

# Healthy Eating

for Primary Schools



**Sally Robinson**

# **Healthy Eating in Primary Schools**

**Sally Robinson**

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First published 2006

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Paul Chapman Publishing  
A SAGE Publications Company  
1 Oliver's Yard  
55 City Road  
London EC1Y 1SP

SAGE Publications Inc.  
2455 Teller Road  
Thousand Oaks, California 91320

SAGE Publications India Pvt Ltd  
B-42, Panchsheel Enclave  
Post Box 4109  
New Delhi 110 017

Commissioning Editor: George Robinson  
Editorial Team: Wendy Ogden, Sarah Lynch, Mel Maines  
Designer: Jess Wright

A catalogue record for this book is available from the British Library

Library of Congress Control Number 2005907007

ISBN10 1-4129-1161-3  
ISBN13 978-1-4129-1161-0

Printed on paper from sustainable resources.  
Printed in Great Britain by The Cromwell Press Ltd, Trowbridge, Wiltshire.

# Acknowledgements

Healthy Eating in Primary Schools was inspired by the work of the Kent Healthy Schools Programme. Its development was made possible thanks to funding from the Standards Fund that supports the development of the Healthy Schools Programme in Kent, and the advice and support from the following people.

## **Kent Healthy Schools Programme**

Liz McAvan  
Jennifer Holland  
Emma Harris  
Hania Szczepaniak.

## **Consultants**

Liz Twist, National Foundation for Educational Research  
Professor Stephen Clift, Canterbury Christ Church University  
Dr Andrew Hill, University of Leeds  
Stuart McFarlane, educational consultant, Derbyshire.

## **Interviewees**

Helen Brown	Kerry Collins
Cherie Morgan	Jackie Moull
Gill Aitken	Brian Molloy
Carmen Flynn	Chris Beer
Carol Manton	Fiona Annis
Chris Ford	Carol Boxall
Paul Boyce	Liz Tanner
Mark Sleep	Paula Gill
Jill Flavin	Jennifer Holland
Mog Marchant	Carla Maurici
Georgina Ayin	Camilla Joarder
Gillian Trumble	Sue Scrivens
Sharon Bremner	Abi Mogridge.

## **Piloting the lesson plans**

Kirsty Vant  
S. Hermitage  
Ray Wookey  
Pippa Holland  
G. Partridge  
J. Kemp  
Debbie Vincent.

### **How to Use the CD-ROM**

The CD-ROM contains PDF files, labelled 'Worksheets.pdf' which contain worksheets for each session in this resource. You will need Acrobat Reader version 3 or higher to view and print these pages.

The document is set up to print to A4 but you can enlarge them to A3 by increasing the output percentage at the point of printing using the page set-up settings for your printer.

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# Introduction

Across the UK there is a great deal of concern about the quality of children's diets and the growing problem of children's obesity. There is also anxiety about the rise of dieting and eating disorders at younger ages. Both obesity and eating disorders can be treated through educational, medical and therapeutic means with varying degrees of success. Wouldn't it be better to prevent them in the first place, or to 'nip them in the bud' before they have progressed so far as to require treatment? This is not only the message coming loudly from Government (DfES, 2004a; DoH, 2004a), but more importantly from children whose eating behaviour can be both a symptom and a cause of unhappiness (EDA, 2002; Hill and Silver, 1995; Dixey et al., 2001). *Healthy Eating in Primary Schools* shows how schools can adopt a holistic approach to promoting children's healthier eating and wellbeing.

## How This Book is Structured

Chapters One to Seven: Problems and Solutions

Too many children are eating imbalanced diets which can lead to serious health problems. Today, almost a third of children are either overweight or obese (Prior et al., 2003) because many are eating too much and exercising too little. Simultaneously, dieting, eating distress and eating disorders are being seen more frequently among primary school children. Children who are very overweight or obese, those who diet or are distressed about eating, and those who have eating disorders tend to have three features in common; a fear or dislike of body fat, particular anxieties about food and the experience of very distressing emotions. Therefore in order to understand children's eating, Chapter One examines both children's diets and why they are eating these foods. Chapter Two investigates the reasons behind children's weight gain, the consequences, and some of the strategies for change. Chapter Three explores how children's bodies change and how children feel about their bodies. Chapters Four, Five and Six discuss some of the wider emotional and social factors which influence children's eating behaviour leading to dieting and eating disorders and, importantly, these chapters provide advice about what schools can do.

In order to change children into happy, healthy eaters, the food in many schools needs to be improved and the emotional and social influences on children's eating must be addressed. Children's own exploration about food, their bodies and their eating behaviour through lessons in the classroom is a vital investment in their health, and this can be enhanced by utilising the wealth of expertise in the community around the school. This holistic, multi-dimensional approach is presented within Chapter Seven.

Chapter Eight: Healthier Eating Within the Whole-school Community

Chapter 8 comprises a collection of interviews carried out with people who have each contributed towards improving the health of children in Kent. Some of the interviewees are employed by schools, and others work in the local community. They tell of introducing children to the delights of growing food, cooking food and eating healthier food, while others are helping children who have emotional concerns around food or body image. These examples provide practical ideas for schools to adopt or to adapt to their own circumstances. Each interview is complemented by useful information and resources for schools.

Chapter Nine: Lesson Plans

Chapter Nine contains 19 classroom-based lessons which can be used with junior pupils in Key Stage 2 at primary school. The lessons aim to develop children's knowledge and skills in order to help them to



make decisions and feel confident in making and following through with those decisions for a healthier and happier life.

All the lessons are designed to be inclusive, meeting the needs of all children. Most are differentiated through outcome, although some include suggestions which might be more suitable for upper and lower Key Stage 2. Each lesson is linked to the *National Curriculum* (DfEE/QCA, 1999) and utilises a range of learning styles. Each lesson contributes to the skills for cognitive and affective learning which are outlined in the *Primary National Strategy, Excellence and Enjoyment: Learning and Teaching in the Primary Years* (DfES, 2004b).

The lessons begin by encouraging the children to consider why they eat what they eat, before they are introduced to the principles of a healthy diet. Each food group, within the healthy diet, is explored including the treats. The children are taken on a journey from thinking about what they eat, to what they should eat, to when and how often they should be eating in order to maintain health. Next, the children consider the importance of balancing their food intake with activity, which leads on to thinking about thinness and fatness, and body shape. Education about children's bodies is vital to counter prejudice and bullying about people's appearance and to alleviate anxiety that can lead to dieting, so the children learn about feelings and other people's feelings. The final lesson deals with food, activity, body image and feelings, a good way to bring together all of the themes that underpin healthier and happier eating.

Throughout the book, when another chapter, section or lesson is referred to, the page number follows enclosed in a circle, for example, (120)

# **Chapter One**

Children's Eating: the Indigestible Evidence

## Children's Imbalanced Diets

In 2000 the Department of Health and the Ministry of Agriculture Fisheries and Food (now DEFRA) published the results from a national survey of the diets of young people aged 4 to 18 living in Great Britain (Gregory et al., 2000).

### Energy

How much energy, or calories, children need from their food is related to their age, weight, sex and physical activity. It is recommended that 7 to 10 year old boys need about 1,970 calories and girls 1,740 calories (Department of Health, 1991). If children eat more calories than they are losing through activity they gain weight.

Many children are eating more calories than they need because across the United Kingdom we are:

- eating out in restaurants and fast food outlets more than ever, and meals eaten out tend to be higher in calories and fat than those eaten at home
- snacking between meals, thus eating more, and more often
- drinking more still and carbonated sweet drinks
- eating larger portions of fast food such as 'king size' chocolate bars which can provide a fifth of the daily calories for a 10 year old.

(Department of Health, 2003)

### Protein

Protein is needed for growing and repairing tissues, hence its importance for growing children. Protein from animal sources, such as meat and eggs, contain all the essential amino acids which humans need. Protein from vegetable sources, such as peas, beans and lentils, usually does not contain all the essential amino acids. This means that vegetarians need to be eating two or three vegetable sources of protein at the same meal in order to ensure that they eat all the essential amino acids.

It is recommended that 28.3 grams of protein a day will meet the needs of most 7 to 10 year olds (Department of Health, 1991). Most children are eating far more than this. In the 2000 survey boys were eating 54.8 g and girls 51.2 g, which is almost double their need. Excess protein is converted and used for energy, or it is stored as glycogen or fat in the body. This means that excess protein can contribute to children becoming overweight.

### Carbohydrates

Starches and sugars are carbohydrates that are absorbed by the body. Foods high in starch include bread, pasta, rice and potatoes. Foods high in sugar include fruit, milk, chocolate and sweets. Sugar contained within fresh fruit, vegetables and milk will not damage teeth. The type of sugar that can damage teeth and gums is the non-milk extrinsic sugar. This is found in table sugar, sweets, chocolate, cakes, biscuits, fruit juice and soft drinks.

It is recommended that 50% of children's calories come from carbohydrates because they are an important source of energy (Department of Health, 1991). In the 2000 survey boys were eating 52% and girls 51% which is about right. However, it is recommended that no more than 11% of the 50% should come from carbohydrates in the form of non-milk extrinsic sugars. 89% of boys and 79% of girls were eating more than this recommended maximum.

Three-fifths of nine year olds have actively decayed or filled primary teeth (OPCS, 1994). Significant causes of decay are sugar and the high acidity associated with sweet, fizzy or alcoholic drinks and with fruit juices (Department of Health, 1989). It is because the calcium in milk helps to repair damaged

tooth enamel and lower acidity in the mouth that it is recommended by the British Dental Health Foundation as a much healthier alternative drink.

### **Dietary fibre**

Non-starch polysaccharide (NSP) is the correct name for what used to be called dietary fibre. It is a carbohydrate but unlike starches and sugars it is not absorbed by the body and therefore does not provide calories. It is thought to help in the digestion and absorption of food, and most importantly prevents constipation. Foods such as fruit, vegetables, wholegrain breakfast cereals, wholemeal bread and pasta are good sources of NSP.

There is a recommendation that the population should eat about 18 g of non-starch polysaccharide per day (Department of Health, 1991). This equates to approximately 11% of a person's daily calorie intake. There are no specific recommendations for children and 18 g might be too much for some children who shouldn't be filled with fibre at the expense of healthy nutritional food that can be absorbed. Children need as much NSP as will produce a healthy regular bowel habit and avoid constipation. Constipation is not just uncomfortable, it can lead to medical problems such as piles and diverticular disease later in life. In the 2000 survey 99% of children were eating less than 18 g of non-starch polysaccharide with 77% eating less than 10 grams. This suggests that some children are probably not eating enough NSP and could be constipated.

### **Fat**

Fat is a concentrated source of energy. Whilst carbohydrates have approximately 3.75 calories per gram, fat contains 9 calories per gram. This is why it is so 'fattening'. Fat is an important part of children's diets because they need energy and they need some of the vitamins that are attached to fat. The chemistry of fat means that it can be saturated, unsaturated, polyunsaturated or, rarely, trans-saturated.

Saturated fats can increase blood cholesterol, leading to heart disease. As a rough guide, saturated fats are found in butter, lard, hard cheese, poultry, meat and meat products. Coconut oil is an example of an oil containing saturated fat. When looking at a food label, 5 grams of saturated fat per 100 grams of food is considered to be a lot, according to the Food Standards Agency who recommend looking for 3 grams or less.

Unsaturated (polyunsaturated or monounsaturated) fats can help to protect against heart disease. They are found in oily fish, avocados, nuts, sunflower oil, olive oil and vegetable oils. The omega 3 fatty acids, in oily fish, are particularly good for preventing clots forming in the blood, and there is some evidence that they are important for the development of the central nervous system in babies, before and after they are born. This suggests that they can influence mental development (Helland et al., 2003).

Trans fats mostly occur when vegetable oils are processed and made into margarine, and margarine is used in many biscuits, cakes and fast food. Trans fats can increase blood cholesterol. Although they should be avoided, most people eat such small quantities as to present less of a concern than saturated fats.

It is recommended that a maximum of 35% of calories should be made up of fat (Department of Health, 1991; 1994). In the 2000 survey 35% of the boys' calories came from fat, and 36% of the girls'. This means that the proportion of fat in the children's diets was about right. However, it is also recommended that no more than 11% of the fat eaten should be saturated fat. In the 2000 survey 96% of boys and 93% of the girls were eating more than this recommendation. This means that they are eating too much saturated fat, rather than the healthier polyunsaturated fats. This is likely to be a reason for studies finding high blood cholesterol in some children (Gregory et al., 2000) which is a precursor to the development of blocked arteries and heart disease.

## **Vitamins and minerals**

Vitamins and minerals are needed in small amounts for a variety of health reasons. The reference nutrient intake (RNI) for a vitamin or mineral is the amount that is sufficient, or more than sufficient, for about 97% of a population (Department of Health, 1991). The survey in 2000 showed that primary school children were getting enough of most of the key vitamins and minerals, but they were low in zinc and girls were low in iron.

Processed and fast foods are frequently high in salt and therefore sodium. In adults there is an association between high salt intakes, age and raised blood pressure. Research is less clear about children, but there is concern that some children's consumption is too high and should be reduced to a recommended maximum of 5 grams per day (SACN, 2003). When the Food Standards Agency carried out a large survey of children's lunch boxes, they found that the average lunch box contained half the maximum daily recommended intake of salt, in addition to being high in fat and sugar (Jefferson and Cowbrough, 2004).

## **Fruit and vegetables**

The recommendation that people should be eating approximately five portions of fruit and vegetables each day is supported by wide-ranging international (WHO, 1990) and national research (DoH 1994, 1998). This is regarded as the best protection against cancer, heart disease and stroke, other than not smoking (DoH, 2004). In a survey carried out in 2001, only 13% girls and 14% boys ate five or more portions of fruit and vegetables per day (Doyle and Hosfield, 2003). Girls ate slightly more (average 2.8 portions) than boys (average 2.6 portions). Fresh fruit is the most popular followed by fruit juices, vegetables, pulses and salad. Research has shown that adults' fruit and vegetables consumption relates to whether they have been in the habit of eating fruit and vegetables as children (Krebs-Smith, et al. 1995).

## **Summary of children's eating**

Most children have adequate intakes of most nutrients. However, many would benefit from eating a more balanced diet.

Children in junior school are likely to be eating:

- too many calories
- too much protein, saturated fat and non-milk extrinsic sugar
- too few fruit and vegetables and too little dietary fibre.
- and/or are insufficiently physically active.

Girls in junior school are likely to be consuming too little:

- iron and zinc.

Boys in junior school are likely to be consuming too little:

- zinc.

The 2000 survey showed that after children enter secondary school the quality of many children's diets deteriorates even further.

## **What Children Understand by Healthy Eating**

A number of research studies have investigated children's perceptions of healthy eating. Turner (1993) suggests that children between five and 12 years of age perceive vegetables, fruit, breakfast cereals, bread, cheese, fish, rice, milk, eggs, nuts and chicken to be healthy; and cakes, biscuits, sweets, crisps, chips, coke and foods high in fat such as sausages to be unhealthy. Many of these findings are supported

by Lund et al.'s (1990) research with 11 year olds and Tilston et al.'s (1993) with five to eight year olds. It seems that from four years upwards children seem to develop an increasing awareness that the quality of food matters. They begin to use terms such as 'whole', 'brown' and 'fibre', and demonstrate increasing knowledge that fat, sugar and salt are unhealthy (Williams et al., 1989; Mauthner et al., 1993). Some primary school children associate fruit and vegetables with qualities such as health, slenderness, beauty and building muscles (Baranowski et al., 1993), whilst others are confused that fats and sugars cannot necessarily be seen (Tilston et al., 1993), and some children associate dietary fat more strongly with coronary heart disease than with weight gain (Dixey et al., 2001a).

However, the majority of children report that they do not care about healthy food (Mauthner et al., 1993; Watt and Sheiham, 1997; Noble et al., 2001). Baranowski et al. (1993) found that children tend to identify food that they do not like the taste of as being healthy, and that which tastes nice as being unhealthy. In Ross's study (1995) primary school children expressed a marked preference for greasy foods even though they understood that they were unhealthy. Wardle and Huon (2000) presented children with identical drinks, one of which was labelled 'healthy'. The 'healthy' drink was described as less attractive to the children. Dixey et al. (2001a) talked to nine to 11 year olds who were very well aware of the concept of a balanced diet, and the attempts by adults to manipulate their diets towards healthier eating. They were also quite capable of making their own choices. Dixey et al. report that the children were not going to be, "... coerced into a healthier lifestyle"; after all adults resist coercion and rightly so (p.77). These studies suggest the concept of health itself needs to be made positive and inviting to children.

Most nutritionists agree that it is preferable to educate children about a healthy balanced diet, in preference to 'healthy or unhealthy food', and we need to strive to make the balanced diet attractive to children.

See Lesson 1 (120)

## Common Reasons for Children's Imbalanced Diets

### **I'm not hungry**

Some children do not eat because they do not feel hungry. Over a period of time, most children will eat the amount they need. However, children who are frequently fed as a reward or in order to be comforted may start to confuse these emotional states with hunger signals and become desensitised to the physical sensations of hunger. This can lead to overeating as well as imbalanced eating (Birch, 1991).

See Lesson 1 (120)

### **Picky eaters and food neophobia**

Picky eaters are children who choose not to eat many familiar foods. Studies have shown that picky eaters eat a smaller variety of foods than others, which results in poorer quality nutrition (Falciglia et al. 2000; Gallway et al., 2003). Children who are unwilling to try new foods because they believe that they will not like them might have a personality trait which psychologists call food neophobia, literally 'a fear of food'. Like picky eaters, studies have shown that these children are at risk of having poor quality nutrition (Falciglia et al. 2000; Gallway et al. 2003).

Harris and Booth (1992) studied infants' refusal of food and their findings help to explain some of the psychological reasons why children might refuse food.

- The child was exposed to the food and experienced a negative experience such as vomiting. The food and experience might not have been actually associated, but are so in the child's mind.
- Children have an innate preference for sweetness, but other tastes are culturally determined.

A child's tastes will be as broad or as narrow as his/her exposure to foods. The more limited their exposure, the more foods could provide neophobic reactions.

- The child needs to feel in control of their own behaviour and their own hunger/satiety, which means they might strongly dislike having their behaviour controlled by others.

Dieter and Skuse (1992) identify some ways of managing picky eaters and food neophobics.

- Reward any behaviour that comes close to eating or eating something new.
- Keep meal times happy.
- Minimise social interaction before a meal so that the interaction during the meal can be appreciated.
- Very gradually move towards new or disliked foods, such as introducing thickening very slowly. The more children are exposed to food, the more their preference for it will gradually increase (Birch and Marlin, 1982).
- Don't reward, or give attention to, eating related behaviour that you might wish to discourage. Ignore uneaten food.
- Encourage the child to eat alongside good role models such as peers or teachers who enjoy a wide variety of foods.

See Lesson 1 (120)

### **Patterns of eating**

Whiting and Lobstein (1995) suggest that common reasons for children eating too little, or being picky eaters, are too many snacks and/or soft drinks between meals which can prevent a child from feeling hungry at meal times. Once a pattern of snacks is established, some children may deliberately refuse meals in order to have a snack of their own choice later. They suggest the replacement of soft drinks with water or a very small cup of milk, but not just before a meal, and that snacks should be limited to pieces of fruit and raw vegetable sticks.

See Fruit in School (68)

See Water in School (64)

### **Appearance and texture of food**

Whiting and Lobstein (1995) suggest that children can be put off food if there is too much piled high on a plate, if it is not identifiable because it is too mashed up or covered in gravy, if it looks colourless, or looks sloppy or lumpy. The appearance of food matters to children, and it needs to look appetising.

Sometimes children do not eat food because they dislike the texture which may be too hard/too soft (boiled potatoes), too dry with 'bits' in (rice) (Noble et al., 2001). Charles and Kerr (1988) found that children preferred sausages and burgers to roast meat because they are easier to chew, and Baranowski et al. (1993) found that it was partly the texture of cooked vegetables which deterred children from eating them.

Whiting and Lobstein (1995 p.60) provide some good tips for encouraging children to eat vegetables:

- two or three tiny heaps of different vegetables are more appetising than one large heap of one kind
- serve small sticks or chunks of raw vegetables
- hide vegetables in soups, pizza and pancakes
- involve children in the growing and preparation of vegetables.



Noble's research suggests that the attributes of crispy, crunchy and fun to eat will make food more attractive to junior school children (Noble et al., 2001).

See Cookery Club (66)

See Growing Produce (71)

See Community Gardens (74)

See Healthy School Catering (80)

### **Independence and peer approval**

The attractions of junk food might be in the practical, psychological and social benefits it offers to children, rather than the nutritional ones. Many children perceive that their eating in the home is largely controlled by adults (Robinson, 2000). However, in the world of junk food, children may experience the pleasure of choosing and buying 'ready to eat' burgers, chips, biscuits and sweets. This has practical benefits in that junk food rarely involves the inconvenience of requiring special utensils, cookery skills, cooking appliances or table etiquette to eat it. In fact junk food is very often finger food. The attractiveness of eating food with hands may partly explain why Baranowski et al. (1993) found that some children like fruit, why Mauthner et al. (1993) found that many of the children in their study preferred packed lunches to school dinners, and why Charles and Kerr (1988) suggest that children are better disposed to eat vegetables if they are raw. Perhaps being able to eat foods quickly and easily with hands promotes feelings of personal control.

Children also take sociability into account when making food choices. In one primary school Ross (1995) observed that many children chose the same food as their friends. In another, Mauthner et al. (1993) found that where the children sat, and who with, were more important to the children than what they ate. Places where burgers and chips are sold facilitate the interaction of young people thus providing them with a social niche which they may be unable to find elsewhere.

The value of independent eating, sociability and peer approval helps to explain the popularity of junk food, and can be used just as well to promote healthier eating in a whole-school context.

See Cookery Club (66)

See Healthy Lunch Boxes (78)

See The Schools Council and the Healthy Schools Working Group (86)

See School Nutrition Action Group (84)

See Lessons 1 and 9 (120) (149)

### **Adult responsibility**

Children themselves are well aware that adults have a great deal of control over their eating (Robinson, 2000). Whilst genetics can explain perceptions of taste, food preferences and hunger or satiety cues, patterns of eating are based on parents' knowledge, the types of food made available by parents for children and feeding practices within the home (Davison and Birch, 2001). Parents can act as positive role models in being seen to eat and enjoy a breadth of foods, although Hill (2002) cautions that over-control can be counter-productive in that it can teach children to dislike the foods which they associate



with being undermined. Over-control can also teach children to ignore their biological signals about hunger or satiety. Conversely, research also highlights that children can exploit pester power to get sweet items. 68% of seven to eight year old children in one study, reported that they usually received sweet items whenever they asked adults for them (Blinkhorn et al., 2003). This means that educating and supporting adults has to be part of the solution to children's unhealthy eating.

See Healthy Eating within the Healthy Schools Programme (101)

See The Community Paediatrician (97)

See Lesson 1 (120)

## **Advertising**

Parental influence over children's food, in the context of the food industry's advertising, has been likened to a 'David and Goliath' situation (McKenzie, 2003).

Children's perceptions of food seem to be influenced by a wealth of advertising which is specifically targeted at children in order to exploit their 'pester power' (Crocket and Sims, 1995; Whiting and Lobstein, 1995). This may appear on television, radio and the internet, texts, email as well as food and drink products around any supermarket. More recently the UK has seen campaigns such as Walkers Crisps' 'Books for Schools' and the use of Tweenie images on McDonalds' Happy Meals (McKenzie, 2003). Both Walkers and Cadburys tried to reward the purchase of crisps and chocolate with sports equipment, and breakfast clubs are being targeted by Burger King (House of Commons Health Committee, 2004).

Analysis of food advertising, during children's television, shows that up to 99% of the products are high in fat, sugar and/or salt (Sustain, 2001), and that there is a remarkable overlap between foods which are advertised and those which children eat (Dibb, 1993; The Food Commission 1994, House of Commons Health Committee, 2004). This might be explained by research that has shown that until seven years old most children trust adverts; it is only at around eight that they begin to become a little more critical (House of Commons Health Committee, 2004).

In recognition of the consequences of advertising high fat, sugar and salt products to children, the Co-op has recently banned the advertising of these types of food during the hours of children's television. Instead the Co-op is advertising healthy foods at these times, and hoping that the rest of the food industry will follow its lead (Co-op, 2000). This is a move welcomed by the Food Standards Agency who launched its Food Promotion Action Plan in July 2004. This involved taking action on the advertising of foods high in fat, sugar and salt includes working with schools because, like any other setting, they can overtly or unintentionally advertise healthy or less healthy approaches to eating. The Children's Food Bill, which received its second reading in the House of Commons in October 2005, seeks a ban on advertising high fat, sugar and salt foods to children.

See Lesson 1 (120)

See Healthy Eating within the Healthy Schools Programme (101)

See School Nutrition Action Group (84)

## **School food**

The quality of school food affects children's overall dietary status. According to Davison and Birch (2001), studies confirm that children's overall consumption of fat, fruit and vegetables varies

according to the availability of fat, fruit and vegetables within school lunches. In a British study of nine to 11 year olds, the children described school meals as insubstantial, lacking in variety, pre-packaged and 'horrible'. The children wanted to exercise choice, and were positive about fruit tuck shops (Dixey et al., 2001).

One month after the Government had launched its *Healthy Living Blueprint for Schools* (DfES, 2004a), to promote habits for healthy living particularly through exercise and diet, the Soil Association published a survey of five meals typically served in primary schools. If a child ate these meals over a school week, they would consume 40% more salt, 28% more saturated fat and 20% more sugar than what is recommended for children, while still meeting the Government's nutritional standards for school meals (Storey et al., 2005). In February 2005, the Secretary of State for Education announced the introduction of new standards for school meals in 2006.

See The County Council (75)

See Healthy School Catering (80)

See Fruit in School (68)

### **Socio-economic context**

Children's diets are influenced by the wider social context in which they live. Children who live in poorer socio-economic circumstances eat poorer diets because families living on lower incomes eat more of the cheap, filling foods which are easily accessible at their local shops. This means eating a diet higher in fat and sugar and lower in fruit and vegetables (Clayton and Fewell, 1998; Gregory et al., 2000; Doyle and Hosfield 2003). Children's obesity is marginally worse in more deprived areas (Prior et al. 2003), and children in the north of England have been found to have a diet containing fewer vitamins and minerals than elsewhere in the UK (Gregory et al. 2000). The primary school children who receive free school meals receive a higher proportion of their daily energy and nutrients from these meals compared to other children (Gregory et al. 2000), and The National School Fruit and Vegetable Scheme, whereby children aged four to six receive a free piece of fruit or vegetable, aims to address the lack of availability of fresh fruit in some communities (Department of Health, 2004a).

See Breakfast Clubs (58)

See Fruit in School (68)

See The Family Liaison Officer (89)

### **Culture and ethnicity**

Few studies have investigated how ethnicity impacts on social aspects of eating. The evidence suggests that there are far more commonalities than differences across ethnic groups (Weber Cullen et al., 2002). Former migrants to the UK appear to vary in their cause of death, compared to the rest of the population, for example there is more obesity among South Asian, Afro-Caribbean and some Irish-born adults, but their children, born in the UK, tend to adopt British dietary patterns and have similar causes of death (Landman and Cruickshank, 2001). Specific nutritional imbalances can be associated with certain dietary practices which are associated with people's beliefs, religion and culture (Chappiti et al., 2000), but these are not common among children.

See Lessons One, Seven and Ten (120) (141) (152)



# Chapter Two

Overweight and Obesity

## A Weighty Problem

Around two thirds of the population of England are overweight or obese. Obesity has grown by almost 400% in the last 25 years and on present trends will soon surpass smoking as the greatest cause of premature loss of life... On some predictions, today's generation of children will be the first for over a century for whom life-expectancy falls (House of Commons Health Committee, 2004 p.3).

According to the Chief Medical Officer:

- world wide, around 58% of type 2 diabetes, 21% of heart disease and between 8% and 42% of certain cancers are attributable to excess body fat (Department of Health, 2003)
- obesity is responsible for 9000 premature deaths each year in England, and reduced life expectancy by, on average, nine years (Department of Health, 2003)
- obesity costs the economy at least £6.6 billion a year (House of Commons Health Committee, 2004).

Among children, the worrying statistics show that:

- almost a third of all children are either overweight or obese (Prior et al., 2003)
- one in six boys under 15 are obese, representing a rise of 60% in nine years (Prior et al., 2003)
- just under 17% of girls are obese representing a rise of 42% in nine years (Prior et al., 2003)
- between 1996 and 2001, the proportion of overweight children aged six to 15 rose by 7% and obese children by 3.5% (Department of Health, 2003)
- Asian children are four times more likely to be obese than white children (House of Commons Health Committee, 2004)
- fatter children are at greater risk of developing into fatter adults compared to others (Power et al. 1997; Kotani et al., 1997; Fredricks et al., 2000)
- children are presenting with the first signs of maturity-onset diabetes which has historically been associated with middle and older age (Department of Health, 2003)
- obese children of nine years old have been found to have higher blood pressure and higher blood cholesterol than other children (Wynne, 1999)
- if current figures are projected forwards by 15 years, by the year 2020 over half UK children will be obese (House of Commons Health Committee, 2004).

See The Community Paediatrician (97)

## Reasons for Children's Increasing Weight

### The balance of energy

In order for weight to remain stable, energy intake in terms of food calories must equal energy output in terms of heat or exercise. Bearing in mind that genetic make up can predispose people towards obesity (Ottley, 1997), the evidence suggests that overweight and obese people must be consuming more calories, and therefore more food, than those who are not in relation to their energy output (Garrow, 1988). The excess food which is not metabolised for energy is stored as fat. The Royal College of General Practitioners suggest that food intake, in the UK population as a whole, has fallen on average by 750 kcal per day, whilst activity levels have fallen by 800 kcals. "Out of this small imbalance has come the wave of obesity" (House of Commons Health Committee, 2004).