

**Exploring the Nutritional
Quality of 'Out of School'
Foods Popular with
School Pupils**

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Glasgow Scientific Services undertook the purchasing and nutritional analysis of samples.

KEY MESSAGES

- Poor nutrition and steadily increasing prevalence of obesity in Scottish children and young people are growing public health concerns.
- Schools have been identified as a key setting to provide and promote healthy nutrition amongst pupils. Recent policy and legislation has improved the school lunchtime environment and raised school meal standards.
- Although in recent years primary school meal uptake has increased, secondary school meal uptake has declined.
- Many secondary pupils who eat out of school at lunch-time buy unhealthy convenience food of very poor nutritional quality from external outlets that they can easily access within the lunch-time period.
- Many external outlets offer meal deals and promotions which are attractive to pupils, and with which school canteens struggle to compete.
- Potential measures that can be taken by school staff to promote healthy nutrition amongst secondary pupils include:
 - Stay-on-site policies for junior secondary pupils (which include the provision of lunch-time activities).
 - Continued education and awareness raising through the Curriculum for Excellence.
 - More effective communication with parents/carers regarding the importance of healthy eating and greater parental/carer involvement in school-based healthy eating initiatives.
 - Further development of innovative approaches such as the introduction of food kiosks in school grounds.
- Potential regulatory levers include:
 - Fiscal policies which tax unhealthy foods and drinks and subsidise healthy foods and drinks.
 - Utilisation of licensing and planning powers to control number and concentrations of commercial outlets selling take-away food in neighbourhoods near schools.
 - Strengthening of the role of local authority environmental health departments in relation to licensing, food safety/hygiene and nutritional regulation.
- Further collaborative work should also be undertaken with the food industry and with food outlet staff building on learning gained from previous initiatives and programmes.

INTRODUCTION

Healthy school food policy is recognised as important in promoting children and young people's nutritional health.¹ The school lunchtime environment and school meal standards have improved through policy and legislation.^{2,3} Concerted efforts have also been made to provide healthy foods and drinks and promote their uptake by primary and secondary pupils through a number of school-based programmes and initiatives and through the Scottish Curriculum for Excellence.^{4,5,6,7}

Although there are signs of success in relation to increased school meal uptake in primary school, uptake of secondary school meals is declining⁸ and in many urban areas, secondary school pupils can be observed purchasing lunchtime food and drinks from external outlets situated near schools.⁶ Building on previous research and evaluation facilitated by GCPH in collaboration with Glasgow City Council and the Scottish Centre for Social Research,⁹ this study aimed to assess the quality of popular foods purchased by pupils from outlets in study areas near five Glasgow secondary schools against Scottish nutrient standards for school lunches.¹⁰ These standards were introduced following the passage of the Schools (Health Promotion and Nutrition) (Scotland) Act 2007.³

RESEARCH AIM AND OBJECTIVES

The principal research question was:

How does the quality of popular foods purchased by secondary school pupils from outlets near Glasgow secondary schools compare with mandatory nutrient standards set for food and drinks provided by schools in Scotland?

Objectives were as follows:

- To describe numbers and type of commercial outlets near five Glasgow secondary schools
- To identify outlets popular with pupils and observe pupil purchasing behaviour
- To purchase and analyse a sample of popular savoury food items to compare nutritional quality against Scottish nutrient standards for school lunches

APPROACH AND METHOD

The research was undertaken as a collaboration between: GCPH; the Scottish Collaboration for Public Health Research and Policy (SCPHRP); the MRC/CSO Social and Public Health Sciences Unit, Glasgow (MRCSPHSU); the University of Stirling; and Glasgow City Council (GCC). Funding for the study was provided by GCPH and SCPHRP and each partner contributed resource in kind in the form of individual staff time and organisational support as required. A member of the GCPH team fulfilled the role of administrator/research co-ordinator for the duration of the study.

A research steering group was established which included key investigators from the above organisations along with representatives from GCC's Environmental Health Department, GCC Education Services and Cordia (Services) LLP (the organisation responsible for delivery of school-based food and drinks in Glasgow schools). GCC's Director of Education and NHS Greater Glasgow & Clyde's Director of Public Health were briefed regarding the research. Two experts in the field, Professor Martin Caraher (City University, London) and Professor Annie Anderson (University of Dundee) acted as external advisors to the research study.

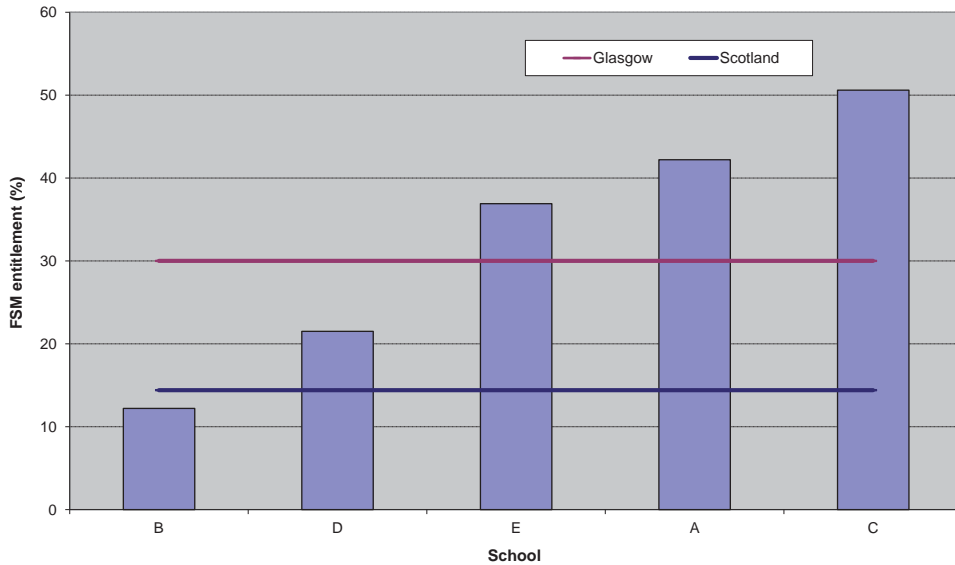
One of the purposes of this study was to test how feasible it would be to collect data on the food purchasing behaviour of secondary school pupils who eat out of school at lunchtime. The study used mixed methods, described below, to address research objectives. Prior to undertaking the research, ethical approval for the study was obtained from the University of Glasgow College of Social Sciences Ethics Committee for Non-Clinical Research Involving Human Subjects.

Study area selection

Study areas were selected around five secondary schools in Glasgow each based on an approximate radius of 10 minutes walk from the school gate. Each study area represented a different geographic area of the city, a contrasting physical and socio-demographic environment, and a variable pupil population in terms of school roll, and socio-economic characteristics (represented by free school meal (FSM) entitlement). School rolls in the five pilot secondary schools varied, the smallest school roll was 600 and the largest 1300. Figure 1 shows the range of FSM entitlement across the five pilot secondary schools which varied from 12.2% to 42.2%. Average FSM entitlement in Glasgow secondary schools is 30%, double that for Scottish secondary schools which is 14.4%.⁸

Figure 1 FSM Entitlement in Pilot Secondary Schools

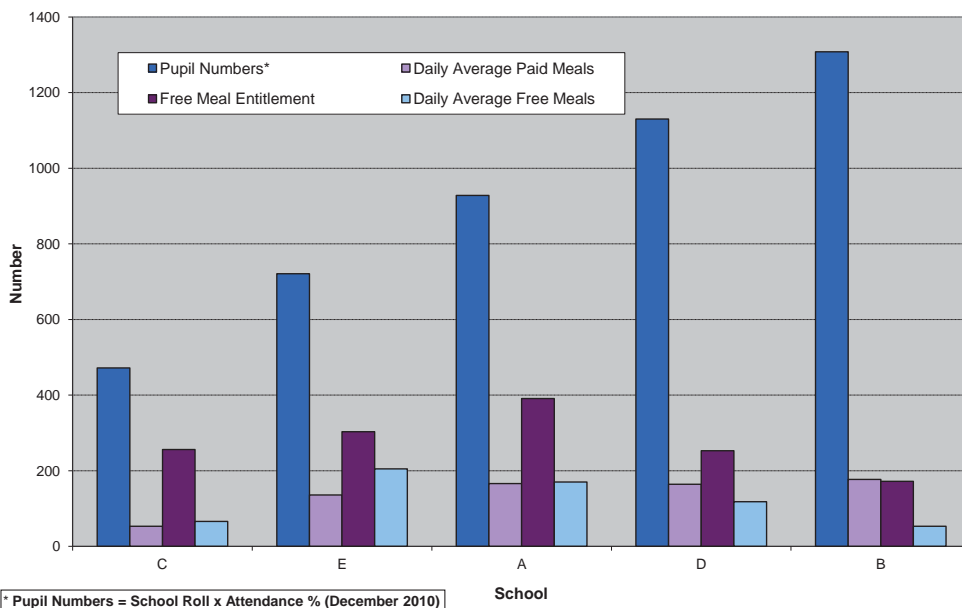
Source: School Meals in Scotland, 2010⁸



A snapshot of local school meal data supplied by Cordia in October 2011, shown below in Figure 2 illustrate that school meal uptake in the pilot schools, whether free or paid for, was very low.

Figure 2 School Meal Uptake in Pilot Secondary Schools

Source: Cordia Data, October 2011



* Pupil Numbers = School Roll x Attendance % (December 2010)

Data collection

Building on previous research exploring the density of food outlets around Glasgow secondary schools,¹¹ the external commercial food environment in the study areas was mapped using GIS software and GCC's database which records the name, type and location of all commercial outlets selling food and drinks in Glasgow.

Between 10am and 2pm, on a designated school day in September 2011, 15 researchers (two to four per study area) visited each of the five study areas to observe pupil purchasing patterns. Using an observational checklist (drawing on methodologies developed in similar research elsewhere),^{12,13} researchers gathered data regarding the characteristics of commercial food outlets that were observed as popular with pupils. In addition to the use of the checklist for data collection and where possible, researchers questioned shopkeepers and outlet staff regarding items sold and what was perceived as popular with pupils. Researchers carried an information leaflet explaining the purpose of the research which was distributed to shopkeepers/store managers in outlets visited in the morning, prior to the data collection. A separate pupil information leaflet was also carried by researchers for issue to any pupil who became aware that s/he was being observed and asked for information.

Through observation, researchers identified and listed what they considered were popular savoury food items purchased by secondary pupils in each of the five study areas, during the lunch-time break of each study area school. The research team then met to discuss and agree the number and type of food items to be sampled in each area. In collaboration with environmental health colleagues, sampling officers subsequently purchased 50 pre-agreed items, recording the outlet from which purchased, study area and cost of each item. Nutritional analysis of these items was conducted by Glasgow Scientific Services to compare the quality of key nutrients with Scottish nutrient standards for school lunches.

RESULTS

There was marked variation in numbers of outlets identified within a 10 minute walk from each school, ranging from five in the area with the lowest number present to thirty in the area with the highest. Concentrations of outlets were identified near schools in three out of the five study areas, often on busy roads. Observational fieldwork revealed the presence of additional outlets which were not identified through the mapping exercise.

Outlets present were heterogeneous and included chip shops, kebab shops, convenience stores, newsagents, bakeries, vans, cafés, pizzerias, sandwich shops and supermarkets. There was a diversity of internal environments and items on sale. As the photographs below illustrate, some outlets were observed to be using targeted marketing strategies to encourage pupils to buy food and drinks including lunchtime offers, meal deals, price promotions etc.



Observers noted a brisk exodus out of school by pupils when the school lunchtime bell rang as there was a relatively short 40 minute lunch break. Long queues of pupils quickly formed at popular outlets – there was some evidence of particular age/gender groups favouring certain outlets. There was a very rapid turnover in relation to items purchased.

The most popular purchases contained chips often with bread rolls, curry sauce, gravy, cheese, fish etc. Other popular food items were sausage rolls, pizza, pot noodles, beef burger/cheese burger, rolls and sausage and doner kebabs. The price of purchases varied: excluding meal deals and bakery goods, the cheapest savoury item was a sausage roll costing 64 pence and the most expensive was chips and a pizza slice costing £2.50. Many pupils augmented their main purchase with additional items such as sugary drinks, chocolate, crisps, and sweets.

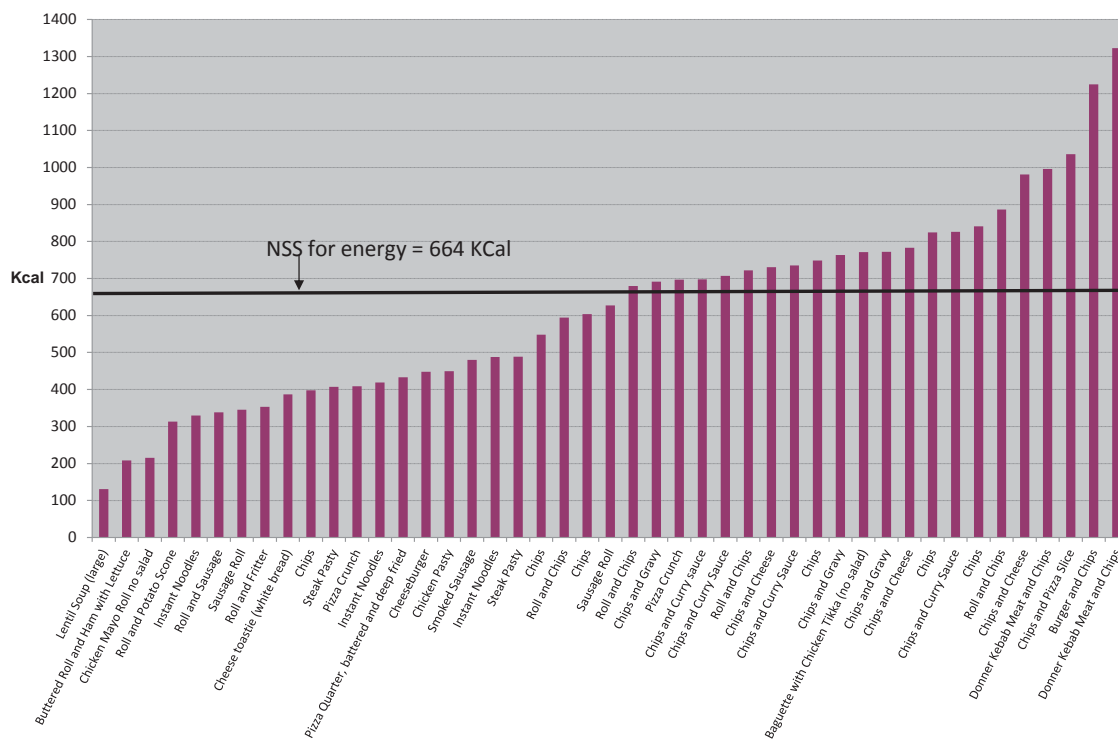
Nutritional Analysis

Nutritional analysis of the 50 purchased items was conducted by laboratory staff. Of the 50 purchases, four were 'meal deal' options (i.e. they included a carbonated drink and/or confectionary/bakery goods), one item was a commonly purchased home-baked item (a sweet doughnut type cake known as a yum-yum). These four atypical items were excluded from the main analysis and results for the remaining 45 samples are presented below. A number of very similar items (such as chips and curry sauce) were purchased from different outlets in order to compare their nutritional content.

Items were analysed for energy, fat, saturated fat and salt content and compared with the Scottish Nutrient Standard for Schools.¹⁰ There was marked variation across all parameters as can be seen in Figures 3 to 5.

Figure 3 Displays the energy content of samples which varied from 131 - 1323 Kilocalories (Kcal).

Figure 3 Energy Content per Savoury Food Item (KCalories)



As can be seen in Figures 4 and 5 overleaf, fat and saturated fat content was similarly variable, ranging from 2 - 80g and 1-30g respectively while salt content varied from 0.4 - 4.5g.

Figure 4 Fat and Saturated Fat Content of Savoury Food Items

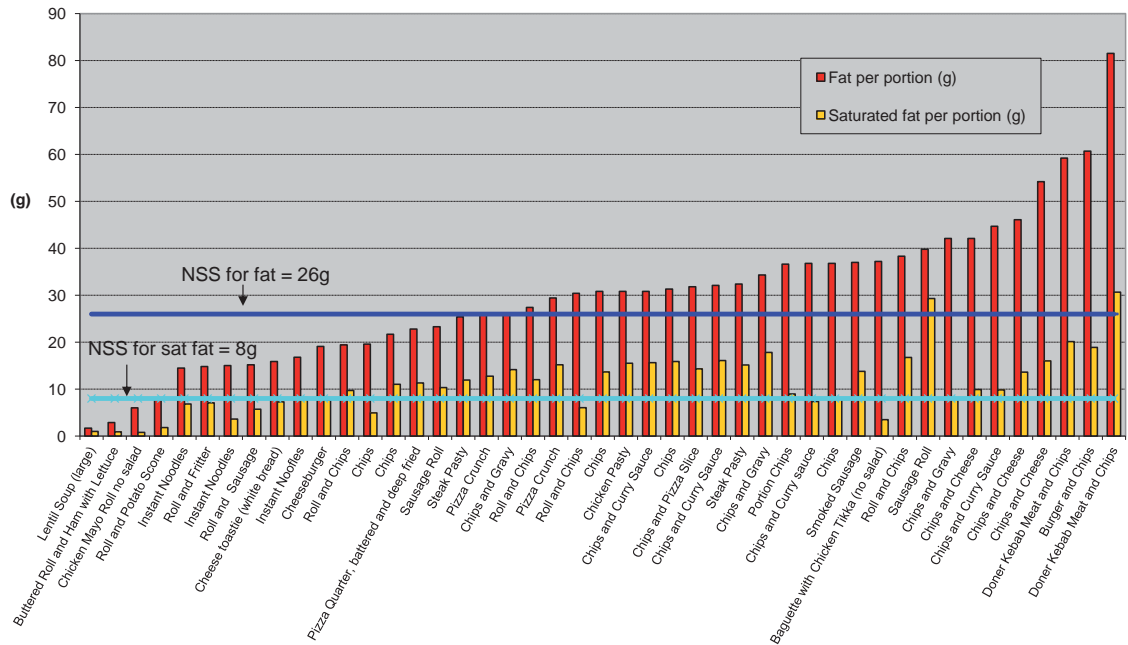
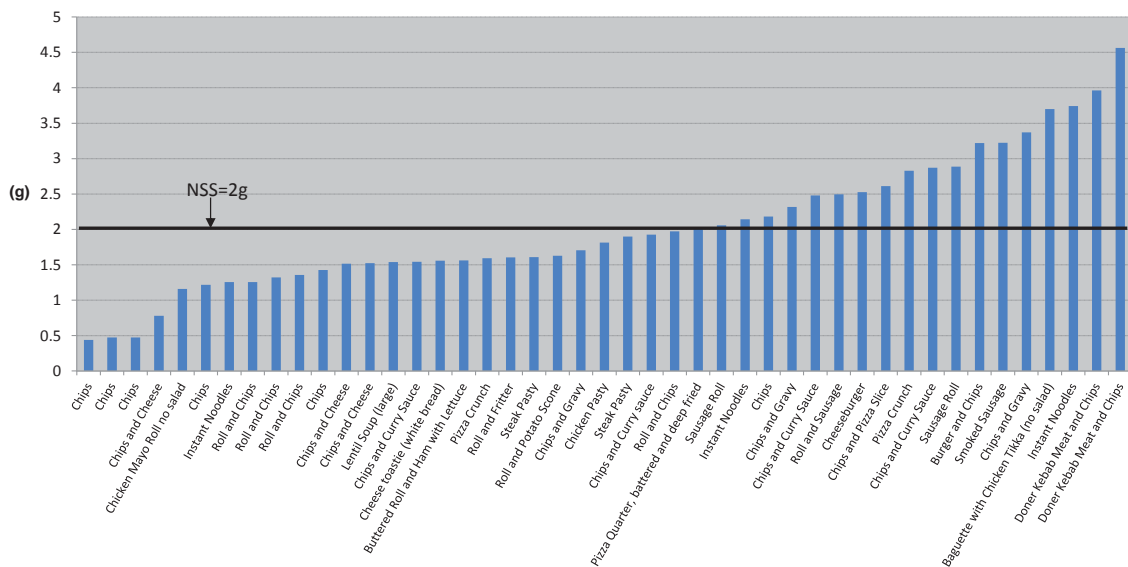


Figure 5 Salt Content per Savoury Food Item



Approximately half of the samples exceeded recommended energy levels; over a half exceeded recommended fat and saturated fat levels; and over a third exceeded recommended salt levels. Thirty seven of the 45 savoury food items sampled did not comply with one or more of the nutrient standards for fat, saturated fat and salt. Given the fact that a number of pupils were observed augmenting savoury food items with sweetened carbonated drinks, crisps, and confectionery, it is likely that their lunchtime energy, fat and salt consumption will be greater than that revealed by the nutritional analysis. With the exception of a portion of lentil soup and a roll that contained lettuce, there was no inclusion of vegetables or salad in any of the samples analysed.

CONCLUSIONS

This study highlighted a stark contrast between the nutritional quality of the food available within school and that commonly sold by external commercial outlets near schools. Findings indicate that many pupils who eat out of school at lunch-time buy unhealthy, convenience food of poor nutritional quality. A number of outlets selling food in the study areas appear to be offering meal deals and promotions to pupils with which school canteens struggle to compete. Previous evaluations of school lunchtime stay-on-site policies and programmes have highlighted staff and parental concerns regarding the presence of commercial outlets in the vicinity of schools and their patronage by pupils who leave school at lunchtime.^{6,14} These concerns relate not only to the consumption of unhealthy food and drinks but also to fears regarding road safety, bullying, truancy, stranger danger etc. Findings from this study provide further evidence justifying professional and parental/carer concerns regarding the adverse impacts on pupils' health and well-being of leaving school at lunchtime.

Over recent years, a number of policies and plans have been published, driven by converging policy agendas aiming to address both the poor nutrition in many population groups in Scotland and the steadily increasing prevalence of obesity in children and adults.^{15,16,17} The most recent Scottish Government publication in this regard, 'Preventing Overweight and Obesity in Scotland: A route map towards healthy weight' sets out plans and actions to prevent obesity at a population level.¹⁸

Specific measures that are recommended in the school setting include:

- Supporting schools to make remaining in school for lunch more attractive to secondary school pupils through a range of innovative approaches.
- Exploring measures to restrict access by children to nutritionally inappropriate meals and high energy and energy-dense foods from businesses located in the vicinity of schools.¹⁸

In relation to measures that can be taken within school, school lunchtime stay-on-site policies for junior secondary pupils have now been implemented by more than half of Glasgow's 30 secondary schools, following an initial pilot and evaluation. Follow up research conducted in 2011 to explore facilitators and barriers to sustaining these stay-on-site policies concluded they offer a very promising way forward for school-based promotion of healthy eating.¹⁴ The provision of lunchtime activities was found to be one of the factors leading to success due to their popularity with pupils who enjoyed participating in these activities with their friends. It was recommended that the provision of lunchtime activities should be sustained in future stay-on-site policies. However, despite largely positive feedback from younger secondary pupils regarding their experience of staying in school for lunch it was clear that many of them intended to leave the school premises at lunchtime to buy lunch off-site when they progressed to their second year. The research concluded that more work needed to be done on managing pupils' expectations, assumptions and priorities in relation to healthy eating. Communication with parents/carers and greater parental involvement in school-based healthy eating initiatives and policies were identified as important.

An additional approach to encourage pupils to stay on site at lunchtime has recently been introduced by Cordia, Glasgow City Council's school meals provider. Cordia has established food kiosks in the grounds of two Glasgow secondary schools.¹⁹ These kiosks sell a range of hot and cold foods and drinks and provide pupils with an alternative to eating in the school canteen. Initial feedback from pupils and uptake of foods and drinks from these kiosks appears very promising.

There are a number of potential regulatory levers outwith the school setting that could help restrict exposure to unhealthy foods and drinks. Evidence is growing that health-related food taxes can improve health, particularly if accompanied by subsidies on healthy foods.^{20,21} Sales tax on sugared drinks, sweets and snacks has been introduced in the US, Australia and in several European countries.²² In the UK there have been calls to consider the introduction of taxes on unhealthy food and drinks to help tackle growing obesity levels.²³ Modelling studies predict that a 20% tax on sugary drinks in the US would reduce the overall prevalence of obesity by 3.5%.²⁴

An increasing number of local authorities in the UK and further afield are testing out the use of licensing and planning powers in an attempt to restrict the number and concentration of commercial outlets selling unhealthy food in local neighbourhoods and near schools.^{25,26} There is potential for these measures to be employed by national and local government in Scotland, building on current developments such as licensing of alcohol outlets and through more explicit public health input into local development plans. In addition, consideration could be given to strengthening the role of local authority environmental health departments to equip them with greater powers in relation to food safety and hygiene and to include nutritional assessment/regulation within their remit.

As well as regulatory levers, collaborations with the commercial/business sector should be developed. Scotland's National Food and Drinks Policy, launched in 2009, aims to "ensure that the Scottish Government's focus in relation to food and drink, and in particular our work with Scotland's food and drink industry, addresses quality, health and wellbeing, and environmental sustainability, recognising the need for access and affordability at the same time."²⁷ There is potential to learn from and extend initiatives such as the Scottish Grocers' Federation's Healthy Living Programme which encourages convenience stores to develop and promote healthier products in local stores²⁸ and Consumer Focus Scotland's Healthy Living Award, which works with the catering sector in Scotland to encourage changes to catering practices and ingredients.²⁹

To conclude, if healthy eating amongst secondary school pupils during the school day is to become more widespread, a range of factors and influences need to be considered and addressed. Schools cannot tackle this alone and it will not happen overnight but progress in this arena will yield enormous dividends in relation to the future nutritional health and wellbeing of our children and young people.

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