Week	Healthy snack	Recipe one	Recipe two	New food
1	Banana cake	Spud fillers	Fruit layers	Mango
2	Yogurt	Spiced vegetable parcels with cucumber raita	Fruit kebabs	Avocado
3	Pinwheel sandwiches	Spiced potato wedges and tuna dip	Bananas with lemon sauce	Granadilla
4	Fruit scone	Bacon and mushroom pasta with peas	Sunflower crunchies	Naisha pear
5	Digestive sandwich	Scone twists	Fruit punch	Emerald sugar melon
6	Edam cheese and apple	Egg salad	Garlic bread	Sharon fruit
7	Popcorn	Vegetarian pizza	Flapjack	Mozzarella cheese
8	Vegetable and bread sticks	Spaghetti Bolognaise	Bread and butter pudding	Pumpkin seeds
9	Sandwich	Potato and pea curry with naan bread	Christmas baked apple	Water chestnuts
10	Pretzels, mixed and dried fruit and nuts	Christmas pudding crunchies	Tangerine hedgehogs	Japanese rice crackers
11	Vegetable soup bread roll	Lasagna	Amzac crunchie	Raisin and cinnamon bagels
12	Carrot cake	Sausage and mash with broccoli and sweetcorn	Fruit cheesecake	Lychees
13	Savoury boat sandwich	Vegetable chilli and rice	Museli	Fortune cookies
14	Fresh fruit	Tuna and sweetcorn pasta	Valentine biscuits	Pine nuts
15	Porridge with fresh fruit	Sweet and sour chicken	Mixed bean salad	Oatcakes
16	Lower fat cheese, fruit and French bread	Sweet pancakes	Savoury pancakes	Plums
17	Fresh fruit salad	Fruit sponge and custard	Fluffy omelette	Rice cakes
18	Fruit smoothie	Fruit loaf	Vegetable stir fry	Papaya
19	Fruit cocktail drink	Vegetable challenge pizza	Fruit flapjack	Kumquat
20	Minestrone soup	Soda bread	Vegetable burgers	Sun dried tomatoes

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School	Number of girls	Number of boys	Median Townsend score	Mean age on entering study
1	13	8	1.28	12.4
2	13	7	0.30	12.3
3	13	7	7.03	12.4
4	10	7	6.54	12.3
5	12	8	5.55	12.3

Table 2: Demographic data of the food club study sample.

the latter being a healthier choice, the aim was to encourage children to recreate the recipes at home so the ingredients had to be affordable.

Figure 2 presents the ranked order of preference of the dishes cooked during the first 10 weeks of the food club, determined through focus groups. The most popular dish was vegetarian pizza, preparation of which resulted in most children consuming an array of vegetables. The second most popular dish was flapjack – which was made on a subsequent occasion incorporating fresh fruit. The photographs in Figure 3 illustrate food preparation activities by the children participating in the food club.

Examples of success

Some of the aspects of the food club that worked well included: the healthy snack, provision of ingredients, provision of containers to take prepared food home in and adoption of a less formal teaching approach with a large hands-on component. Written activities such as filling in recipe books and completing food quizzes were less popular – the children wanted to cook. Providing the ingredients and containers meant that the children only had to bring themselves and also meant that nobody was excluded because parents could not afford ingredients or did not have food containers. The children loved the tin foil containers that were provided to take food home in – apparently because it made the food they had prepared look just like a ‘takeaway’! The foil containers often doubled-up as baking dishes which was hygienic and reduced the volume of washing up. Including an element of choice in most of the recipes was also a success. If a child did not like a particular

ingredient they were encouraged to substitute it for something that was liked – this helped to improve their ability to improvise when planning meals.

Practical hurdles to overcome and their solutions

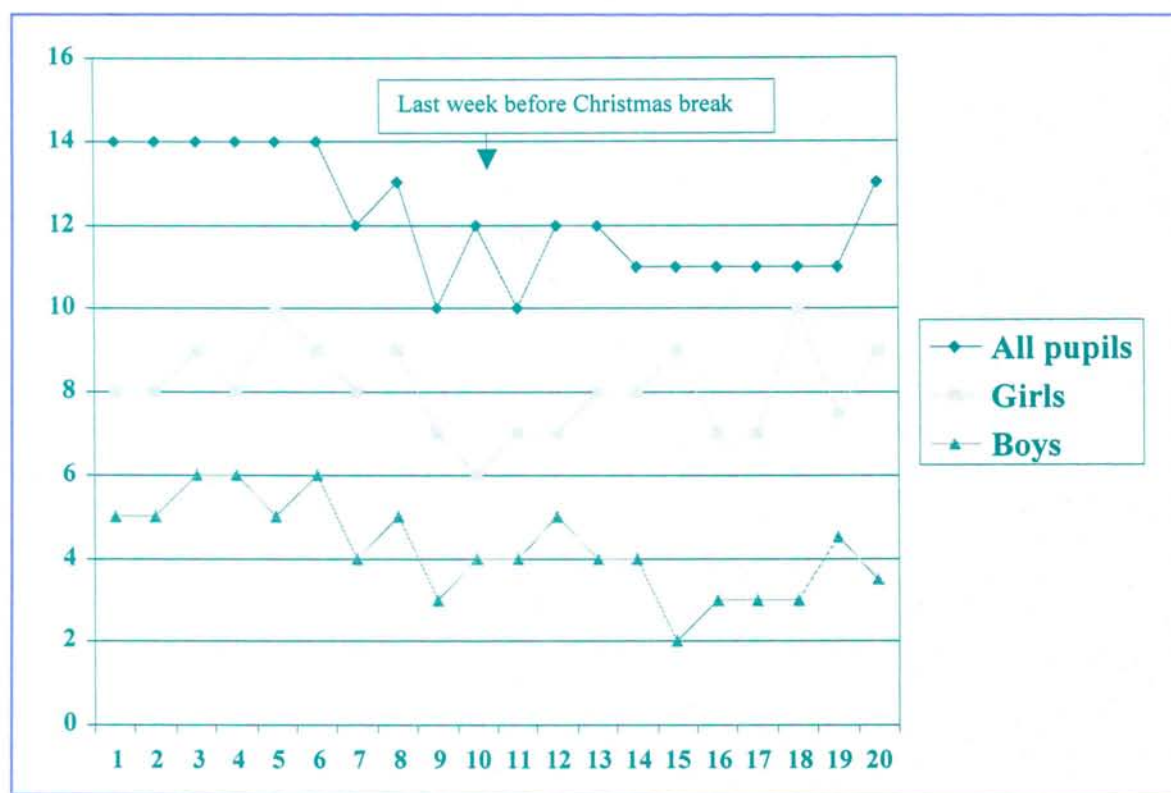
To ensure an adequate adult-pupil ratio, an additional adult always had to be present or nearby. This necessitated employing the school technician on an overtime basis in some schools where a teacher from the school was not present. The safety of the children had to be considered, especially their means of getting home on the dark winter nights. A letter was sent to all parents asking them to inform us on how their child would be getting home and children could only participate in the food club once this form had been returned. It was also essential that a person qualified in first aid was accessible and therefore the teacher undertook a course in first aid. First aid equipment also had to be available.

Working on someone else’s territory is not easy and it was therefore essential that the food preparation area was left spotless on departure. An amount of additional equipment was purchased where it was thought deficiencies existed, for example, one school had no chopping boards and had previously used plates to chop on – so a set of boards were purchased for that school. A set of 20 aprons specifically for food club use were purchased and the teacher had to regularly wash and mend these. Twenty sharp knives were also bought specifically for the club. The teacher of food technology also purchased all the food for the food club on a weekly basis. However, shopping for ingredients for 100 pupils at the

Table 3: Attendance at the Food Club by sex. Median (and range) number of weeks attended.

	Girls	Boys	All pupils	P Value of sex difference*
All Schools	14 (1-20)	11 (1-20)	14 (1-20)	0.071
School 1	16 (6-20)	10 (4-18)	16 (4-20)	0.168
School 2	16 (1-20)	16 (6-19)	16 (1-20)	0.843
School 3	13 (3-18)	5 (1-15)	12 (1-18)	0.052
School 4	13 (3-17)	13 (8-17)	13 (3-17)	0.625
School 5	13 (2-17)	7 (1-20)	13 (1-20)	0.316

* Difference in attendance between sexes determined by the Mann-Whitney Test.



Most popular dish

- Vegetarian pizza
- Flapjack
- Spaghetti Bolognaise
- Garlic bread
- Christmas pudding crunchies
- Fruit punch
- Sunflower crunchies
- Scone twists
- Bread and butter pudding
- Potato wedges and tuna dip
- Fruity layers
- Spud fillers
- Tangerine hedgehogs
- Spiced vegetable parcels with cucumber raita
- Bacon and mushroom pasta with peas
- Fruit kebabs
- Bananas in lemon sauce
- Potato and pea curry
- Christmas baked apple
- Egg salad

Least popular dish

Figure 2: Rank order of preference for dishes cooked in the first 10 weeks.

beginning of each week was an unenviable task for the teacher who met with consternation from fellow shoppers (in particular the day she purchased 200 bananas!). As the food clubs were taking place on other teacher's premises, suitable storage space for the food and containers had to be found – this often meant relying on the good will of the schools.

The cost of running the food club

The actual cost of the consumables used was £2,839, which equates to £568 per school, or £1.42 per child per session (assuming a full class of 20). Of the total consumables costs, £1975 (£395 per school) was spent on ingredients, £404 (£80 per school) on equipment, £169 (£34 per school) on packaging and £291 (£58 per school) on stationery and books. The salary costs incurred were £14,282 which included the teachers salary (60% full time equivalent), on-costs and the wages of two technicians. This equates to £2,752 per school where a technician was not used and £3,012 per school where a technician was employed for the Food Club. The total cost of running the 20-week food club in the five schools was £17,121, with the cost in each school being between £3,320 and £3,580 or £8-9 per child per two-hour session (assuming a full class of 20). The package (foil containers) element of the consumables costs could arguably be reduced in order to avoid criticism about using such non-ecological short life process containers. However, at this stage in the process of confidence building and utilisation of the

Figure 1: Number of boys, girls and total pupils present at the food club each week; Median values of the five schools.



Figure 3: Practical food preparation activities in the Food Club:

- a) preparation of vegetables for a stir fry
- b) chopping an onion properly
- c) using an apple corer for Christmas baked apples



club it is important to recognise the children's positive perception of the foil containers, as well as their dual use as cooking dishes. The means of funding such clubs outside of this research project have not been explored.

Conclusion

In practical terms the food club has been a tremendous success and feedback from the pupils and staff has been positive. Pupils described the food club as 'Mint', 'Class, stylish and out of this world', 'Top notch, cool', 'Brilliant, not Swotty'. When asked to summarise their overall judgement of the food clubs, one teacher remarked 'absolutely excellent idea and when is the next one please? The kids would ask that as well, they did enjoy it'. The outcomes of the venture in terms of what it may have achieved for diet, nutrition cooking skills and confidence and attitudes towards healthier eating will be reported in due course. We hope it will produce evidence to support the case for the inclusion of more practical food preparation in secondary schools.

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Note

Mann-Whitney test

The Mann-Whitney test is a non-parametric statistical test that is used to compare two separate sets of data when the distribution of the data is skewed (non-parametric).

The entire data set (i.e. both groups) is ranked and then for each group the sum of the ranks is calculated and called R1 and R2.

Next a U statistic is calculated by the following equation:

$$U = n_1 - n_2 + ((n_1(n_1 + 1)) / 2) - R_1$$

$$U = n_1 - n_2 + ((n_2(n_2 + 1)) / 2) - R_2$$

Where R1 = the sum of ranks assigned to the sample with size n1

And R2 = the sum of ranks assigned to the sample with size n2

The lowest of the two U values is used in hypothesis testing and tables of U values are available from which the P value (or probability of the two samples being different) may be calculated.

The Friedman test

The Friedman test is a one way analysis of variance test. It is used for measuring within subject differences when the data are skewed.

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