

# Eating well at school

Nutritional and practical guidelines



Produced by

**THE CAROLINE WALKER TRUST**

and

NATIONAL   
**Heart Forum**

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By Dr Helen Crawley

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*The text and tables contained in this report can be photocopied by all those involved in providing food for children and young people at school, with an acknowledgement to The Caroline Walker Trust. The nutrient-based standards on pages 59-69, and the recommendations on pages 10-12 can be downloaded from [www.cwt.org.uk](http://www.cwt.org.uk) or [www.heartforum.org.uk](http://www.heartforum.org.uk)*

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This report is dedicated to Maggie Sanderson (1946-2003), formerly Chair of the Caroline Walker Trust and Treasurer of the National Heart Forum, who believed passionately in the need for better school meals.

Missed by her family, colleagues and many friends.

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Professor Richard Watt

# Foreword

Every nation has a duty to maintain and protect the health of its children and young people – its next generation of citizens. Children need to eat well to protect their health now and throughout their lives. The Caroline Walker Trust (CWT), set up to improve public health through good food in 1987, produced its first Expert Report *Nutritional Guidelines for School Meals*<sup>1</sup> in 1992, and this has been widely used as the definitive document for nutrient-based standards for school meals. The recommendations in that report were based on the strong evidence put forward linking poor diet to illness and disease and the strong rationale showing that eating well in school could play a major part in protecting the nation's health. A whole generation of school children have completed their education since these recommendations were first made – and, despite the tragedy of this missed opportunity to benefit those young people who will soon become parents themselves, it does appear that the links between poor diet and illness are finally being given the public health recognition that CWT has campaigned for.

Both CWT and the National Heart Forum (NHF) strongly advocate the promotion of advice and guidance to all those who have the ability to influence and support eating well among the population. CWT has provided practical and nutritional guidelines on eating well for a number of population groups including under-5s in childcare,<sup>2</sup> looked after children and young people,<sup>3</sup> and older people.<sup>4</sup> The NHF has produced an extensive body of work looking at ways of preventing coronary heart disease, including recent work on children and young people's health, nutrition and activity – *Towards a Generation Free from Coronary Heart Disease*,<sup>5</sup> *Nutrition and Food Poverty*<sup>6</sup> and *Let's Get Moving!*<sup>7</sup>

In this latest report, CWT and NHF have joined forces to produce a detailed, evidenced-based summary of the factors associated with eating well in school, and have updated the 1992 nutrient-based standards to reflect new scientific evidence and advice. This report goes further than the original 1992 publication as it looks at food and drinks in school throughout the whole school day and brings the arguments for an improved school food system up to date.

The inspiration to update this report came after the tragic and untimely death of Maggie Sanderson, who had campaigned tirelessly in her role both as CWT Chair and Trustee and NHF Treasurer to improve food in schools. Maggie Sanderson chaired the Expert Working Group which produced the original 1992 report on school meals for CWT,

and fought hard for nutrient-based standards during the reassessment of school meal guidance in 2001. She would have been very excited to see the progress that is now finally being made in the UK in this area, and this report is dedicated to her.

We would like to thank the Expert Working Group and the observers for their time, advice, guidance and expertise in the preparation of this report. Particular thanks go to Professor Annie Anderson who chaired the Expert Working Group. We would like to give a special mention to Dr Jenny Woolfe who has acted as observer on behalf of the Food Standards Agency for no fewer than three CWT reports and whose input has always been extremely welcome. We wish you a long and happy retirement. We would also like to thank Dr Helen Crawley, Jane Landon and Rosie Leyden for their work in writing, editing and preparing this report and the Trustees and staff at CWT and NHF for their input and support.

We hope that *Eating Well at School* will be as well used as its predecessor and that it will, like other reports from CWT and NHF, provide a source of expert information and advice on eating well which will be of value to all those with an interest in encouraging and supporting children and young people to eat well.

**Joe Harvey**  
Chair, Caroline Walker Trust

**Sir Alexander Macara**  
Chairman, National  
Heart Forum

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# Summary and recommendations

## Summary

### Why we need nutrient-based standards

On average a total of nearly 3<sup>1</sup>/<sub>2</sub> million meals are served in school every day in England and Wales, with 45% of children and young people in schools using the school meals service.<sup>1</sup> In England, 16.8% of primary school children and 14.5% of secondary school children were entitled to free school meals in 2004, as were 19.4% and 16.8% of Welsh primary and secondary school pupils respectively.<sup>1</sup>

Evidence collected in 2004 by the Food Standards Agency (FSA) and the Department for Education and Skills of catering practices and food provision in 79 secondary schools in England has shown that the current national nutritional standards are failing to encourage children to select combinations of foods that contribute to a healthy diet.<sup>2</sup>

Since the first Caroline Walker Trust (CWT) school meal guidelines were published in 1992,<sup>3</sup> the number of school-aged children in England and Wales who are overweight or obese has doubled<sup>4</sup> and evidence from the National Diet and Nutrition Survey of young people aged 4-18 years published in 2000<sup>5</sup> suggests that:

- For many children, intakes of saturated fats and sugars are high, and intakes of vitamin A, riboflavin, folate, zinc, iron, magnesium, calcium, potassium and iodine are often low, compared with reference nutrient intakes. (For an explanation of reference nutrient intakes, see page 59.)
- Children are eating less than half the recommended 5 portions of fruit and vegetables a day, and 20% of 4-18 year-olds surveyed ate no fruit at all in an average week.
- Fifty-eight per cent of 7-10 year olds and 78% of 15-18 year olds are largely inactive, spending less than an hour a day participating in activities of moderate intensity.

### The benefits of nutritionally balanced school food

Improving the nutritional quality of school food supports policies across government to improve children's health, education and well-being, to tackle the burden of chronic disease, and to reduce inequalities. More nutritious school food could help to reduce diet-related health problems such as obesity, cancer, coronary heart disease and diabetes – diseases which are estimated to cost the NHS some £4 billion annually.<sup>6</sup>

Improving the health and nutrition of school-aged children remains a priority and is increasingly urgent: the health implications of poor food provision in school highlighted by CWT in 1992<sup>3</sup> are sadly manifest in the current school-aged population. While CWT and NHF welcome the Government's new commitment to improving food in schools in England and Wales,<sup>7</sup> there remains a need for clear, independent advice on food in schools and continued campaigning for standards that are both nutrient-based and food-based, detailed monitoring of their implementation and effectiveness, and partnership working throughout the education system to promote eating well.

## Recommendations

### Food policy

- The nutrient-based standards on pages 59-69 of this report should become compulsory for all school-aged children in England and Wales.
- Government departments should include reference to the nutrient-based standards in regulations and guidance to all those involved in the school meals service.
- Government should require the nutrient-based standards to be included in the school inspection process.
- Targets should be set locally to increase the number of children and young people eating school lunches, in order to increase the viability of the school meals service and encourage a greater number of school children to eat well. Overall targets should aim to get 95% of primary school children and 75% of secondary school children eating in school.
- Local education authorities and schools should draw up specifications for school meal tenders in line with the nutrient-based standards in this report. The Department for Education and Skills should provide a model template for this specification.
- Caterers, local education authority purchasing consortia and the Department for Education and Skills should cooperate to develop compulsory nutritional specifications (compositional standards) for all major commodities and foods used in schools.
- The cost of school meals needs to be addressed by both purchasers and providers. The uptake of meals will depend to some extent on price as well as quality, and consideration should be given to meal-pricing policies and subsidies. In some areas free school meals for all pupils could be a cost-effective public health initiative.
- The amount of money spent on food ingredients for school lunches should be adequate to achieve the recommendations in this report, and commitment should be made to increase this in line with inflation. It is unlikely that providers can meet the nutrient-based standards if they spend less than 70p on ingredients per pupil in primary schools, and 80p per pupil in secondary schools (2005 prices). These amounts should be kept under regular review.
- Local education authorities across England and Wales should agree on a standard amount of money per meal to be delegated to schools for free school meals. That amount should reflect the average amount required to supply a good-quality two-course meal and a drink and should be universally implemented across all local education authorities.

- All those responsible for food procurement should develop links with local sustainable food suppliers and set targets for the amount of locally sourced food, and organically grown food, that will be included in school meals.

- Schools and local education authorities should ensure that adequate resources are available for appropriate kitchen tools and equipment to enable catering staff to provide food that meets the nutrient-based standards.

### Training and support

- Local authorities should provide training and information to all relevant staff to enable them to use the nutrient-based standards effectively.
- Training programmes are needed for school meal providers to ensure that they understand the links between food and health, the marketing techniques needed to encourage the choice of healthy meals and the practical preparation methods which will allow the standards to be implemented.
- All catering staff should receive training on good nutrition and menu planning. This could be part of their skills development plan. Local authorities and other providers should ensure that this training takes place at local level and is also made available to managers, inspectors and other relevant staff.
- Teachers and support staff should be trained to enable all children and young people to acquire information on healthy eating, and practical experience in cooking, budgeting for food, shopping, menu planning, and food storage and handling during their school career.
- A CD-ROM or Internet resource should be produced for all local education authorities and schools to help relevant staff produce nutritionally balanced menus. This resource should also be a means for children and young people to learn more about good nutrition.

### School lunches

- The foods and drinks on offer in schools should be restricted to those which will make a positive contribution to the nutrient needs of children and young people in line with the recommendations in this report.
- Schools should increase the uptake of free school meals by investing in cashless school meal payment systems ('smart' cards) that remove any stigma attached to free school meals.
- Where the school provides a packed lunch as its school lunch choice – for example, where there is no kitchen or hot meal provision – the packed lunch offered should meet the nutrient-based standards for school lunches given on pages 59-69.

■ Schools should provide guidance to parents on appropriate packed lunches. A packed lunch should contain:

- a starchy food such as bread
- a meat, fish or alternative, such as cheese or egg,

and

- at least one portion of fruit and one portion of vegetables.

Soft drinks, confectionery, high-fat, high-salt and high-sugar foods should be restricted in packed lunches.

■ Schools should aim to make the dining rooms for children and young people pleasant spaces which encourage them to remain on the school premises.

### Breakfast clubs

■ Schools which offer breakfast clubs should only offer choices which meet the nutrient-based standards for breakfast given in this report.

### Tuck shops and vending machines

■ Schools should ensure that all food and drink sold in tuck shops and vending machines fits into the whole-school food policy. Restrictions should be placed on sales of foods and drinks that are high in fat, sugar or salt.

### Drinks

■ Children and young people should be encouraged to drink water, and free, fresh, chilled water should be widely available in all schools. Schools may wish to allow children and young people to carry their own water bottles throughout the day and should provide facilities for them to refill their bottles.

■ Milk is an excellent source of nutrients, particularly calcium. Semi-skimmed or skimmed milk can be encouraged as a drink between meals and schools should be encouraged to look at innovative ways to offer milk to children and young people in schools.

■ Free school milk should be considered as an option by local authorities.

### After-school care

■ After-school clubs should ensure that the food and drink they provide meet the nutrient-based standards given in this report.

### All-day food provision

■ Where children receive the majority of their food and drink in school – including at breakfast club, school lunch

and in after-school care – there should be coordination and partnership working between providers in order to ensure that the food and drinks provided over the whole day meet the nutrient-based standards.

### Vegetarianism

■ Schools should ensure that the needs of those on vegetarian diets are adequately and appropriately met and that vegetarian options are as varied as possible. Food provided for children and young people who eat only vegetarian menu options should meet the nutrient-based standards.

### Special diets

■ Foods that meet the needs of those with special dietary requirements should be on offer.

### Food for all

■ Foods that are appropriate to the cultural and religious needs of the school population should be on offer.

### Influencing choice among children and young people through marketing and education

■ Appropriate marketing and presentation of food to make it attractive to children and young people are essential.

■ Pricing policies and organisation of the food service should encourage the uptake of healthier options.

■ The weekly menu should be prominently displayed in schools. Software allowing children and young people to look at menus and compare their choices with the standards in this report should be developed.

■ Advertising the school meal service to parents and children is an important part of the marketing strategy.

■ Partnership working between those involved in classroom education and those providing food in schools is important to ensure that food offered in schools is consistent with and reinforces classroom messages about eating well.

### Monitoring school meal provision

■ Communication between children and young people and caterers about food in schools is essential. Asking children and young people their views on food and food-related issues should be a compulsory part of the feedback mechanism for monitoring the standards.

■ Regular monitoring of school meals provision is essential and should be included in all contracts.

■ Caterers, local education authorities and the Department

for Education and Skills should cooperate to develop a set of tools, including menu planning software, to facilitate the monitoring of standards for school meals.

- Governing bodies and school boards should require an annual report on the provision and uptake of school meals and other food made available in schools.

### Promoting activity and healthy body weight

- Schools have a primary role in facilitating physical activity among children and young people. Physical activity can enhance quality of life and self-esteem, help children and young people avoid becoming overweight and, for underweight children and young people, stimulate appetite.

- Schools should promote healthy body weight and body image among children and young people by providing an environment in which they have the opportunity to eat healthy food and where the play and exercise they enjoy are actively enabled and encouraged.

- Schools should have clear policies about bullying related to body size and shape, and should be sensitive to this among children who are overweight.

### Linking food and nutrition into the whole-school environment

- Every school should adopt and implement a whole-school food policy which covers both the teaching of nutrition and the provision of food within the school environment throughout the day, including breakfast, breaks, lunch and after-school provision.

- Governing bodies should nominate an individual governor with responsibility for food in schools and for the implementation and monitoring of the whole-school food policy.

- Schools should not advertise branded food and drink products on school premises, school equipment or on books and should ensure that any collaborations with business do not require endorsement of brands or specific company products.

- Children and young people should have the opportunity to give their opinions and take an active part in decision-making about school food through school councils or school nutrition action groups.

- The national curriculum should ensure that all young people receive adequate and consistent information about eating well and a chance to learn practical cooking skills, up to the age of 16 years.

- Schools should ensure that all young people acquire knowledge, skills and practical experience in food and

nutrition during their school career, so that they are better able to eat well when they become independent.

- Children and young people should be encouraged to grow food and visit farmers, suppliers and manufacturers in order to improve their understanding of the connections between food, health and the environment.

### The role of school staff

- Schools and all the staff within them should be aware that they act as important sources of information and advice and as influential role models for children and young people. Staff should provide a positive role model for children and young people, for example in the snacks and drinks they choose for themselves, and in their own attitudes to food and eating and to the importance of physical activity.

- School staff should sit with children and young people at mealtimes, choose from the same food selection as them, and encourage appropriate social skills at table, to help young people develop confidence in eating with other people.

- All school and catering staff should be aware of the needs of different cultural groups, and of the needs of individual children and young people.

- School staff who are concerned that a child or young person is not growing adequately or not eating during school time should inform the school nurse.

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- 7 Department of Health. 2005. *Delivering Choosing Health*. London: Department of Health.

# Introduction

## Aims of this report

The aims of this report are:

- To provide clear, evidence-based information about the relationship between good nutrition, physical activity and health and development for children and young people
- To provide nutrient-based standards and practical guidelines to enable all those with responsibility for providing food for children and young people in school to develop suitable menus and offer food and drinks in school which achieve good nutritional balance and variety
- To encourage schools to develop and implement food policies which include a whole-school approach to promoting better nutrition
- To act as a resource document for all those who are interested in improving nutrition for children and young people through schools.

## Who the report is for

The information in this report is aimed at anyone in the UK who wishes to make improvements to school food. Reference is frequently made to England and Wales for simplicity of reporting. The important work that has already been undertaken in Scotland on improving school meals, through the Hungry for Success programme,<sup>1</sup> is acknowledged throughout this report.

This report has been written for:

- Caterers, food service managers and other staff working in local authority departments or with private catering providers, head teachers and bursars who are responsible for:
  - menu planning in schools
  - staff recruitment and staff training
  - food purchasing and procurement
  - preparation and service of food in schools
- Local authority education departments, teachers, school governors, school nurses and support staff in schools who want more information on how to promote eating well in schools
- Parents, parent teacher organisations and other voluntary groups who support eating well in schools
- Health professionals who are asked for advice on helping schools or groups of schools to improve their food service
- MPs, non-governmental organisations, journalists and all those who would like to know about the importance of good nutrition among children and young people
- Ministers and civil servants who are responsible for the policies which govern the standards of food served to children and young people in schools.

## How to find your way around the report

**Chapter 1** gives background information about school meals in the UK and explains why updated nutrient-based standards are needed.

**Chapter 2** gives background information about energy (calories) and individual nutrients (carbohydrates, fat, protein, fibre, vitamins and minerals) – explaining why they are needed and which foods and drinks they are found in. It also examines how children's and young people's current intakes of each nutrient compare with government recommendations.

**Chapter 3** examines some of the nutrition and health issues that are particularly important for children and young people.

**Chapter 4** examines eating and drinking in school throughout the school day, whole-school food policies and nutrition in the curriculum.

**Chapter 5** gives the nutrient-based standards for food served in schools for children and young people having breakfast, lunch and after-school care.

**Chapter 6** suggests how the nutrient-based standards for school food should be implemented and monitored.

The **Appendices** give information on: the food-based standards for school meals for England and Wales current at the time of publication of this report (2005); the dietary reference values for children and young people in the UK and the derived amounts for nutrients used in this report; good sources of nutrients; food customs of different religious and cultural groups; and sources of help and advice on eating well.

## References

- 1 Scottish Executive. 2003. *Hungry for Success. A Whole School Approach to School Meals in Scotland*. Edinburgh: Scottish Executive. Accessed from: [www.scotland.gov.uk/hungryforsuccess](http://www.scotland.gov.uk/hungryforsuccess)

# Chapter 1

## Why we need nutrient-based standards for school food

### Current school meal provision

On average a total of nearly 3<sup>1</sup>/<sub>2</sub> million meals are served in school every day in England and Wales, with 45% of children and young people in schools using the school meals service.<sup>1</sup> In England, 16.8% of primary school children and 14.5% of secondary school children were entitled to free school meals in 2004, as were 19.4% and 16.8% of Welsh primary and secondary school pupils respectively.<sup>1</sup> In England, 69% of the catering contracts in primary schools and 60% in secondary schools are operated by the local authority's Direct Service Organisations (DSOs). In Wales over 95% of catering services in all schools are operated by DSOs. In England approximately a quarter of catering services are operated by the larger private contract caterers, with the remainder run by other smaller operators or being self-operated.

A study of the impact of delegation of school meal funding in a sample of 12 local education authorities, commissioned by the Department for Education and Skills in 2003, found that delegation had encouraged some schools to negotiate the supply of healthier meals, finding new suppliers or in-house services to offer meals that exceeded the statutory nutritional standards.<sup>2</sup> On the other hand, the increased emphasis on the commercial viability of meal services in individual schools had resulted in some offering popular, but not necessarily nutritionally well-balanced meals. In schools where the response to delegation had been to raise prices, this was found to have had serious implications for the take-up of meals and sometimes discouraged schools from improving the uptake of free meals for eligible pupils.

The public sector union, Unison, reported in 2002 that the cost of school meals was rising above the rate of inflation as more and more services were being taken over by private companies.<sup>3</sup> Between 1995 and 2001, the cost of school lunches went up by 5.6% in primary schools, 3.9% in middle schools and 3.6% in secondary schools, compared with a 1.7% rise in inflation for food and wages in the food service sector. In the survey, which covered 83% of LEAs in England, Wales and Scotland, prices for a primary school lunch varied between 95p and £1.65. Another study has reported that while an average school meal costs parents £1.56, as little as

35p of that is the amount allocated per child to the actual food costs for a two-course primary school meal.<sup>4</sup> The same study also suggested that at least 70p per pupil per day is needed for truly nutritious school meals.

In the absence of formal, regular monitoring of current school lunch provision, it is difficult to get an accurate overall picture of the quality and take-up of food in school. However, recent surveys conducted since the introduction of food-based nutritional standards suggest that provision – in terms of quality and cost – is extremely variable, and highly dependent on the commitment of individual LEAs, schools and catering companies.

### What do we know about current food choice in school?

Evidence collected in 2004 by the Food Standards Agency and the Department for Education and Skills of catering practices and food provision in 79 secondary schools in England has shown that the current national nutritional standards, coupled with the present model of food service and the provision of set meals that do not have to meet clearly defined nutritional requirements, are failing to encourage children to select combinations of foods that contribute to a healthy diet.<sup>5</sup> Other key findings included the following:

- Eighty-three per cent of school meals services met the standards at the beginning of the lunchtime period but only 47% by the end.
- Many schools followed some healthier catering practices (eg. grilling instead of frying), but other examples of good practice (eg. restricting access to salt) were rare.
- Only one quarter of staff had received training relating to healthy catering in the 12 months prior to the survey.
- The specifications currently operating in schools were ineffective for assuring that healthier choices were available and promoted to schoolchildren at lunchtime. Documentation failed to set tight standards, or to define

Continued on page 18



## The history of school food in the UK

### 1864

The origins of the school meal service can be traced back to the work of charities in the mid-19th century. The Destitute Children's Dinner Society was founded in 1864 and by the end of the decade had established 58 dining rooms in London. Other charities followed suit.

### 1880

Compulsory education began in Britain in 1880 and brought to light the problem of underfed children. By the turn of the century, many schools were already providing some food for the many pupils who were unable to go home at midday. Provision at this time tended to be regarded as the responsibility of the school rather than the local education authority (LEA).

### 1906

Public concern was not widely stirred until 1904 with the disclosure of severe malnutrition in recruits for the Boer War in South Africa. The Inter-Departmental Committee on Physical Deterioration led eventually to the Education (Provision of Meals) Act in 1906.

### 1941

The first nutritional standards for school meals were set in 1941. These laid down that, in principle, a school dinner should provide a child with 1,000kcal, 20-25 grams of first class protein, and 30 grams of fat (in all forms).

### 1944-1947

The Education Act (1944) made it a duty of all LEAs to provide school meals for those who wanted them and, for the next 20 years, LEAs became the agents of central Government in providing a standard meal at a set price. From 1947 the full net cost of school meals was met by the Government. Free milk, supplied to needy school children since 1934, became available to all school children in 1946. By the end of the second World War the school meals service had become a general service for all children, with government grants to LEAs covering 95% of the cost of providing the meals.

### 1950

The principle of a standard charge for the school meal was introduced in 1950, with remission arrangements for those unable to pay.

### 1955

The nutritional standards were updated in 1955 to recommend that the school meal should provide:

- 650-1,000kcal, depending on the age and sex of the child
- 20 grams of protein of animal origin, on average
- 25-30 grams of fat in all forms.

### 1967

Full financial responsibility for the school meal service passed to LEAs with the introduction of the Rate Support Grant in 1967. This resulted in loss of central control and enabled LEAs to exercise greater discretion over the meals provided and the pricing policy.

### 1980

The Education Act (1980) removed the obligation on LEAs to provide school meals, except for children entitled to free school meals. The Act also removed the obligation for meals to be sold at a fixed price, and for them to meet any nutritional standards. Free milk provision was made discretionary rather than obligatory. In Scotland, similar provisions were made under the 1980 Education (Scotland) Act.

### 1986

The Social Security Act (1986) limited the right to free school meals (and free milk) to those children whose parents received income support (previously supplementary benefit). Children in families receiving family credit (previously family income support for low-income families) were no longer eligible, but the family was entitled to a cash amount to compensate for the loss of the free school meal. The power of LEAs to remit the whole or part of the normal charge of school meals was also abolished.

### 1988

The Local Government Act (1988) introduced compulsory competitive tendering, obliging all LEAs to put school meals services out to tender.

### 1992

The Caroline Walker Trust convened an Expert Working Group to publish nutritional guidelines for school meals<sup>6</sup> based on the dietary recommendations agreed by the Committee on Medical Aspects of Food Policy in its report on dietary reference values, published in 1991.<sup>7</sup>

### 1999

The Education and Employment select committee published a report of its inquiry into school meals, recommending the introduction of quantified nutrient-based standards for school meals (based on the CWT guidelines for school meals) to be monitored by Ofsted as part of its inspection remit.

The National Healthy Schools Programme was launched in 1999 by the Department for Education and Skills and the Department of Health to reduce health inequalities in school, promote social inclusion and raise school standards. All schools are expected to achieve healthy school status by 2009.

**2000**

Funding for school meals was delegated to all secondary schools. Primary and special schools were given the right to opt for delegation. The governing body of a school with a delegated budget takes responsibility for the provision of school meals.

In England and Wales, the Compulsory Competitive Tendering framework for public service procurement (which had operated since the 1980s) was replaced by Best Value.

The NHS Plan for investment and reform of the health services included a government commitment to introduce a National School Fruit Scheme (by 2004) giving every child in nursery and infant school a free piece of fruit each school day. A similar scheme was subsequently introduced in Scotland which provides one piece of fruit three times a week for all children in primary years 1 and 2.

**2001**

Minimum nutritional standards for school lunches were reintroduced in England under The Education (Nutritional Standards for School Lunches) Regulations 2000. Standards were introduced in Wales under equivalent regulations. Responsibility for ensuring that the compulsory standards were met rests with the school governing body. At the same time, a duty was placed on LEAs and governing bodies to offer meals where parents requested them. In Northern Ireland, the Department of Education introduced guidelines for school meals based on the main food groups.

**2002**

The Education Act 2002 amended free school lunch eligibility criteria to include pupils whose parents are in receipt of income support, income-based jobseeker's allowance or support under the Immigration and Asylum Act (1999), as well as those whose parents receive Child Tax Credit (provided they are not entitled to Working Tax Credit and have an annual income that does not exceed a specified amount – see page 46 in chapter 4).

The Scottish Executive convened an expert panel on school meals. The panel made a series of recommendations to improve the quality and take-up of school meals in Scotland in its report *Hungry for Success – A Whole School Approach to School Meals in Scotland*.<sup>8</sup> These included the introduction of new Scottish nutrient standards for school lunches for all special and primary schools by 2004 and all secondary schools by 2006.

**2003**

The Soil Association launched *Food for Life* – a campaign to improve school meals by the introduction of quantified standards as well as more locally sourced and organic foods.<sup>9</sup>

The Welsh Assembly government passed legislation to provide free breakfasts for all primary pupils throughout Wales by 2006.<sup>10</sup>

**2004**

The Department for Education and Skills, the Department of Health, the Food Standards Agency and the Department for Environment, Food and Rural Affairs published the *Healthy Living Blueprint for Schools*.<sup>11</sup> This included a proposed review of the nutritional standards for school meals, inclusion of more nutrition teaching in the curriculum, and increasing physical activity in the school timetable. The Government's five-year education plan, also announced in 2004, proposed to extend the school day in all primary schools to 8am to 6pm to allow parental flexibility with work.<sup>12</sup>

The Department of Health published *Choosing Health*, its white paper outlining the future public health agenda. In this report the department made a firm commitment to revise primary and secondary school meal standards to reduce the consumption of fat, salt and sugar and to increase the consumption of fruit and vegetables and other essential nutrients.<sup>13</sup> The department also committed to strongly considering introducing nutrient-based standards and extending new standards to cover food served in school across the school day.

**2005**

The Department for Education and Skills announced a number of measures to improve food in schools including training school catering staff in healthy eating, the inclusion of school food in the Ofsted inspection programme, and the development of standards for processed foods used in school meals.<sup>14</sup>

The Department of Health published *Delivering Choosing Health* in March 2005.<sup>15</sup> This made a commitment to bring into force new statutory requirements for primary and secondary school meals by 2006. Additional commitments were made to bring in guidance on food across the school day subject to legislation, to provide guidance on food procurement and nutritional specification of foods, and to offer training for school caterers. Additional commitments were made for Ofsted to inspect food in school, for the setting up of an independent School Food Trust to advise parents and schools, guidance for governors about their responsibilities regarding school food, and a strengthening of the Healthy Schools programme.

In April 2005, the Department of Health launched the Food in Schools programme to assist schools across England in implementing a whole-school approach to healthy eating and drinking, including advice and resources on breakfast clubs, packed lunches, vending and tuck shops, dining rooms, cooking clubs, growing clubs and water provision.<sup>16</sup>

tools and processes for monitoring these standards.

- None of the set meals met all of the Caroline Walker Trust (CWT) nutritional guidelines for school meals.
- There appeared to have been no improvement in the profile of nutrient intake from school meals following the introduction of the national nutritional standards in 2001.

An observation study conducted by FSA Wales in schools in Wales<sup>17</sup> comparing food availability and food choices of pupils before and after the introduction of nutritional standards drew similar conclusions:

- Without constraints on the number of days chips were served, over half of all secondary school meal selections included chips, and many meals consisted of chips alone.
- Despite increases in the availability and variety of vegetable portions following the introduction of nutritional standards, patterns of consumption were remarkably unchanged. For example, just 2% of pupils in secondary schools and 30% in primary schools chose vegetables.

A smaller survey published by the Consumers Association in 2003 looked quantitatively at food consumed at school lunch over two days by a randomly selected group of 59 primary school age children and 53 secondary school age children from throughout England.<sup>18</sup> The primary and secondary school meals provided substantially less energy, carbohydrate, fibre, iron, calcium, folate and vitamin A than the CWT nutritional guidelines published in 1992.<sup>6</sup> About a half of primary boys and a third of primary girls had low vitamin C intakes from school lunch and among secondary school children protein intakes were insufficient for more than a half of the sample. Fruit and vegetable intakes at lunch were also low, with 30% of primary school boys and 21% of primary school girls having no fruit and vegetables at lunch, increasing to over 80% of secondary school boys and 56% of secondary school girls.

A report by the Food Standards Agency (FSA) and Ofsted on 25 nurseries, infant and primary schools in 2004 indicates that, while many are effective in delivering nutrition education, this is not always successfully translated into practice when deciding what meals and snacks are provided.<sup>19</sup> Compulsory nutritional standards were not being implemented properly in the primary schools observed because some schools were not offering enough portions of the healthier options and these were often sold out before children at the end of the lunch queue had been served.

## What do we know about other food service in schools?

The Local Authority Caterers Association (LACA) 2004 school meals survey reported an increasing trend for an ‘all day’ school catering service offering breakfast, mid-morning snacks, lunch and an after-school tea or supper.<sup>1</sup> Although just 6% of secondary schools in England and less than 10% of those in Wales are offering an after-school supper service at present, it is suggested that this is likely to increase. LACA also reported that breakfast is offered in 46% of English and 50% of Welsh secondary schools but only in 10% of English and 5% of Welsh primary schools (although this will change in 2006 when all primary school children in Wales will be offered a free breakfast). Little evidence is currently available on the food choices children and young people make at breakfast and after-school tea or supper and how this may impact on their overall nutritional status.

## The benefits of nutritionally balanced school meals

Improving the nutritional quality of school food supports policies across government to improve children’s health, education and well-being, to tackle the burden of chronic disease, and to reduce inequalities. More nutritious school food could help to reduce diet-related health problems such as obesity, cancer, coronary heart disease and diabetes – diseases which are estimated to cost the NHS some £4 billion annually.<sup>4</sup>

The potential for school meals to build health in children cannot be underestimated, especially in children from disadvantaged families. In addition to the immediate impacts on healthy growth and development, nutritious and enjoyable school meals can encourage healthy eating habits and understanding about food and health which children can carry into adult life. As part of its *young@heart* initiative to tackle the early origins of coronary heart disease, the National Heart Forum called for school meal providers to adopt minimum national standards for both the quality of and expenditure on school meals.<sup>20</sup> The Acheson report to Government on inequalities in health argued for ‘reasonable nutritional standards’ for school lunches as part of an attempt to redress inequalities in diet, such as fruit and vegetable consumption.<sup>21</sup>

Anecdotal evidence from individual schools supports a link between children who are well fed and improvements in attendance, concentration and attainment. In addition, improved school meals and eating environments improve social skills and conversation skills among children.<sup>22</sup>

## The need for revision and extension of the 1992 Caroline Walker Trust nutritional guidelines for school meals

The CWT nutritional guidelines for school meals published in 1992<sup>6</sup> provided clear recommendations for the nutritional content of school meals based on the best scientific evidence available at that time. While the Government included these standards as guidance when introducing nutritional standards for school meals in 2001, CWT and NHF remain convinced that compulsory nutrient-based standards are essential for the provision and monitoring of better food in schools.

While there has been no comprehensive review of dietary reference values in the UK since they were published in 1991, more recent evidence about the nutritional status of children and young people makes the updating of the CWT guidelines timely. New recommendations on salt intakes among children and young people have also been published,<sup>23</sup> allowing the introduction of recommendations to reduce salt intake from school meals. Since the first CWT school meal guidelines were published in 1992, the number of school-aged children in England and Wales who are overweight or obese has doubled<sup>13</sup> and evidence from the National Diet and Nutrition Survey of young people in Britain aged 4-18 years, published in 2000,<sup>24</sup> suggests that:

- For many children, intakes of saturated fats and sugars are high, and intakes of vitamin A, riboflavin, folate, zinc, iron, magnesium, calcium, potassium and iodine are often low, compared with reference nutrient intakes. (For an explanation of reference nutrient intakes, see page 59.)
- Children are eating less than half the recommended 5 portions of fruit and vegetables a day, and 20% of 4-18 year-olds surveyed ate no fruit at all in an average week.
- Fifty-eight per cent of 7-10 year olds and 78% of 15-18 year olds are largely inactive, spending less than an hour a day participating in activities of moderate intensity.

Improving the health and nutrition of school-aged children remains a priority and is increasingly urgent: the health implications of poor food provision in school highlighted by CWT in 1992 are sadly manifest in the current school-aged population. While CWT and NHF welcome the Government's new commitment to improving food in schools in England and Wales,<sup>15</sup> there remains a need for clear, independent advice on food in schools and continued campaigning for standards that are both nutrient-based and food-based, detailed monitoring of their implementation and effectiveness, and partnership working throughout the education system to promote eating well. *Hungry for Success* in Scotland<sup>8</sup> committed £63 million over three years,

£9.6 million of which was for improving food standards. It has been suggested that to make similar improvements in England and Wales will require an investment of about £230 million per year.<sup>25</sup> The cost of unhealthy eating in schools in terms of long-term ill health would however make this investment good value.

This report aims to provide clear guidance on the nutrient-based standards that schools should aim to achieve for food in schools at lunch, breakfast and after-school provision.

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## Chapter 2

# Food and nutrition for children and young people

This chapter provides information on the importance of good food, nutrition and physical activity for children and young people between the ages of 5 and 18 years. Children and young people of school age will eat a considerable proportion of their total food intake in school during their academic career and this can have a significant impact on their overall nutrient intake.

Nutrient-based standards for groups of people discussed in this report are expressed as the amounts of energy (calories) and nutrients, and in terms of some particular foods that are needed for good health. The term 'nutrients' includes:

- fat
- protein
- carbohydrates
- vitamins, and
- minerals.

Most foods contain a variety of nutrients so it is the balance of different foods within a person's eating pattern which determines whether the recommendations for 'healthy eating' are met. It is important for everyone to have a diet that contains a variety of foods if they are to obtain all the nutrients their bodies need.

### Eating well for under-5s

Specific information and recommendations on healthy eating for infants (under 1 year) and for children aged 1-5 years have been published in the Caroline Walker Trust report *Eating Well for Under-5s in Child Care*.<sup>1</sup> There are some differences in the recommendations made for younger children compared with those aged over 5 years, as young children have a particular requirement for diets which are nutrient-dense. Those caring and catering for younger children are strongly encouraged to read *Eating Well for Under-5s in Child Care*.

The Caroline Walker Trust has also produced:

- *Eating Well for Under-5s in Child Care Training Materials*,<sup>2</sup> a training manual with information about good nutrition for under-5s in child care, as well as practical ideas for putting the theory into practice. The training materials can be used either by trainers or by individuals who work with under-5s in child care.
- *CHOMP Menu Planner*,<sup>3</sup> a computer program to help plan menus which meet the nutritional guidelines for under-5s in child care.

All of these materials are available from CWT, 22 Kindersley Way, Abbots Langley, Herts WD5 0DQ. For more information see the Caroline Walker Trust website at [www.cwt.org.uk](http://www.cwt.org.uk).

## Energy (calories)

### Why we need energy

We all need energy to function and be active. The body gets energy from fat, carbohydrate and protein (and also from alcohol), but most energy needs are met by fat and carbohydrate.

Children and young people also need energy for growth and development.

Energy is measured in kilocalories (kcal) or kilojoules (kJ). 1kcal equals approximately 4.2kJ and 1,000kcal equals approximately 4.2MJ.

### How much energy do children and young people need?

The average amounts of energy that groups of children and young people of different ages and activity levels are likely to need in a whole day are summarised below.<sup>5</sup> The energy requirements of any one child will vary depending on their size, rate of growth and activity level and the values outlined are therefore only representative of average groups of children in each age group.

Age	Average energy requirements in kcal (calories) per day			
	Boys		Girls	
	kcal	MJ	kcal	MJ
4-6 years	1,715	7.16	1,545	6.46
7-10 years	1,970	8.24	1,740	7.28
11-14 years	2,220	9.27	1,845	7.92
15-18 years	2,755	11.51	2,110	8.83

A national study of 4-18 year-olds found that the average daily energy intakes of this age group were below current estimated average requirements.<sup>6</sup> In most age groups the reported energy intakes were about 90% of the estimated average requirement although 15-18 year-old boys reported intakes averaging 83% of estimated average requirements and girls aged 15-18 years 77% of the estimated average requirement. Reported energy intakes from surveys may, however, underestimate intakes.

Although reported energy intakes are lower than the estimated requirements, children and young people may still gain weight if they are eating more calories than their body needs each day. The increasing incidence of overweight among children and young people means that many are consuming more energy than they need. In particular, children and young adults who are inactive (ie. who do very little physical activity) have lower energy needs. (For more information on overweight see page 39.)

### Where does energy (calories) come from?

The nutrients fat, carbohydrate and protein, as well as alcohol, all provide the body with calories. (For more about these nutrients see pages 23-26.) Recommendations for a healthy diet are often expressed as what *proportion* of energy should come from each of those nutrients. The current recommendations are that no more than 35% of total energy should come from fat, and about 50% should come from carbohydrate, with protein providing about 15% of total energy.

The national study mentioned above found that the proportions of total energy from fat, carbohydrate and protein among children aged 4-18 years are broadly in line with these recommendations.<sup>6</sup> However, there are also recommendations for the proportion of total energy that

### The importance of physical activity

The energy we need every day is determined both by a basic level of requirement to keep our bodies functioning (called the Basal Metabolic Rate or BMR) and by the amount of physical activity that we do (for example moving around, walking or exercising). People who are inactive have lower energy needs and will need less food to maintain their body weight. If less food is eaten, it becomes much harder to get all the nutrients needed for good health.

Physical activity is essential for optimal growth and development in children. It is generally agreed that children and young people now are less active than those in previous generations and indirect evidence suggests that energy expenditure in children has been declining for several decades.<sup>4</sup> This has been caused by a number of factors including, for example, the time spent watching television and using computers, and restrictions on children being able to walk to school or play freely outside, for safety reasons.

Overweight is as much a problem of too little activity as of overeating. Obesity in children is difficult to treat, and care must be taken to maintain healthy growth and development. Overweight children and young people should be encouraged to increase their activity levels and eat healthily. Information about strategies to prevent and reduce overweight among children and young people is given in chapter 3.

should come from different types of fat – such as saturated and unsaturated fats. The national study found that, in all age groups, more of the fat in children’s diets was from saturated fatty acids than currently recommended, and less was from monounsaturated fatty acids than recommended.<sup>6</sup> (See *Fat* below.)

Similarly there are recommendations for the different types of carbohydrates, including the proportion of total energy that can come from sugars. In all age groups more carbohydrate was from ‘sugars’ than currently recommended.<sup>6</sup> (See *Carbohydrates* on page 24.)

## Fat

### Fat in the diet

Fat provides the most concentrated form of energy in the diet. It provides 9kcal per gram of fat, compared with 4kcal per gram for protein and carbohydrate.

Fat found in foods can usually be categorised as either:

- **saturated fats**, which are mainly from animal sources, and
- **unsaturated fats**, which are found mainly in plants and fish. The unsaturated fats include monounsaturated fatty acids and a group called polyunsaturated fats.

Some fat in the diet is essential and fat in foods is also associated with the fat-soluble vitamins – vitamins A, D, E and K (see page 27).

**Long chain *n*-3 polyunsaturated fatty acids** (derived primarily from oil-rich fish) are thought to be beneficial for heart health, and increasing the amount of these in the diet has been recommended.

***n*-6 polyunsaturated fatty acids** are found in cereals and grains and the average amount of these in the British diet is thought to be enough.

Concern has been expressed about the balance between *n*-6 and *n*-3 fatty acids in the diet. Increasing the intake of oily fish in the diet is essential if the recommendations to increase the amount of *n*-3 fatty acids in the diet are to be reached (see above).

**Trans fats** are a particular type of fat that is found in some manufactured foods that use hydrogenated oils. The trans fats found in food containing hydrogenated vegetable oil are harmful and have no known nutritional benefits. They raise the type of cholesterol in the blood that increases the risk of coronary heart disease. Some evidence suggests that the effects of these trans fats may be worse than the effect of saturated fats.

### How much fat should there be in children’s and young people’s diets? Are they getting too much?

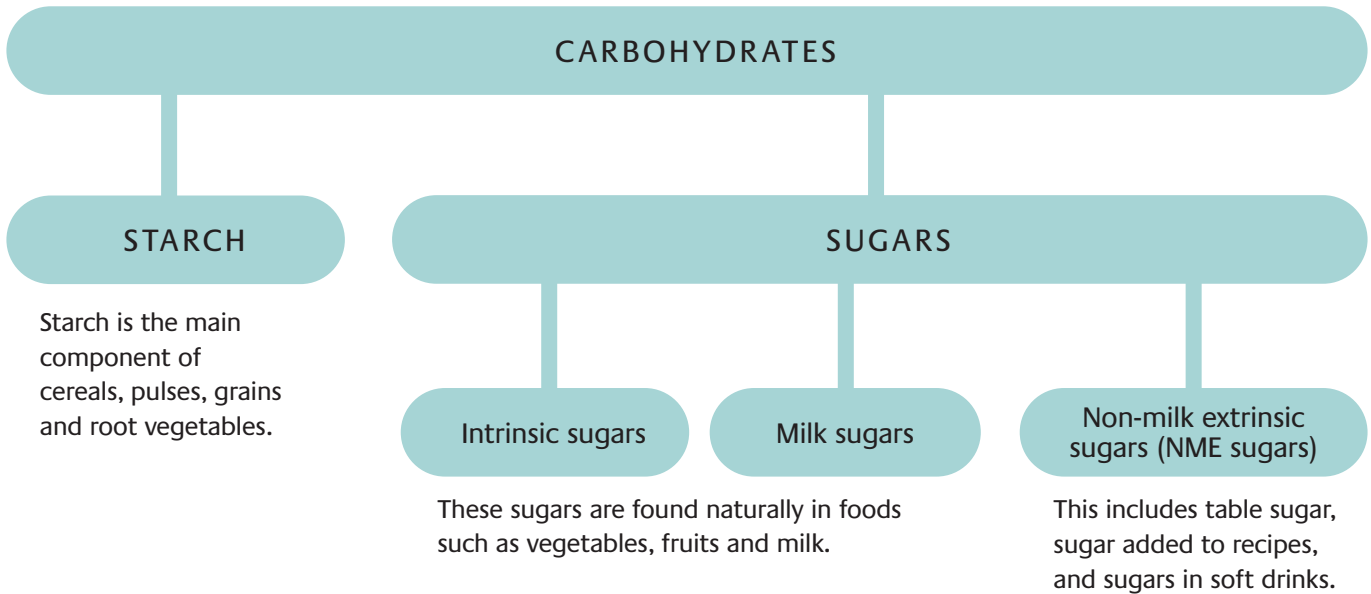
Healthy eating recommendations for those aged over 5 years are that fat should provide no more than 35% of food energy, and that saturated fat should provide no more than 11% of food energy.<sup>7</sup> It is also recommended that intakes of monounsaturated fatty acids are increased to 13% of food energy, that polyunsaturated fats provide no more than 6.5% of food energy and that *n*-3 fatty acid intake increases to about 1.5g per week. This can be achieved by encouraging regular intakes of oily fish and the use of cooking oils high in monounsaturates such as olive oil, soya oil and rapeseed (canola) oil. Trans fats should provide no more than 2% of food energy.

A survey of young people aged 4-18 years in Britain suggests that the total fat intakes in this age group are broadly in line with current recommendations, with an average intake of fat (expressed as a percentage of total energy) of 35.4% for boys and 35.9% for girls<sup>6</sup> compared with a recommendation of no more than 35%. However, saturated fat intakes are higher than recommended (approximately 14% of total energy compared with the recommendation of no more than 11%). The main sources of fat in the diet for the 4-18 year-olds in the survey were: milk and milk products; meat and meat products; and potato products and savoury snacks. Each of these three groups contributed about 20% of the intake of total fat. These groups are also the main contributors to saturated fat intakes. Intakes of trans fats averaged less than 2% of food energy in this survey. However, individuals who eat significant amounts of fast food (such as fried chicken and burgers) and ready-made cakes, biscuits and pastries may have much higher intakes.

High saturated fat intakes among children are associated with raised blood cholesterol levels. Long-term studies have shown that blood cholesterol levels ‘track’ through childhood and adolescence and into adulthood and are a major risk factor for coronary heart disease in later life.<sup>8,9</sup>



# Carbohydrates



Carbohydrates is the term used to describe both starch and sugars in foods. Carbohydrates provide energy.

Starch is the major component of cereals, pulses, grains and root vegetables (for example yam) and tubers (such as potatoes). Most people can visualise starchy foods when they think of flour and potatoes.

The term ‘sugars’ is often assumed to describe something white and granular found in sugar bowls, but in fact the sugars found in foods can be quite variable. In order to clarify the roles of different sugars in health, the sugars in foods have been distinguished as:

- intrinsic sugars
- milk sugars, and
- non-milk extrinsic sugars (or NME sugars).

Intrinsic sugars and milk sugars are the sugars found naturally in foods such as milk, vegetables and fruits. NME sugars include table sugar, sugar added to recipes, honey and syrups. NME sugars are found in foods such as confectionery, cakes, biscuits, soft drinks and fruit drinks and juices.

It is recommended that, for the population as a whole, carbohydrates should provide about 50% of total energy, and that most of this should come from starch and intrinsic sugars and milk sugars.<sup>5</sup> Children and young people do not need NME sugars for energy. They can get *all* the energy they need from other carbohydrate foods.

The national study of 4-18 year-olds in Britain suggests that

children and young people in this age group obtain just over 50% of their total energy from carbohydrate,<sup>6</sup> which is in line with the recommendation. However, a greater proportion of this energy currently comes from NME sugars than is recommended (see the next page).

## Starch, intrinsic sugars and milk sugars

### How much starch, intrinsic sugars and milk sugars do children and young people need? Are they getting enough?

It is currently recommended that starch, intrinsic sugars and milk sugars together should provide about 39% of total energy.<sup>5</sup> The national study of 4-18 year-olds in Britain suggests that this figure is currently closer to 35% of total energy.<sup>6</sup>

#### Sources of starch

Sources of starch include bread, rice, chapatis, pasta, noodles, breakfast cereals, potatoes, yams and plantains.

#### Sources of intrinsic sugars and milk sugars

Sources of intrinsic sugars include fruits (but not fruit juices, see the next page) and vegetables. Milk and dairy products contain milk sugars (lactose).

**Glycaemic index** refers to the speed with which carbohydrate foods increase blood sugars after they are eaten. It is suggested that foods with a low glycaemic index keep you fuller for longer and may be beneficial for people with diabetes and those who are overweight.<sup>10</sup> Many foods which have a low glycaemic index are also high in fibre, such as higher fibre cereals, oats, whole grains, fruits and vegetables (see *Fibre*, below).

## Non-milk extrinsic sugars

### What are non-milk extrinsic sugars?

In the past, sugars were often referred to as ‘added sugars’ or ‘natural sugars’ – terms which many people found confusing. The Government’s advisory panel COMA (Committee on Medical Aspects of Food and Nutrition Policy) defined different sugars in the diet more precisely depending on their effects on health. ‘Non-milk extrinsic sugars’ – or NME sugars – are those which have been extracted from a root, stem or fruit of a plant and are no longer incorporated into the cellular structure of food. NME sugars therefore include table sugar, sugar added to recipes (for example, cakes and biscuits) and sugars found in confectionery, soft drinks and fruit juices. Honey and syrups are also included in this group.

The development of tooth decay is positively related to the amount and particularly the frequency of NME sugars in the diet.<sup>11-13</sup> This is most marked when NME sugar is eaten both at and between meals.

### How much non-milk extrinsic sugar are children and young people getting? Are they getting too much?

The recommendation to reduce the energy in the diet provided by NME sugars is primarily to prevent tooth decay.<sup>5</sup> The other concern is that foods high in NME sugars often provide calories but few other nutrients, and that NME sugars can contribute to the development of obesity. This is particularly true for drinks such as squashes and fizzy drinks, sweets, and also highly sweetened breakfast cereals, biscuits, cakes and sweetened snacks. Growing children need a relatively nutrient-dense diet. If a large proportion of the foods and drinks they consume are high in NME sugars, it may be difficult for them to obtain all the other nutrients they need each day.

Intakes of NME sugars among 4-18 year-olds in Britain have been found to be considerably higher than recommended:

they contribute between 16% and 18% of total energy compared with the recommendation of no more than 11%.<sup>6</sup> Children aged 7-10 years had the highest proportion of total energy from these sugars.

A third of the NME sugars in children’s diets comes from drinks, with fizzy soft drinks providing 17% of NME sugars overall.<sup>6</sup> Among 15-18 year-olds, boys obtained 28% of NME sugars from these drinks, and girls obtained 23%. Sweets and chocolate provide about 20% of NME sugars with about 15% coming from cakes and biscuits. Reducing the intakes of sweetened drinks would considerably reduce the amount of NME sugars consumed by children and particularly by young people.

### Sugar and weight gain

Recently the World Health Organization reviewed the scientific evidence linking diet and nutrition in the development of a range of chronic diseases including overweight and obesity.<sup>14</sup> The expert report concluded that there was convincing evidence that sedentary lifestyles and high intakes of high-fat, high-sugar, micronutrient-poor foods were associated with an increased risk of excess weight gain and obesity. Sugars in drinks have been reported to play a significant role in the development of overweight and obesity in children and young people and consumption of sugary soft drinks has also been positively associated with an increased risk of type 2 diabetes among young women.<sup>15, 16</sup>

For more information about drinks for children and young people see page 50. For information about dental health see page 40.

## Fibre

### Why we need fibre

Fibre (or NSP – non-starch polysaccharides) represents those parts of cereal and vegetable foods which are not broken down in the small intestine and which are particularly important to prevent constipation and other bowel disorders. Some types of NSP are important for lowering blood cholesterol levels.

### How much fibre do children and young people need? Are they getting enough?

No recommendation for fibre intake is made for children. It would seem sensible that children should have proportionally lower intakes compared to adults, for whom the recommendation is 18g a day. A recent study suggests that children aged 4-18 years currently have a fibre intake of between 9g and 13g a day, with intakes increasing with age.<sup>6</sup>

If a child has constipation, this may be alleviated by increasing activity levels, a modest increase in fibre-rich food (particularly fortified high-fibre breakfast cereals, wholemeal bread, and fruit and vegetables), and increasing fluid intakes. It is especially important that adequate fluids are drunk if fibre intakes are increased or if children appear constipated. Raw bran should never be given as it can cause bloating, wind and loss of appetite and affect the absorption of other important nutrients.

**Sources of fibre**

Sources of fibre include wholemeal bread, wholegrain breakfast cereals, pulses (peas, lentils and beans – including baked beans, kidney beans and butter beans), and dried and fresh fruit and vegetables. These foods provide useful sources of other nutrients too.

Protein is available from both animal and vegetable foods, so children and young people who are vegetarians can get enough protein as long as they get a good variety of foods every day. For more information on vegetarian diets see page 51.

Children and young people in Britain obtain approximately one-third of their protein from meat and meat products and between a quarter and one-third from cereal foods such as bread and breakfast cereals.<sup>6</sup> Milk provides a quarter of protein for younger children (aged 4-6 years) but this declines as children get older.

**Sources of protein**

Sources of protein include: milk; meat, poultry and fish; eggs; cheese; tofu; pulses such as peas, lentils and beans (including baked beans, kidney beans, and butter beans); and cereal foods such as bread and rice.

**Protein**

**Why we need protein**

Protein is needed for growth and the maintenance and repair of body tissues.

**How much protein do children and young people need? Are they getting enough?**

The reference nutrient intakes for protein are summarised below. The reference nutrient intake is the amount of a nutrient which is likely to meet the requirements of most children or young people (see box on the right).

**What is a reference nutrient intake?**

The reference nutrient intake (RNI) is the amount of a nutrient that is likely to meet the requirements of nearly everybody in a group.

Reference nutrient intakes have been set for protein and for most vitamins and minerals.

Age	Average protein requirements in grams per day <sup>5</sup>	
	Boys	Girls
4-6 years	19.7g	19.7g
7-10 years	28.3g	28.3g
11-14 years	42.1g	41.2g
15-18 years	55.2g	45.0g

Most children and young people in Britain have more than adequate intakes of protein. Recent evidence<sup>6</sup> suggests that children aged 4-10 years have approximately twice the reference nutrient intake (RNI) of protein, and older children aged 11-18 years have between 120% and 150% of the RNI. Children and young people obtain approximately 13% of total energy from protein. Very high protein intakes are of no benefit to children and young people and it has been suggested that it is prudent to avoid protein intakes greater than twice the RNI.<sup>5</sup>

## Alcohol

Alcohol provides energy (7kcal per gram) and alcoholic beverages can make a substantial contribution to daily energy intakes among regular consumers. The National Diet and Nutrition Survey reported that 59% of girls and 57% of boys aged 15-18 years reported drinking alcohol, with 10% of boys and 8% of girls in this age group reporting intakes greater than the recommended daily maximum number of units of alcohol for adults.<sup>6</sup>

Alcohol affects all the parts of the body it comes into contact with: the stomach, gut, brain and especially the liver. Alcohol affects brain activity. The first thing to be switched off are our inhibitions, which can make people behave in a way they would not normally, and this can lead to risk-taking behaviours in young people. Alcohol-related accidents are the leading cause of death in the 15-24 year-old age group and around 1,000 people aged 15 years and under are taken to hospital each year with alcohol poisoning which might need intensive care.<sup>17</sup>

The Department of Health advises that men should drink no more than 3-4 units of alcohol per day, and women should drink no more than 2-3 units of alcohol per day.<sup>18</sup> These daily benchmarks apply whether you drink every day, once or twice a week or occasionally.

1 unit of alcohol is equivalent to 10ml of alcohol – for example, half a pint of ordinary-strength beer or lager, a small glass of wine, or a pub measure of spirits.

Beer, lager and cider are the most commonly consumed drinks among young people, although 40% of those reporting alcohol consumption mentioned drinking spirits, 35% wine and 28% ‘alcopops’. Young people in a study by the Health Education Authority<sup>19</sup> generally underestimated the alcoholic strength of beer and found it difficult to identify the number of units in specific drinks. Young people should be made aware of the alcohol content of different drinks and the impact that alcohol has on their health and well-being.

Schools should ensure that the risks associated with alcohol consumption are explained to young people and all school staff should be aware of the importance of not glamourising alcohol or suggesting it is a pre-requisite for enjoyment in the adult world.

Information about confidential helplines for alcohol problems among teenagers should be made available in schools. See page 87.

## Vitamins

### *Important fat-soluble vitamins*

Vitamin A  
Vitamin D  
Vitamin E

### *Important water-soluble vitamins*

B vitamins: thiamin, riboflavin, niacin  
vitamin B<sub>6</sub>  
vitamin B<sub>12</sub>  
folate  
  
Vitamin C

Vitamins are often divided into two groups: those that are fat-soluble and those that are water-soluble. Some vitamins are found predominantly in animal foods – for example vitamin B<sub>12</sub> and vitamin D (see pages 30 and 28). Others are found predominantly in foods from vegetable origin – for example vitamin C.

It is important for children and young people to get enough of each vitamin. However, having too much does not bring any benefit and may be harmful. Most people should be able to get all the nutrients they need by eating a varied and balanced diet. If you choose to take supplements containing vitamins and minerals, it is important to know that taking too much, or taking them for too long, can cause harmful effects. Current advice about safe intakes of vitamins and minerals can be found at [www.eatwell.gov.uk/healthydiet/nutritionessentials/vitaminsandminerals](http://www.eatwell.gov.uk/healthydiet/nutritionessentials/vitaminsandminerals)

Many vitamins are not stored in the body and are also more likely to be destroyed if foods containing them are overcooked or exposed to sunlight or air for long periods. This is why it is important to prepare vegetables close to the cooking time and not to overcook them.

Reference nutrient intakes have been set for all vitamins except vitamin E for which not enough information is available at present to set a reference nutrient intake. The RNI for vitamin D is only given for those under the age of 3 and over the age of 65 since the rest of the population should make adequate amounts of vitamin D from the action of summer sunlight on skin (see *Vitamin D* on the next page).

## Vitamin A

### Why we need vitamin A

Vitamin A comes in two forms:

- retinol, which is only found in animal foods, and
- carotene, the yellow or orange pigment found in fruit and vegetables (both those coloured yellow or orange and in many green ones where the orange colour is masked by chlorophyll pigment).

Carotene can be converted into retinol by the body. It takes 6 units of carotene to make 1 unit of retinol and together they are called retinol equivalents (RE).

Vitamin A is often thought of as the ‘anti-infection’ vitamin as it plays an important role in maintaining the immune system. It is also essential for growth, which is why children need relatively more vitamin A than adults. Vitamin A is also associated with good vision in dim light as retinol is essential for the substance in the eye which allows night vision.

Experts now believe that carotene has a much wider role than just as a means to produce vitamin A. It may protect the body from internal damage to the cells, which could lead eventually to heart disease or the development of cancer.

### How much vitamin A do children and young people need? Are they getting enough?

The reference nutrient intakes (RNIs) for vitamin A as retinol equivalents are: 500µg (micrograms) a day for children aged 4-10 years; 600µg a day for boys aged 11-14 and girls aged 11-18; and 700µg a day for boys aged 15-18 years (see Appendix 2).

Recent evidence suggests that intakes of vitamin A are quite variable among children and young people in Britain.<sup>6</sup> In all age groups there were some children with intakes lower than the reference nutrient intakes, and among the older children up to 20% of girls and 13% of boys had very low intakes.

The majority of vitamin A in children’s and young people’s diets comes from vegetables and milk and milk products, with smaller amounts from meat and meat products, fat spreads and cereal products.

### Sources of vitamin A

#### *Retinol*

Few foods provide retinol naturally. The richest sources are liver and liver pâté (since animals store vitamin A in the liver). However, as these foods can contain high levels of vitamin A, it is suggested that they are not eaten more than once a week. Anyone who is pregnant should avoid eating

liver and liver pâté (and avoid dietary supplements which contain vitamin A) as very high vitamin A intakes may damage the fetus.

Butter contains retinol, as does cheese and to a lesser extent eggs. Margarine is fortified with vitamin A by law. Other fat spreads may also be fortified in this way. It is worth checking the labels of other fat spreads to see if they are fortified. Milk and milk products usually provide about a third of daily vitamin A intakes in young children.

#### *Carotene*

Carrots are the best source of carotene but other orange foods such as sweet potatoes, mango, melon and apricots (dried or fresh) as well as green leafy vegetables (such as spinach, watercress and broccoli), tomatoes and red peppers are also good sources.

Children and young people who do not consume milk or milk products or do not regularly eat those fruits and vegetables which are high in vitamin A are unlikely to achieve their RNI for vitamin A. They should be encouraged to include a variety of foods which are useful sources of vitamin A. For example, children and young people who do not like cooked carrots may enjoy them raw, or may not object to them in mixed dishes, stews, soups or stir-fries.

For more information on sources of vitamin A, see Appendix 3.

## Vitamin D

### Why we need vitamin D

Vitamin D is needed for healthy bones and teeth. Prolonged deficiency of vitamin D in children results in rickets, the main signs of which are skeletal malformation (such as bowed legs) with bone pain or tenderness and muscle weakness. A child with vitamin D deficiency is usually miserable and lethargic.

### How much vitamin D do children and young people need? Are they getting enough?

The main source of vitamin D is from exposure of the skin to ultraviolet (UV) radiation in summer sunlight. Vitamin D is present in a limited number of foods but after the age of 3 years people are generally able to maintain satisfactory vitamin D status from sunlight, so recommendations for intake are only made for children up to 3 years of age.

If children and young people rarely go outside, or go outside only when fully covered in clothing, they may have insufficient opportunity to make vitamin D in their skin during the summer months. Evidence from a recent national survey reported that low levels of vitamin D in the blood were found in a small proportion of children at all ages, but

that boys aged 11-18 years were most likely to have poor vitamin D status. In this survey 11% of 11-14 year-old boys and 16% of 15-18 year-old boys had low vitamin D status as did 10% and 11% of girls in those age groups respectively.<sup>6</sup> This may be due to inadequate exposure to the sun (eg. if children and young people rarely play outside) or due to wearing clothing that reduces exposure of the skin to sunlight.

While it appears that a number of children may be having insufficient exposure to summer sunlight, there are concerns about the link between over-exposure of the skin to UV radiation and subsequent skin cancer. It is recommended that children and young people should be protected from burning in strong sunshine by using shade, covering up, and applying a high factor sunscreen on bare skin.<sup>20</sup> Children and young people who regularly spend time outdoors can make enough vitamin D in their skins while still avoiding burning.

### Sources of vitamin D

Very few foods are good sources of vitamin D. Oily fish such as tuna, salmon and pilchards provide vitamin D, as do foods fortified by manufacturers such as margarine, many fat spreads, breakfast cereals, and some yoghurts and milk-based drinks.

For more information on sources of vitamin D, see Appendix 3.

## B vitamins: thiamin, riboflavin and niacin

### Why we need the B vitamins thiamin, riboflavin and niacin

Thiamin, riboflavin and niacin are particularly important for the brain and nervous system. The body also needs these vitamins to be able to use the energy (calories) in food.

### How much of these vitamins do children and young people need? Are they getting enough?

The reference nutrient intakes for these vitamins are given in Appendix 2.

The National Diet and Nutrition Survey of 4-18 year-olds in Britain<sup>6</sup> found that average intakes of **thiamin** are well above the reference nutrient intake (RNI), but there was some evidence of poor status in some individuals. Fortified breakfast cereals and other cereals and cereal products were the main dietary source of thiamin.

Average **riboflavin** intakes in this study were considerably higher than the RNI, but very low intakes were noted among

just over 20% of girls between the ages of 11-18 years. Low riboflavin status was found in some individuals with low intakes. The contribution made by milk and milk products to riboflavin intake decreased substantially as children got older, and the main source of riboflavin for all age groups was cereal and cereal products, particularly fortified cereals.

**Niacin** intakes were above the RNI for almost all children and young people and again cereals were the main provider of this vitamin.

A varied diet which provides sufficient energy and protein will usually provide enough of these B vitamins at the same time.

### Sources of thiamin and niacin

Sources of thiamin and niacin include: bread and other foods made with flour, breakfast cereals, pork (including bacon and ham), fish, yeast extract (such as marmite), and potatoes.

### Sources of riboflavin

Sources of riboflavin include: milk and milk products such as yoghurt; poultry; meat; oily fish (such as tuna, salmon or sardines); and eggs.

For more information on sources of thiamin, riboflavin and niacin, see Appendix 3.

## Folate (folic acid)

### Why we need folate

Folates are a group of compounds, found in foods, which collectively are known as 'folate' or 'folic acid'. Folate is an essential vitamin for many body processes, including forming red blood cells, making new cells, and using protein in the body. Deficiency can lead to a particular type of anaemia known as megaloblastic anaemia. In addition, low folic acid intakes at conception and in early pregnancy are associated with an increased risk of neural tube defect births (such as spina bifida).

### How much folate do children and young people need? Are they getting enough?

The reference nutrient intake (RNI) for folate is 100µg (micrograms) a day for children aged 4-6, 150µg for children aged 7-10 years, and 200µg a day for older children.<sup>5</sup>

A study of 4-18 year-olds in Britain<sup>6</sup> suggests that the majority of boys have intakes above the RNI. However, average intakes among girls are slightly below the RNI, and 4% of girls aged 15-18 years have extremely low intakes.

Cereals, cereal products, vegetables, potatoes and savoury snacks were the main sources of folate for children and young people.

### Sources of folate

Sources of folate include green leafy vegetables and salads, oranges and other citrus fruits, liver and yeast extract as well as foods which have been fortified including breakfast cereals and some breads.

Folate is partly destroyed by prolonged heating, for example by overcooking food or by heating it and keeping it for long periods. So vegetables should be prepared as close to the cooking time as possible.

For more information on sources of folate, see Appendix 3.

## Vitamin B<sub>6</sub>

### Why we need vitamin B<sub>6</sub>

Vitamin B<sub>6</sub> is the name given to a whole group of substances that are commonly found in both animal and vegetable foods and which are involved in a number of body processes involving amino acids (the protein building blocks).

### How much vitamin B<sub>6</sub> do children and young people need? Are they getting enough?

Deficiency is rare. If children and young people have a varied diet they are unlikely to be deficient in B<sub>6</sub>.

### Sources of vitamin B<sub>6</sub>

Good sources of vitamin B<sub>6</sub> include liver, bananas, wholegrain cereals and peanut butter.

## Vitamin B<sub>12</sub>

### Why we need vitamin B<sub>12</sub>

Vitamin B<sub>12</sub> interacts with folate and vitamin B<sub>6</sub>. Together these vitamins help the body to build up its own protein, especially for nervous tissue and red blood cells.

### How much vitamin B<sub>12</sub> do children and young people need? Are they getting enough?

Vitamin B<sub>12</sub> is found almost exclusively in animal products and in foods where there is microbiological activity (eg. some fermented foods). Teenagers who become strict

vegetarians (vegans) need to be aware that they need to include a source of vitamin B<sub>12</sub> in their diet.

### Sources of vitamin B<sub>12</sub>

All foods of animal origin contain vitamin B<sub>12</sub> – for example meat, fish and milk. Some other foods are fortified with vitamin B<sub>12</sub>, such as fortified breakfast cereals, and drinks such as fortified blackcurrant drinks. Some yeast extracts also contain this vitamin.

## Vitamin C

### Why we need vitamin C

Vitamin C has an important role in preventing disease and maintaining good health. The body needs vitamin C to produce and maintain collagen, the foundation material for bones, teeth, skin and tendons. It is also important in wound healing. It is suggested that vitamin C also has a role as an antioxidant vitamin in preventing damage to cells and tissues. Vitamin C also helps the body to absorb iron in the diet if both nutrients are present in the same meal.

### How much vitamin C do children and young people need? Are they getting enough?

The reference nutrient intake (RNI) for vitamin C is 30mg a day for children aged 4-10 years, 35mg a day for children aged 11-14 years and 40mg a day for older teenagers.<sup>5</sup>

There is a large variation in the intake of vitamin C among children and young people in Britain.<sup>6</sup> Overall, intakes in all age groups are higher than the RNI, and older boys have particularly high intakes. However, some children and young people do have intakes below the RNI. Encouraging all children and young people to eat more fruits and vegetables would both ensure sufficient vitamin C and increase intakes of other important nutrients such as folates and vitamin A.

Nearly half the average daily intake of vitamin C in the diets of young people comes from fruit juice and fortified soft drinks, with potatoes, fruits and vegetables and savoury snacks contributing the majority of the remaining vitamin C.

### Sources of vitamin C

Sources of vitamin C include: fruit and fruit juices, potatoes (including chips) and other vegetables. Citrus fruits such as oranges are particularly good sources as are broccoli, green peppers, blackcurrants and strawberries. Some drinks are also fortified with vitamin C.

For more information on sources of vitamin C, see Appendix 3.

## Minerals

There are a number of minerals in the diet which are essential including iron, calcium, zinc, copper, iodine, magnesium, phosphorus, potassium and selenium. Reference nutrient intakes have been set for all these minerals.<sup>5</sup>

Sodium (which is found in salt) is also discussed here as there are recommendations to reduce the amount of sodium in the diet.

## Iron

### Why we need iron

Iron is an essential part of the pigment in red blood cells called haemoglobin, which carries oxygen. A deficiency in iron will cause anaemia. In a person with anaemia, the blood transports less oxygen for the body's needs and so limits the person's ability to be physically active.

Children with anaemia may become pale and tired and their general health, resistance to infection, and vitality will be impaired. Sometimes there are no apparent symptoms and anaemia may be undetected. Prevention of iron deficiency is important because, apart from these immediate effects, it is suggested that iron deficiency in children affects intellectual development and behaviour in the longer term.<sup>5</sup>

### How much iron do children and young people need? Are they getting enough?

The current reference nutrient intakes for iron are:

- 6.1mg a day for children aged 4-6 years
- 8.7mg a day for children aged 7-10 years
- 11.3mg a day for boys aged 11-18 years
- 14.8mg a day for girls aged 11-18 years.<sup>5</sup>

The higher requirement proportional to body weight for the younger age group reflects their increased needs during this period of rapid growth and development.

Deficiency of iron is common in most countries, especially among young women. It can be assessed by measuring:

- the amount of iron in the diet compared to the dietary reference value, or
- the haemoglobin level (the amount of iron being carried in the blood), or
- the amount of iron stores in the body (serum ferritin level).

Girls and boys need a greater amount of iron during the

adolescent growth spurt. Girls also need more iron after the onset of menstruation. Iron deficiency anaemia has been commonly observed among adolescent girls, and reported dietary intakes of iron are often low.<sup>21</sup> Teenage girls who report trying to lose weight by dieting or who have become vegetarians are particularly at risk – nearly a quarter of girls in these groups have anaemia.<sup>22</sup>

A survey of 4-18 year-olds in Britain<sup>6</sup> reported that average iron intakes for boys were above the reference nutrient intake (RNI). However, among girls aged 6-18 the average iron intakes were below the RNI, and a substantial number of girls had very low intakes.

In the national survey mentioned above, mean haemoglobin levels below the level used to define anaemia were found among 3% of boys and 8% of girls aged 4-6 years, and among 1% of boys and 9% of girls aged 15-18 years. Serum ferritin levels – which give an indication of the amount of iron stores in the body – were found to be low in 18% of 4-6 year-old boys and 9% of 4-6 year-old girls, and in 5% of the older boys and 27% of the older girls aged 15-18 years. (Overall, boys and girls who consumed more haem iron were more likely to have higher haemoglobin levels and serum ferritin levels.) It appears, therefore, that a substantial proportion of older girls in the UK would benefit from higher intakes of iron from food.

Cereal and cereal products were the main sources of iron for children and young people (due to the fortification of white bread and breakfast cereals) and vegetables, potatoes and savoury snacks contributed about a fifth of total iron intake. Less than 15% of total iron intake among children and young people comes from meat and meat products.

### Sources of iron

There are two forms of iron in foods:

- **haem iron**, which is found in foods such as meat and meat products, and
- **non-haem iron**, which is found in foods of plant origin, and eggs.

Haem iron is found in foods such as beef, lamb, chicken and turkey, liver and kidney, and in some fish such as sardines and tuna. Haem iron is absorbed into the body more easily than non-haem iron.

Non-haem iron is found in cereal foods like bread, and in pulses (such as peas, beans and lentils), dried fruits and green vegetables. It is also found in fortified breakfast cereals and egg yolk.

For more information on sources of iron, see Appendix 3.



## Calcium

### Why we need calcium

Calcium is needed for building bones and keeping them strong, for transmitting nerve impulses and muscle actions and for many other body functions. Adequate calcium intakes (and vitamin D production) during childhood, adolescence and young adulthood are essential for long-term bone health.

### How much calcium do children and young people need? Are they getting enough?

The current reference nutrient intakes for calcium intake among children and young people are:

- 450mg a day for children aged 4-6 years
- 550mg a day for children aged 7-10 years
- 1,000mg a day for boys aged 11-18 years
- 800mg a day for girls aged 11-18 years.<sup>5</sup>

A recent study of 4-18 year-olds in Britain<sup>6</sup> suggests that there is a wide variation in calcium intake among children and young people. Younger age groups generally have intakes above reference nutrient intakes. Among 11-14 year-olds, one in eight boys and one in four girls had very low intakes, and among 15-18 year-olds 9% of boys and 19% of girls had very low intakes. The main source of calcium was milk and milk products, but the amount provided by milk declined substantially with age from 25% of calcium intake for children aged 4-6, to 8% of intake for 15-18 year-olds. Cereals and cereal products provide most of the remaining calcium, particularly white bread.

It is important to ensure that children and young people who do not have milk or dairy products have sufficient calcium, for example in a soya drink which has been fortified with calcium, or from tinned fish mashed with the bones.

Very high calcium intakes may disturb the absorption of other nutrients such as iron and zinc and should be avoided.

### Sources of calcium

Sources of calcium include: milk, soya drink fortified with calcium, yoghurt, cheese, cheese spread, bread, tinned fish (eaten with the bones), tofu, egg yolk, pulses such as beans, lentils and chick peas, green leafy vegetables, dried fruit, oranges and sesame products.

For more information on sources of calcium, see Appendix 3.

## Zinc

### Why we need zinc

Zinc plays a major role in the functioning of every organ in the body. It is needed for growth, development and maturation, and for normal metabolism of protein, fat and carbohydrate, and it is associated with the hormone insulin which regulates the body's energy.

Zinc is also involved in the immune system, the use of vitamin A, and in wound healing. Although it is known to have all those functions, more research is needed before the role of zinc can be defined more precisely.

### How much zinc do children and young people need? Are they getting enough?

The reference nutrient intakes for zinc are:

- 6.5mg a day for children aged 4-6 years
- 7mg a day for children aged 7-10 years
- 9mg a day for children aged 11-14 years
- 9.5mg a day for boys aged 15-18 years and 7mg a day for girls aged 15-18 years.<sup>5</sup>

A study of 4-18 year-olds in Britain<sup>6</sup> suggests that overall average intakes of zinc in this age group are below the reference nutrient intakes, and a significant proportion have very low intakes – for example about 1 in 8 older boys and 1 in 3 older girls.

An increase in the intake of meat and meat dishes will ensure a higher zinc intake. Those not eating meat should regularly include in their diet wholegrain cereals and breakfast cereals, milk, milk products and eggs.

### Sources of zinc

Sources of zinc include meat, eggs, milk, cheese, wholegrain cereals and pulses.

For more information on sources of zinc, see Appendix 3.

## Sodium

### Sodium in the diet

Salt (sodium chloride) is the main source of dietary sodium. Sodium is essential for fluid balance, but too much sodium is associated with raised blood pressure in later life, and this is a risk factor for coronary heart disease and stroke. There is also evidence that adolescents who are obese may be particularly sensitive to the effect that salt has in raising blood pressure.<sup>23</sup>

## How much sodium do children and young people need? Are they getting too much?

The main source of salt in the diet is the salt added to manufactured foods and widely used in cooking and at the table. It is generally agreed that most people in the UK eat too much salt and, if children get used to food which is salty early in life, this may encourage a taste for salty foods.

Children and young people who regularly eat snack foods such as crisps or salted nuts, processed meats (such as salami or ham), cheese and tinned foods such as beans or spaghetti in sauce are getting far more salt than they need.

Guidance on target daily salt intakes for children and young people was published in 2003<sup>24</sup> and this is outlined below.

Age*	Target average salt intake in grams per day
4-6 years	3g per day
7-10 years	5g per day
11 years and over	6g per day

\* Guidance on target average daily salt intakes has also been specified for younger children.

The national study of 4-18 year-olds in Britain found that average salt intakes from food alone (as opposed to salt added in cooking or at the table) were well above these recommendations in all age groups and these figures are also likely to be underestimates. Boys' average salt intakes were: 5.3g per day for those aged 4-6 years; 6.1g per day for 7-10 year-olds; 6.9g per day for 11-14 year-olds; and 8.3g per day for 15-18 year-olds. Girls had slightly lower intakes of 4.7g per day at 4-6 years, 5.5g per day at 7-10 years, and 5.8g per day at 11-18 years. Most children and young people reported having salt in food cooked for them. About half also added salt at the table and this was more likely as children got older.<sup>6</sup>

### Sources of sodium

The main sources of salt for children and young people are: foods to which salt is added in processing or preparation – for example, sauces, soups, processed meat and fish products, some canned foods, bacon, ham, sausage, smoked cheese or smoked fish, crisps and other snacks, and some cereal foods. (For example, some breakfast cereals and breads are very high in salt, and many biscuits and other bakery products also have a high salt content.) Take-away and fast foods such as pizzas, burgers and coated chicken products are also likely to be high in salt.

The Food Standards Agency has provided guidance on choosing foods with a lower salt content: see [www.salt.gov.uk](http://www.salt.gov.uk).

Fresh meat and poultry and all fresh and frozen fruit and vegetables are low in sodium.

All caterers should attempt to reduce the amount of salt they add in cooking. Caterers should check the labels of ingredients such as stocks, bouillons, ready-made sauces and other canned and bottled foods and choose lower salt options where possible. Other spices can be used instead of salt to add flavour to food – for example chilli, herbs, lemon juice or mustard.

## Other minerals

A number of other essential minerals have a reference nutrient intake and the intakes and sources of these nutrients are summarised below. Data from the National Diet and Nutrition Survey of 4-18 year-olds reported that low intakes of magnesium, potassium and iodine were found in the diets of some young people.<sup>6</sup> The amounts of minerals which are absorbed by the body will depend on the overall composition of the diet and on other dietary factors which may influence absorption, making individual intakes harder to interpret.

### Copper

Copper is an essential component of many substances which control body functions. We do not yet know whether the health of those with low intakes is affected. No tests are yet available to make this assessment. Copper is found in a wide variety of foods, particularly in vegetables, fish and liver. Intakes of copper among children and young people are generally above the RNI.<sup>6</sup>

### Iodine

Iodine helps to make thyroid hormones necessary for maintaining the metabolic rate. Iodine deficiency is now rare in the UK but is still common in many areas of the world. Iodine is found in milk and fish in particular and intakes are generally greater than requirements. Among about 10% of older girls, however, very low intakes have been reported.<sup>6</sup>

### Magnesium

Magnesium is important for the development of the skeleton and for maintaining nerve and muscle function. The main sources of magnesium in the diet are cereals and green vegetables, with cereal foods providing about a third of daily magnesium intake. About 50% of older girls in the national survey of 4-18 year-olds had very low magnesium intakes.<sup>6</sup>

## Phosphorus

About 80% of the phosphorus in the body is present in the bones, and phosphorus, with calcium, provides rigidity to the skeleton. Phosphorus is found in all plant and animal cells, so children and young people will get enough phosphorus as long as they eat a varied diet.

## Potassium

Potassium helps to regulate body fluids and blood pressure and also has a role in nerve and muscle function. It is therefore important for children and young people to have an adequate intake. A large range of foods contain potassium and an inadequate intake is unlikely if children and young people have a varied diet. Potassium is particularly abundant in vegetables, potatoes, fruit and fruit juices. While 15% of 15-18 year-old boys in the national survey had very low intakes of potassium, this was true for almost 40% of girls in that age group.<sup>6</sup>

## Selenium

Selenium is involved in the mechanism which protects the body from damage inside the individual cells due to oxidation, and low intakes are associated with increased risks of heart disease and some cancers. There is little evidence to suggest that low intakes of selenium have been associated with ill health to date but intakes of selenium in the UK are falling. Selenium is found in cereals, meat, fish, and Brazil nuts.

Examples of good sources of vitamins and minerals in foods can be found in Appendix 3. Details of the dietary reference values (including the reference nutrient intakes) for children and young people are given in Appendix 2.

## Fruits and vegetables

### Why we need fruits and vegetables

There is an abundance of evidence which suggests that consuming adequate amounts of fruits and vegetables can help prevent diseases of later life.<sup>25</sup> The complex mix of components with the antioxidant properties they contain probably protect against chronic diseases in adulthood such as coronary heart disease and stroke and certain forms of cancer.<sup>7,26</sup> Research also suggests there may be other health benefits such as a reduction in the symptoms of asthma, reduced risk of bowel cancer and in helping to manage diabetes.<sup>27</sup>

Many fruits and vegetables are good sources of fibre, potassium, magnesium, copper, vitamin C, carotene, iron and folic acid and many of these nutrients are consumed in insufficient amounts by children and young people. Everyone is encouraged to eat at least 5 portions (400g) of a variety of fruit and vegetables a day. (For more information, see [www.5aday.nhs.uk](http://www.5aday.nhs.uk))

### How much fruit and vegetables do children and young people eat? Are they getting enough?

Low intakes of fruits and vegetables among children and young people in the UK were reported in the National Diet and Nutrition Survey<sup>6</sup> and older children in particular appear to have very low intakes. On average, children were eating less than half the recommended 5 portions a day, with 20% eating no fruit during the survey period and 4% eating no vegetables. Intakes were lower among children and young people from poorer households. Diets which have little variety are often particularly low in fruit and vegetables. There is some evidence that while fruit intakes are increasing, there is little change in the consumption of vegetables.<sup>28</sup>

### Good fruits and vegetables to choose

Any fresh, frozen, canned, juiced or dried fruit or vegetable can be eaten as part of 5-A-DAY. Having a variety of fruits and vegetables each day is, however, essential. Any quantity of fruit juice or vegetable juice counts as only 1 portion per day. This is because the structural parts of fruits and vegetables (which are no longer present in juices) also contain many of the components thought to contribute to good health.

## Oily fish

Because of the particular nutrients oily fish contain, it is recommended that, as well as having a varied and balanced diet containing foods from all the food groups (see page 45), those children and young people who eat fish should have **at least 1 portion of oily fish each week** (for example, salmon, trout, mackerel, herring or sardines) as these contain protective *n*-3 fatty acids (see page 23). Canned tuna fish does not contain enough *n*-3 fatty acids to be included in this category.

## Meat and meat products

Meat and meat products can be useful contributors of iron and zinc. The iron in meat is more easily absorbed by the body than iron from vegetable sources. There has however been some concern over a possible link between large intakes of meat and some types of cancer and there is evidence that diets with less red meat and processed meat and more vegetables are associated with reduced risk of colorectal cancer.<sup>29</sup> The Expert Working Group suggests that red meat should be offered, but in moderation, and that processed meats should be kept to a minimum. Meat-free dishes should always be available and iron and zinc recommendations should be achieved through a wide variety of different foods.

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## Chapter 3

# Important health issues for children and young people

### Growth and development

Good nutrition is fundamental to appropriate growth and development in children and young people. Nutritional status is assessed by measuring a child's height and weight.

At times of growth spurts, children and young people need extra nutrients and will need and want to eat more food. Young people have a growth spurt at the start of adolescence – the most rapid period of growth after infancy. This growth spurt commonly starts between the ages of 9 and 13 years in girls, and between 11 and 15 years in boys.<sup>1</sup> However, there can be a wide variation in the age of onset of puberty and the growth spurt in both boys and girls, and a later onset than these is not necessarily cause for concern. A second, slower increase occurs in late adolescence.

### Physical activity: being active

Research has shown that physical activity, exercise and sport have an important role in stimulating appetite and in preventing overweight as well as in enhancing physical, mental and social well-being.<sup>2</sup> People who have been active when they were young appear to have better physical and mental health in later life than those who were not active when young.<sup>3,4</sup>

In a study of activity patterns among young people by the World Health Organization, only 73% of 11 year-old girls and 78% of 11 year-old boys in England reported exercising twice a week or more. While this level of activity was maintained for boys at 13 and 15 years, only 63% of 13 year-old girls and 50% of 15 year-old girls reported this level of exercise and, of these, only 40% claimed to exercise for two hours a week or more.<sup>2</sup> This reduction in activity after 11-13 years of age has been reported elsewhere, and girls are consistently more likely to become inactive.<sup>5</sup> In contrast, almost a third of 15 year-old girls and boys reported watching four hours or more of television a day, with a third of boys also reporting playing computer games for four hours a week or more. Those exercising more regularly reported a greater feeling of confidence, felt healthier, and found it a good way of socialising.<sup>2</sup>

It has been suggested that TV-viewing has played a part in the development of obesity among young people. One possible mechanism may be that increased viewing is associated with increased snacking.<sup>2,6</sup>

Evidence suggests that people who exercise are better able to regulate their food intake to match the amount of energy they use up.<sup>1</sup>

**It is recommended that children and young people should achieve a total of at least 60 minutes of at least moderate intensity physical activity each day.** At least twice a week this should include activities to improve bone health (activities that produce high physical stresses on the bones), muscle strength and flexibility.<sup>7</sup> The recommended levels of activity can be achieved either by doing all the daily activity in one session, or through several shorter bouts of activity of 10 minutes or more. Physical activity can include everyday activities such as walking or cycling as well as organised sports and activities such as football, tennis, swimming, basketball or dancing.

There are a number of initiatives underway which aim to ensure that the amount of time children and young people spend doing PE and school sport increases. The National Healthy Schools Standard promotes activity as part of their health-promoting activities (see [www.wiredforhealth.gov.uk](http://www.wiredforhealth.gov.uk)). The current aim of the Department for Education and Skills/Department for Culture, Media and Sport national strategy for Physical Education, School Sport and Club Links (PESSCL) is that by 2008, 85% of 5-16 year-olds spend a minimum of 2 hours each week on PE and school sport within and beyond the curriculum.<sup>8</sup>

Schools have a primary role in facilitating physical activity among children and young people. Physical activity can enhance quality of life and self-esteem, help children and young people avoid becoming overweight and, for underweight children and young people, stimulate appetite.

## How to increase physical activity

It is essential to encourage children and young people to be physically active.

- **Walking** is an excellent exercise to encourage as it requires no special equipment or clothing, is easily achieved by most people and can be done regularly. Encourage children and young people to walk to school and leisure activities where possible.
- **Cycling** is also a good form of exercise for children and young people and can often be incorporated into everyday life. Schools should encourage cyclists to wear a safety helmet and those cycling on the roads should have passed their cycling proficiency test. Schools should offer cycle training courses for pupils, ensure there is a safe place to store bicycles and make sure that cycling is included in Safe Travel Plans. A new national standard for cycle training is proposed for 2005/2006.
- **Active travel** to school can make a significant contribution to daily energy expenditure. All schools are expected to have Active Travel Plans in place by 2010 (see [www.dfes.gov.uk](http://www.dfes.gov.uk)). Other resources to support walking and cycling to school can be found on page 86.
- **Football** is enjoyed by both girls and boys, and young people of all abilities should be given the opportunity to play in team sports.
- **Swimming** is a compulsory component of the PE curriculum for key stage 2 by the end of which all children should be able to swim a least 25 metres. Swimming is not compulsory for older children but is an excellent and enjoyable form of exercise that is popular among both boys and girls and schools should wherever possible make swimming a regular part of the school curriculum.
- Children and young people who are not interested in exercise and sport could be encouraged to **dance**, in the form of contemporary dance, Latin and salsa, line dancing or dancing related to different cultures such as Irish dancing, Asian, African or belly dancing. This can be offered at lunchtimes, in physical education classes or as after-school clubs.
- **Active play** should be encouraged and facilitated during break and lunchtimes since research has shown that some children get most of their daily activity during these breaks.<sup>9</sup> There are a number of programmes which help schools to improve their grounds to encourage games and activities (see for example Learning through Landscapes at [www.ltl.org.uk](http://www.ltl.org.uk)).
- Some young people may prefer to improve fitness and keep active using workout and dance **videos** at home. School libraries should have these available for loan.
- After-school clubs should have available sports equipment or dance mats and staff willing to organise activities for young people.

Sport England provides a website that allows local searches for sports venues and facilities. See [www.activeplaces.com](http://www.activeplaces.com).

## Promoting healthy body weight and body image

People come in a wide range of body shapes and sizes and there are many different body shapes that can be healthy. Being fit and active, eating healthily and not smoking are the most important ways we can improve health and well-being. Schools should promote healthy body weight and body image among children and young people by providing an environment in which they have the opportunity to eat healthy food and where the play and exercise they enjoy are actively enabled and encouraged.

There are health issues associated with people being very light, or very heavy, for their height (see *Promoting a healthy body weight*, below).

### Body image

Contemporary western ideals for body shape emphasise extreme slenderness, and many people with body weights which are acceptable in terms of health, perceive their own body shape in negative terms. Larger women in particular are more likely to be dissatisfied with their appearance and to have a poor body image. Dissatisfaction may be particularly common among children and young people who may be teased by their peers and humiliated by teachers, especially in connection with sporting activities.<sup>1</sup>

Derogatory language about their own or other people's body shapes by staff in schools can have an important impact on young people and care should be taken when commenting on people's food choices, to emphasise positive choices.

Schools should have clear policies about bullying related to body size and shape, and should be sensitive to this among children who are overweight.

### Promoting a healthy body weight

As well as promoting an acceptance of a variety of healthy body shapes, promotion of good health and physical fitness among children and young people in school is essential. Being underweight or overweight can affect both health and quality of life. In extreme cases, young people may develop eating disorders which require professional intervention. (For more information about these see the next page.)

#### Underweight

Being underweight is undesirable at any age and is associated with an increased risk of ill health. Among children and young people it may contribute to tiredness, limited physical activity, an increased rate of infection and an

inability to concentrate. Long-term risks include fertility problems and osteoporosis. Being underweight might be a sign of a food intolerance, bowel disorder or unrecognised disease. School staff who are concerned that a child or young person is not growing adequately or not eating during school time should inform the school nurse. It is also important to seek expert help for those affected by an eating disorder such as anorexia or bulimia (see the next page).

#### Overweight

The proportion of children and young people who are overweight or obese (very overweight) is increasing throughout the developed world.<sup>2</sup> Becoming overweight or obese results from:

- doing too little physical activity, and
- eating too much in relation to the amount of activity taken.

**There are serious health risks associated with being very overweight in childhood – such as higher blood pressure and higher blood cholesterol levels and development of diabetes.**<sup>10</sup> Being overweight also increases the risk of orthopaedic disorders of the hips and knees.<sup>11</sup> However, the most common problem associated with overweight in childhood is social stigmatisation.<sup>12</sup> Obese children are viewed very negatively by their peers.<sup>13</sup>

#### Food choice and body weight

Overweight has not been clearly linked to preferences or intakes of any individual foods, nor to a preference for sweet foods.<sup>1</sup> However, there is some evidence that a preference for foods containing fat is linked to overweight, and that palatable, high-fat, energy-dense foods may be particularly linked to emotional responses to eating.<sup>1</sup> Snack foods which are high in fat and those which are energy-dense – such as crisps and other savoury snacks, chocolate, confectionery, cakes and biscuits – are the major contributors to excess energy intake.

Empowering children and young people to take an interest in their health and increasing their knowledge about food composition and how to choose tasty, lower-fat snacks may help children and young people to reduce their energy intake from snack foods and drinks. However, education alone is unlikely to change food habits and therefore it is important to ensure that the foods and drinks available make it easier for children and young people to make appropriate choices. Increasing fruit and vegetable intakes is important for everyone to improve long-term health, and these foods are also good choices for those who wish to have lower energy diets. Schools are strongly encouraged to limit access to high-energy snacks in schools and ensure that more appropriate options are made available (see pages 49-50).



## Eating disorders

The term 'eating disorders' refers to a whole range of eating-related problems such as anorexia, bulimia, selective eating and severe overeating. They are often the young person's way of expressing emotional distress, and are linked to negative beliefs about themselves, the world and their relationships with others.<sup>14</sup>

Anorexia nervosa and bulimia nervosa are mental health disorders which are serious and require treatment. There are also several variants of eating disorders which may be a cause for concern. Eating disorders can be a very isolating experience for young people and they may feel they cannot share their concerns and feelings with anyone around them.

Both anorexia nervosa and bulimia nervosa are characterised by an overwhelming dissatisfaction with the shape and size of the body, often leading to an uncontrollable compulsion to achieve an unattainable level of thinness and a dread of fatness. It has been suggested that dieting among teenagers, even at a moderate level, is the most important predictor of new eating disorders among adolescents.<sup>15</sup> Encouraging exercise rather than dieting as a means of weight control is therefore particularly important among children and young people.

### Anorexia nervosa

Anorexia nervosa is most common in girls and women aged 15-24, but children as young as 7 can develop anorexia. Accurate figures for the incidence of anorexia among young people vary, but it is thought to affect between 1% and 2% of young people, and 90% of these are young women.<sup>16</sup> Some of the signs of anorexia nervosa to watch out for include:

- regularly missing meals
- eating alone
- hiding or throwing away food
- disguising weight loss with baggy clothes
- excessive and compulsive exercise
- loss of periods, or delay in onset of symptoms of puberty
- growth of downy body hair
- itchy skin/scratching, and
- ritualistic behaviour around food (for example, cutting food up into small pieces).

There are serious health consequences of extreme starvation, and continued weight loss will lead to death. Specialist treatment is always required.

### Bulimia nervosa

Bulimia nervosa is characterised by episodes of out-of-control bingeing, often followed by self-purging to try and reduce weight. This usually involves self-induced vomiting, use of laxatives and diuretics, strict dieting, fasting or vigorous exercise. Regular vomiting may cause severe tooth erosion as self-induced vomiting brings the acidic contents of the stomach into the mouth where they dissolve the hard tissue from the teeth. Bulimia nervosa requires specialist treatment.

## Dental health

Good teeth are important not only for biting and chewing but also for speaking clearly and having a good appearance.

Dental decay is one of the most common childhood diseases in the UK. In a study of young people in Britain aged 4-18 years, overall half had evidence of tooth decay in either their first or adult teeth.<sup>17</sup> The proportion of young people affected was higher among older age groups: 37% of 4-6 year-olds, 55% of 7-10 year-olds, 51% of 11-14 year-olds and 67% of 15-18 year-olds had dental decay. On average among the 7-10 year-olds 1.1 teeth had dental decay compared with 2.7 teeth in 11-14 year-olds.<sup>17</sup> Strong social class differences are apparent with dental decay: children from more disadvantaged homes suffer much higher levels of decay than children from professional homes.

Dental decay can occur at any age but those at greatest risk include children and adolescents. The most important source of dental decay is non-milk extrinsic sugars – the sugars found in foods such as confectionery, cakes, biscuits, soft drinks and fruit juices (see page 25).

The development of tooth decay is directly related to how often a person consumes sugary foods and drinks, and to the total amount of sugars consumed. A World Health Organization report on diet and health recommends that sugary foods or drinks should not be eaten on more than four occasions each day.<sup>18</sup>

Limiting intake and frequency of consumption of sugar and sugary drinks and foods is the most important way of preventing dental decay. Fresh fruits are a good alternative to sugary snacks. Brushing teeth regularly twice a day with a pea-sized amount of a fluoride toothpaste is also important in preventing decay.

**Tooth erosion** is a progressive, irreversible loss of dental enamel usually caused by acids other than those produced by plaque bacteria. Erosion can lead to a reduction in the size of teeth and to tooth destruction. Evidence shows that the incidence of tooth erosion is increasing in children, with as many as half of 5-6 year-olds showing signs of tooth erosion.<sup>19</sup> One of the main causes of tooth erosion is frequent consumption of soft drinks (for example squashes,

fruit juices and fruit drinks and fizzy drinks – including those which are labelled as ‘sugar-free’ or ‘diet’). Schools should limit access to soft drinks which can damage teeth during the school day (see *Drinks and vending machines* on page 50).

## Iron deficiency

There is considerable evidence that iron deficiency (not getting enough iron) has serious health consequences. It is particularly common in young children, adolescents and pregnant women and it is the most common nutritional deficiency in young people in the UK.

Iron deficiency during the first two years of life can significantly impair mental and motor development (developing the ability to walk, and body coordination).<sup>20</sup> Among older children iron deficiency is associated with impaired educational performance<sup>21</sup> and with reduced levels of activity.<sup>22</sup> Iron deficiency is also related to loss of appetite and increased infection.

Adolescent boys have a high requirement of iron for the rapid growth spurt that they have at this time. Adolescent girls have a high requirement of iron both for growth and to replace menstrual losses. Low intakes of iron are commonly observed among teenage girls, and those who are also attempting to lose weight by dieting are likely to have particularly low intakes.<sup>23</sup>

To ensure that growing children and young people get enough iron, a varied diet – one which contains meat and fish, a variety of cereal foods, as well as fruits and vegetables – is most likely to provide adequate amounts. Vegetarians will need to make sure they have a varied food intake. It may be sensible for them to include fortified foods such as breakfast cereals in order to make sure they get enough iron.

For more information about iron in foods and how iron is absorbed by the body, see page 31.

## Bone health

The two nutrients that are particularly related to bone health are vitamin D and calcium.<sup>24</sup>

Most people over the age of 3 years make vitamin D in their skin when it is exposed to summer sunlight, and vitamin D deficiency in children and young adults who spend time outdoors is rare. Recent findings that about 1 in 8 teenage boys and 1 in 20 teenage girls have low vitamin D status, however, suggest that many young people are not having sufficient exposure to summer sunlight (see page 28). Pigmented skins make vitamin D more slowly than white skins, so Asian and black children are more vulnerable to vitamin D deficiency, particularly if there are other cultural

factors such as wearing concealing clothing, not spending time outdoors, or excluding meat and fish from the diet. Making sure that children and young people spend time safely in the sun – protecting their skin from sunburn but allowing access to UV light – should ensure that sufficient vitamin D is made.

Children and young people who are still growing need calcium for growth and bone mineralisation (hardening of the bone structure). During adolescence, bone growth is rapid for both girls and boys. It is important that the increased requirements for calcium are met in order that young people can achieve an optimum peak bone mass. This means that they will have a bone mass which, when they get older and inevitably lose bone mass, is less likely to decrease to a low point where fractures of the bone become common. It is also possible that insufficient calcium intakes during rapid growth might affect growth performance. There is some evidence that higher intakes of milk (which is a good source of both calcium and protein) as well as higher intakes of fruits and vegetables may be beneficial in preventing bone problems in later life.<sup>24</sup>

Physical activity is also important in maintaining bone health. This is particularly true of ‘weight-bearing’ exercise – exercise which involves carrying your own body weight or extra weight (for example walking or running rather than cycling or swimming).

Being underweight is detrimental to bone health.<sup>24</sup> In particular, girls who have low body weight and low calcium intakes and who do little physical activity are likely to be at risk of bone-related problems such as osteoporosis when they get older. There is also evidence to suggest that fizzy drinks, particularly cola drinks, are associated with an increased risk of bone fracture among active teenage girls.<sup>25</sup> The high consumption of fizzy drinks and the declining consumption of milk may make these teenagers more prone to osteoporosis in later life.<sup>26</sup>

Encourage children and young people to drink milk, preferably semi-skimmed or skimmed. Milk is a good drink for children and young people as it provides calcium and does not damage teeth. Schools may consider introducing ‘milk bars’ to encourage children to buy milk, milkshakes or ‘smoothies’ (fruit-based drinks with yoghurt). Flavoured milks sweetened with sugar should be drunk only with meals and not between meals and should be restricted to those with no more than 5g of sugar per 100ml. Discourage children and young people from having large amounts of fizzy drinks as they will erode teeth and may contribute to poorer bone health (see *Drinks and vending machines* on page 50).

## Diet and teenage pregnancy

Britain has one of the highest teenage pregnancy rates in Western Europe. In England and Wales there are about 42

conceptions for every 1,000 girls aged 15-17 years and 8 conceptions for every 1,000 girls aged 13-15 years.<sup>27</sup> There are significant nutritional implications for the health of a teenage mother and her child. Most girls who become pregnant under the age of 16 years, and many of those who become pregnant under 18 years, are likely to be still growing and therefore there will be a greater demand for food energy and nutrients to support both their own and their baby's growth. During pregnancy the nutritional needs of the fetus are met before those of the mother and this creates a health risk for younger mothers who may have increased needs themselves for important nutrients such as calcium and iron. It is important that teenagers who are pregnant eat a good, varied diet, including good sources of iron, calcium and folic acid (also called folate) every day. Additional vitamin D is also encouraged in pregnancy and teenagers who are pregnant should ask their GP if they need to take vitamin D supplements. Those on income support or jobseeker's allowance are entitled to free vitamin supplements from maternity and child health clinics.

All women who may become pregnant should ensure they have a diet which provides sufficient folic acid (see *Folate* on page 29). Folic acid is essential at conception and during the early development of the fetus. All women who may become pregnant are advised to take a supplement of 400 micrograms of folic acid a day. Ensuring that teenage girls always have sufficient folic acid in their diet is important as unplanned pregnancy may be discovered only after the first trimester, past the critical period when folic acid is most needed. Good sources of folic acid include fortified breads and breakfast cereals, green leafy vegetables, oranges, peas and peanuts. (See also Appendix 3.)

It is also important that pregnant girls receive advice about the nutritional needs of their infant from an early stage of their pregnancy and are informed about the benefits of breastfeeding for both themselves and their baby.

## Food allergy and intolerance

A minority of people experience adverse effects from some foods or food ingredients. Between 4% and 10% of children are estimated to have intolerance to one or more foods,<sup>28</sup> but this is most predominant in the first three years of life. Among adults it is estimated that about 2% of people have true food sensitivity.<sup>29</sup>

**Food intolerance** is defined as a reproducible and unpleasant reaction to a specific food or ingredient.

A **food allergy** is a form of food intolerance where there is evidence of an abnormal immunological reaction (a reaction of the immune system).<sup>30</sup> Foods that can cause severe reactions include peanuts, nuts, shellfish, sesame seeds, cow's milk, eggs, citrus fruits, soya beans, wheat and other cereals. Food allergies are more likely to occur in children

with a family history of allergies such as hay fever, eczema or asthma. True food allergy should always be taken seriously and expert advice sought. Teachers and support staff should be trained on what to do if a child has a severe reaction to a food. Up-to-date information about children who are known to be allergic to a food item should be on display in a prominent place in the school office.

Some people may also have a **food aversion** which causes an unpleasant bodily reaction due to emotions associated with a food. People may become convinced that they are sensitive to certain foods and this can be encouraged by some popular books and unorthodox practitioners.<sup>31</sup> Children and young people should be discouraged from attempting to restrict their diets due to a perceived allergy or intolerance as this may make it difficult for them to get all the nutrients that they need. This is particularly true if they avoid foods such as milk products or wheat products.

It is not easy to diagnose food intolerance and allergy, and investigations are generally only undertaken when the side effects observed are very severe or if many different foods are involved.

## Behavioural problems linked to diet

Many different terms are used to describe what is commonly known as 'hyperactive' behaviour. It is also known as hyperkinesis, attention deficit hyperactivity disorder (ADHD) or overactivity. Common symptoms of these behavioural problems include short attention span, impulsive behaviour, explosive outbursts, learning problems, aggression, poor eating and sleeping habits, thirst, anxiety and temper tantrums.<sup>32</sup>

Behavioural problems are thought to occur in about 1%-5% of children,<sup>33</sup> although diagnosis is difficult. There is much controversy about whether changing the diet can alleviate some of the symptoms.

Some children have a combination of overactivity and physical symptoms such as rashes, headaches and runny nose which are suggestive of a food intolerance. Some children have improved on diets which eliminate particular foods. The evidence for dietary change leading to improved behaviour for many children is, however, inconclusive.

Restrictive diets which might attempt to eliminate certain additives or foods should not be attempted without expert help from a registered dietitian or registered public health nutritionist (see *Health professionals* on page 88).

Anecdotal evidence from school staff where positive changes to school food and water consumption have been made, have indicated increased alertness and better behaviour in class among pupils.<sup>34</sup>

## Does diet affect spots and acne?

There is a popular belief that chocolate, fatty foods, soft drinks and beer can all aggravate spots and acne. Attempts to look at the impact of these foods on spots and acne scientifically have not been very successful but individual cases appear to respond to cutting down on sweets and chocolate, fatty food and alcohol.<sup>31</sup>

Zinc, polyunsaturated fats and vitamin A are reported to improve acne.<sup>31</sup> Increasing the consumption of foods which are good sources of these nutrients – such as meat and wholemeal bread, polyunsaturated margarines and carrots and green leafy vegetables – may be helpful. (See Appendix 3 for more information on good sources of these nutrients.)

## Preventing diseases of later life: coronary heart disease, stroke and cancer

Current evidence suggests that the type of diet which is most likely to prevent disease in later life is one which includes:

- at least 5 portions of fruit and vegetables a day
- plenty of bread, other cereals and potatoes
- moderate amounts of meat, fish and alternatives (such as eggs, beans, soya, nuts)
- moderate amounts of milk and dairy foods, using lower-fat versions wherever possible
- small amounts of high-fat, high-sugar and salty foods.

Not smoking and being fit and active are also essential for long-term health.

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# Chapter 4

## Encouraging eating well at school

### Eating a variety of foods

Food is an important part of our lives. In order to get all the nutrients needed for good health (see chapter 2) it is essential to eat a variety of different foods every day. It is difficult to achieve adequate intakes of vitamins and minerals when diets are monotonous and based on few foods.<sup>1</sup> Also, evidence shows that people who eat a varied diet are more likely to have better health.<sup>2</sup>

The foods and drinks on offer in schools should be restricted to those which will make a positive contribution to the nutrient needs of children and young people, in line with the recommendations in this report.

The *Balance of Good Health* plate below shows the five food groups and the balance to aim for throughout the whole day. The main points are:

- Eat plenty of bread, other cereals and potatoes.
- Eat at least 5 portions of fruit and vegetables a day.
- Eat moderate amounts of meat, fish and alternatives.
- Eat or drink moderate amounts of milk and dairy foods. Choose lower fat versions whenever you can.
- Eat only small amounts of foods containing fat. Don't eat foods containing sugar too often.

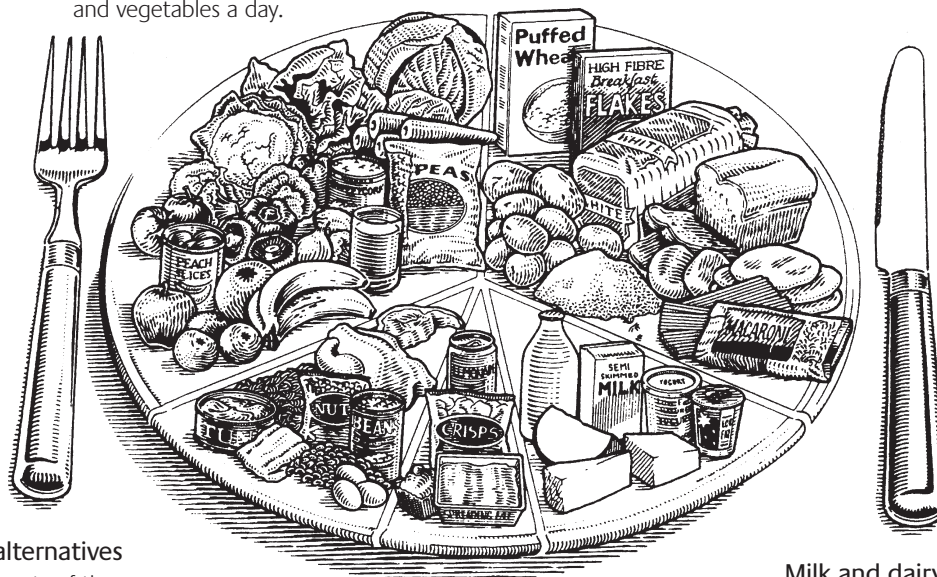
### Balance of Good Health

#### Fruit and vegetables

Eat at least five portions of fruit and vegetables a day.

#### Bread, other cereals and potatoes

Eat lots of these.



#### Meat, fish and alternatives

Eat moderate amounts of these. Choose lower fat versions whenever you can.

#### Foods containing fat and foods containing sugar

Eat only small amounts of foods containing fat. Look out for lower fat alternatives. Don't eat foods containing sugar too often.

#### Milk and dairy foods

Eat or drink moderate amounts of these. Choose lower fat versions whenever you can.

Snacks as well as meals count towards the healthy balance.

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## Five a day

Everyone is encouraged to eat at least 5 portions of a variety of fruit and vegetables a day.

- Children and young people should be encouraged to have at least 1 portion of fruit and 1 portion of vegetables as part of their school lunch.
- Additional fruit and vegetables can be offered as a snack at break time.
- Children who attend breakfast club and those who attend after-school club should be encouraged to have at least one vegetable or fruit snack at each meal occasion.
- Children who attend both breakfast club and after-school club and have school lunch should have had the opportunity to have at least 4 different portions of fruit and vegetables in the school environment.
- An adult portion of fruit or vegetables should be at least 80g. Younger children should be introduced to new fruits and vegetables with ‘taster’ or smaller portions as appropriate, with portion sizes increasing as foods are accepted. As a rough guide a handful is a portion.

More information can be found on [www.5aday.nhs.uk](http://www.5aday.nhs.uk)

### Examples of fruits and vegetables that can be included in meals and snacks

**Fruit juices:** 100% juices

**Smoothies:** puréed fresh fruit combinations with or without natural yoghurt

**Fresh fruit:** apple, pear, orange, banana, grapes, kiwi, mango, berries

**Canned fruit:** pineapple, mandarins, peaches, pears (canned in juice)

**Dried fruit:** apricots, raisins, dates, figs

**Fruit puddings:** fruit salad, baked apple, fruit crumbles, fruit fool, fruit with yoghurt

**Raw vegetables:** carrot, cucumber, tomatoes, lettuce, peppers, watercress

**Salads** (with low-fat and low-salt dressings): tomato salad, coleslaw, bean salad, Greek salad

**Cooked vegetables:** fresh, frozen or canned in water: peas, sweetcorn, carrots, broccoli, green beans, parsnips, spring greens, spinach

**Pulses:** baked beans, rice and peas (peas count as 1 portion), butter beans, chick peas, red kidney beans

**Vegetable dishes:** vegetable curry, vegetable stir-fry, dahl, vegetable bolognese, vegetable chilli, vegetable casserole, bubble and squeak, vegetable soup

## School lunches

The need for nutritious school meals to improve the health and well-being of the current generation of school-aged children remains essential. School lunch remains the main meal of the day for many children and offers an opportunity both to provide good food for young people and to encourage the development of good eating habits. Successful school meals systems require that sufficient children and young people make use of the service to make it economically viable and to ensure that all those in need benefit from the food on offer. Everyone involved in the school meals service should aim to get 95% of primary school children and 75% of secondary school children eating in school.

The cost of school meals needs to be addressed by both purchasers and providers. The uptake of meals will depend to some extent on price as well as quality, and consideration should be given to meal-pricing policies and subsidies.

**Food and drink served to children and young people at school lunches should meet the nutrient-based standards for school lunches given in chapter 5.**

The amount of money spent on food ingredients for school meals should be adequate to achieve the recommendations in this report, and commitment should be made to increase this in line with inflation. It is unlikely that providers can meet the nutrient-based standards for school lunches if they spend less than 70p on ingredients per pupil in primary schools and 80p per pupil in secondary schools (2005 prices). These amounts should be kept under regular review.

Wherever possible, school staff should sit with children and young people at mealtimes, choose from the same food selection, and encourage appropriate social skills at table, to help young people develop confidence in eating with other people. School meals services should provide all those working in school with an acceptable lunch and school staff should not underestimate their influence as role models in choosing and enjoying a wide variety of good food.

## Free school meals

In England, children are entitled to free school meals if their parents receive income support; income-based jobseeker's allowance; support under part VI of the Immigration and Asylum Act; child tax credit, provided they are not entitled to working tax credit and have an annual income (as assessed by the Inland Revenue) that does not exceed £13,910 (2005/06) or the guaranteed element of state pension credit. Similar criteria exist in Scotland, Wales and Northern Ireland. Details of eligibility can be found at [www.hmrc.gov.uk/menus/credits.htm](http://www.hmrc.gov.uk/menus/credits.htm).

## Food for all

Eating together, having special foods or avoiding particular foods are all intimately related to aspects of people's family life, cultural and religious beliefs. It is therefore important to value the contributions which different cultures and nationalities make to the variety of foods eaten in the UK today.

All school and catering staff should be aware of the needs of different cultural groups and of the needs of individual children and young people. Foods that are appropriate to the cultural and religious needs of the school population should be on offer.

Appendix 4 outlines some of the customs of different religious and cultural groups. However, each family or individual may interpret these in different ways. **It is therefore essential to treat each child and young person as an individual.**

The duty to provide free meals to eligible pupils rests with the local education authority (LEA). Where a school's budget includes an amount in respect of meals and other refreshments, this duty rests with the school's governing body. The LEA or governing body may provide meals or other refreshments to pupils, either on the school premises or elsewhere where education is being provided.

About 1.8 million children and young people are entitled to free school meals, about 16% overall, but this applies to over half of all children and young people in social classes D and E.<sup>3</sup> Approximately 1 in 5 children fail to take up this provision in primary schools and about a quarter in secondary schools. In Wales 14% of primary pupils and nearly a third (32%) of secondary school children do not take up their free school meal entitlement.<sup>4</sup> The key factors which inhibit take-up of free school meals are a fear of stigma and bullying where those entitled to free school meals are easily identified, a lack of awareness among parents of their entitlement, and a rejection by children and young people of the food on offer.<sup>5</sup> Increasing the uptake of free school meals is an essential part of tackling food poverty and reducing health inequalities among those on low incomes.<sup>6</sup>

Schools should remove stigma attached to the uptake of free school meals by introducing cashless payment systems for school meals that involve smart cards or swipe cards or new thumbprint or iris recognition technology.<sup>5</sup>

A review of the delegation for funding for school meals commissioned by the Department for Education and Skills in 2003 reported that there was a wide variation in the amount of money delegated to schools for free school

meals and suggested that where the amount is low, this may discourage schools from encouraging greater uptake.<sup>7</sup>

Local education authorities across England and Wales should agree on a standard amount of money per meal to be delegated to schools for free school meals. That amount should reflect the average amount required to supply a good-quality two-course meal and a drink and should be universally implemented across all local education authorities.

However, it has been argued that the current provision of free school meals as a benefit aimed at reducing inequalities of health is inadequate as it fails to benefit large numbers of the very poorest in society.<sup>8</sup> Alternative models looking at free school meals for all or a more rational system of means testing should be examined to ensure that all school-aged children can benefit from school meals regardless of household income.

In some areas free school meals for all pupils could be a cost-effective public health initiative. Free school meals for all primary pupils have been introduced by Hull City Council. All primary school children are able to receive a free healthy school lunch (as well as a free healthy breakfast) in a bid to improve health, education and attainment in the city, and uptake of school meals has now risen to 80%.<sup>9</sup>

## Packed lunches

Many children and young people take a packed lunch to school rather than having cooked school lunches. A recent government report on packed lunches among primary school children reported that from lunchbox foods alone, children were eating double the recommended lunchtime intake of saturated fat and sugar and up to half their daily recommended salt intake.<sup>10</sup> The survey also revealed that one sixth of lunchboxes (16%) did not contain a starchy food such as sandwiches, pasta or rice, and that almost half the lunchboxes surveyed (48%) contained no fruit or vegetables. A previous study by the Consumers Association in 2003 reported that primary school children having packed lunches consumed more fat, carbohydrate and total sugars, less fibre and zinc, and fewer fruit and vegetable portions than those having school lunches.<sup>11</sup>

Crisps, fat spreads, cheese products, chocolate bars and biscuits and crisps are served in about 70% of lunchboxes. Many of these foods have a high fat, sugar and salt content.<sup>10</sup> These could be replaced with other lower salt snacks such as plain popcorn, breadsticks, unsalted nuts, pumpkin or sunflower seeds, rice crackers or pretzels. Yoghurt or fromage frais provides a good source of calcium. See page 51 for more ideas for snack foods.

Schools should provide guidance to parents who provide a packed lunch for their child about suitable foods and drinks to include and which foods and drinks should be restricted



(see below). This information should be part of the school's whole-school food policy (see page 53). Schools which provide guidance on packed lunches should also monitor the content of packed lunches.

A packed lunch should contain:

- a starchy food – for example any sort of bread (white, brown or wholemeal), pitta bread, chapati, crispbreads or rice cakes (choose lower salt breads where available)
- a meat, fish or alternative ('alternatives' include for example egg, cheese, cheese spread, peanut butter or houmous), and
- at least 1 portion of fruit and 1 portion of vegetables – for example raw vegetables, salad, fresh fruit or dried fruit.

Soft drinks, confectionery, high-fat, high-salt and high-sugar foods should be restricted in packed lunches.

Guidance on packed lunches is also available from [www.foodinschools.org](http://www.foodinschools.org)

Many children and young people are happy with water or milk to quench their thirst. Drinks in cartons are both expensive and often high in sugars. Fruit drinks served with meals should be a good source of vitamin C. (See page 50.)

**Where the school provides a packed lunch as its school lunch choice – for example, where there is no kitchen or hot meal provision – the packed lunch offered should meet the nutrient-based standards for school lunches given in chapter 5.**

### The eating environment for packed lunches

The local education authority or governing body must provide facilities for pupils not taking school meals to eat meals that they bring to school. These facilities include accommodation, furniture and supervision so that pupils can eat food they have brought from home in a civilised way and in suitable conditions. The school cannot charge pupils for using these facilities. All eating environments provide an opportunity to promote eating well and schools should ensure that they use this opportunity to provide positive messages about food and nutrition. Free, fresh chilled water should be readily available to all pupils taking packed lunches.

## Dining rooms

Good-quality dining rooms are crucial in persuading pupils to eat in school. Many schools have insufficient seating and an unattractive ambience which compare unfavourably with the experience children have if they eat off-site or at home.<sup>12</sup>

The Department of Health Food in Schools Dining Room Environment project will help schools address the physical and logistical issues around the school dining room to encourage uptake of healthier school meals. Information on this is available from [www.foodinschools.org](http://www.foodinschools.org)

Schools should aim to make the dining rooms for children and young people pleasant spaces which encourage them to remain on the school premises. School staff in dining rooms should encourage good social skills among children and young people wherever possible, particularly at primary school.

Free, fresh, chilled water should always be available in dining rooms, and there should be adequate cutlery and crockery. Salt pots should not be made available in school dining rooms.

Some of the disincentives to eating in school appear to be waiting in queues, crowded, noisy dining rooms and limited time to eat; and most young people want to spend their lunchtime with their friends, some of whom may eat a packed lunch in a different place.<sup>12</sup> Some schools are reducing the amount of time children and young people have available to eat lunch in school in order to better 'manage' the lunch break. In some cases this is reduced to as little as 25 minutes.<sup>4</sup> If schools do not allow children and young people sufficient time to eat, the whole-school approach to good nutrition may have little practical benefit. Encouraging children and young people to have a healthy school lunch should be viewed by school staff as an important achievement for the school and this should be reflected in school inspections by Ofsted (see chapter 6).

## Breakfast clubs

Breakfast is an important meal for two main reasons. Firstly, many breakfast foods are a very good source of fibre and other important nutrients. Secondly, children and young people who skip breakfast may be tempted to eat high-fat, high-sugar snack foods rather than breakfast foods on their way to school or later in the day. The proportion of children not eating breakfast increases with age and it has been reported that 18% of boys and 21% of girls aged 15-16 have nothing to eat before school.<sup>13</sup> Many children and young people also report that, instead of having breakfast, they buy food to eat on the way to school – often sweets, crisps, chocolate and fizzy drinks.<sup>13</sup>

There is evidence that breakfast is beneficial to the diet of young people: breakfast consumers obtain less of their total energy (calories) from fat and have lower serum cholesterol levels.<sup>14</sup> Breakfast cereals can make an important contribution to the nutrient intake of teenagers.<sup>15</sup> The best breakfast cereals are those which are a good source of fibre, which are low in salt and sugar and which are good sources of vitamins and minerals – for example puffed wheat or shredded wheat. Fortified breakfast cereals such as bran flakes, corn flakes, rice crispies, sugar puffs, frosted flakes and coco pops can be a useful source of vitamins and minerals but can be high in salt and sugar. The milk served with breakfast cereals is also a good source of calcium. Children and young people who do not like milk can have breakfast cereal with yoghurt or fruit, and cereals can be sweetened with fresh or dried fruit. Drinking fruit juice (a good source of vitamin C) with breakfast will increase the amount of iron absorbed.

Successful breakfast clubs in schools can offer children and young people an opportunity to eat and drink before school starts, to make a better choice of food at breakfast and to improve their behaviour and attention span in class. A number of reports have evaluated breakfast clubs<sup>16, 17</sup> and it has been concluded that while many achieve their aims of improving education, meeting social needs and improving school-home relationships, promotion of eating well is often not a key focus.

The choice of foods and drinks available in a breakfast club will depend on the funding, facilities and staff available and the cohort of children and young people it serves. Some suggestions for foods and drinks to be served in breakfast clubs are outlined on the right. Young people may be attracted to breakfast clubs if they also offer a pleasant atmosphere, and the opportunity to meet friends and socialise or watch music videos or sport.

Nutrient-based standards for breakfast for children are given in chapter 5 with examples of breakfasts which meet the standards.

Schools which offer breakfast clubs should only offer choices which meet the nutrient-based standards for breakfast given in chapter 5.

Additional resources on breakfast clubs are available from [www.foodinschools.org](http://www.foodinschools.org)

## Tuck shops and food at break time

The School Fruit and Vegetable Scheme offers a free piece of fruit to all children aged 4 to 6 years in LEA maintained schools in England and Wales. Information about the scheme can be found on the Department of Health website [www.5aday.nhs.uk](http://www.5aday.nhs.uk). In Scotland a similar scheme offers a piece of fruit three times a week to all children in primary

### Ideas for food and drink to serve at breakfast clubs

**Fresh fruit juice** (100% juice) can count as one portion of fruit and vegetables for the day and is a good source of vitamin C (which helps iron to be absorbed).

**Milk (semi-skimmed or skimmed)** for use on cereal. Milky drinks can also be offered.

**Breakfast cereals.** Look for those which are low in salt and sugar and higher in fibre, such as puffed wheat or shredded wheat.

**Breads.** Higher fibre breads are a better option but all breads are a good source of B vitamins, fibre and carbohydrate. Breads can include bread, toast, rolls, bagels, pitta bread, plain currant buns, crumpets, and English muffins. Choose lower salt breads where available.

**Toppings for breads.** Useful toppings include egg, peanut butter, meat or fish paste, low-fat soft cheese or houmous. (Fat spreads are not needed if toppings are moist; otherwise use lower fat spreads.)

**Eggs** are a good source of protein and vitamin A, and can be served in a variety of ways.

**Yoghurts** are simple to serve. Choose lower fat yoghurts. Fresh fruit can be added to yoghurt.

**Fruit** such as bananas, apples, pears, mango, dried fruit and canned fruits in juice can also be added to cereals and yoghurts.

**Vegetables** such as tomatoes (tinned or fresh) and raw vegetables such as carrots, peppers, cucumber and celery.

years 1 and 2 (see [www.scotland.gov.uk](http://www.scotland.gov.uk)).

As well as the School Fruit and Vegetable Scheme, many schools run fruit tuck shops where fruit is sold to children at break time. There is evidence that fruit tuck shops may be effective in increasing fruit intakes as part of a whole school approach<sup>18</sup> but a review of effectiveness of fruit tuck shops in primary schools showed that fruit tuck shops on their own would not have a substantial impact on the fruit intake of pupils. However, they are likely to be a valuable component of any comprehensive plan to increase children's fruit consumption.<sup>19</sup> For information on running a fruit tuck shop in a primary school, see page 86.

Schools may wish to restrict snacks that children bring from home to eat at break time to fruit snacks only.

Many secondary schools have profit-making tuck shops which contribute to school funds and which sell a range of snack foods, confectionery and drinks. The Department of Health Food in Schools programme has piloted successful tuck shop schemes which encourage healthier choices in schools. Details can be found on their website [www.foodinschools.org](http://www.foodinschools.org).

Schools should ensure that all food and drink made available in schools, including food and drink sold in tuck shops, fits into the whole-school food policy. Restrictions should be placed on sales of foods and drinks that are high in fat, sugar or salt.

## Drinks and vending machines

The best drinks to offer children and young people between meals are water and milk.

Free, fresh, chilled water should be widely available to all children and young people in schools.

Schools may wish to allow children and young people to carry their own water bottles throughout the day and should provide facilities for them to refill their bottles. Schools may wish to provide or sell strong, refillable water bottles (which can be easily labelled) to children and young people in schools to reduce wastage of empty bottles, and encourage all pupils to drink regularly particularly before, during and after sport.

It is best to avoid sipping fizzy drinks, squashes, fruit drinks and fruit juices throughout the day as these drinks can all be harmful to teeth, particularly by causing tooth erosion (see page 40). Low-sugar drinks can still be harmful to teeth as they may contain some sugars. Diet drinks or sugar-free drinks can also be harmful as they may be acidic and erode the dental enamel. Drinks advertised as 'sports drinks' can also be high in sugars and acids. Fruit drinks are often mistaken for fresh fruit juices but are usually predominantly water and sugar with small amounts of fruit juice and added vitamin C and sometimes other vitamins. These drinks are as harmful to teeth as other sweetened drinks.

Fresh fruit juices and smoothies (made from crushed whole fruit) are good options to offer with meals as the vitamin C in them aids iron absorption.

Research has shown that schools can effectively offer healthier vending of drinks in schools<sup>20</sup> and that healthy drinks machines can be popular with students and also be profitable for schools. Fresh semi-skimmed milk and flavoured milks with less than 10% sugar were the most popular products.<sup>20</sup>

For information on vending in schools, *Vending healthy drinks: a guide for schools*<sup>21</sup> and *Top tips on running a healthy drinks vending machine in school* can both be

downloaded from [www.food.gov.uk](http://www.food.gov.uk). Additional useful information on vending in schools can be found on the Health Education Trust website [www.healthedtrust.com](http://www.healthedtrust.com) and on the Food in Schools website [www.foodinschools.org](http://www.foodinschools.org).

Schools should ensure that all food and drink sold in vending machines fits into the whole-school food policy. Restrictions should be placed on sales of foods and drinks that are high in fat, sugar or salt.

## School milk

Schools are not obliged to offer milk to pupils. Where local education authorities choose to provide milk in the schools in their area, it must be free for pupils whose parents receive income support, income-based jobseeker's allowance, support as asylum seekers or full child tax credit.

EU subsidy rules allow local education authorities and schools to offer nursery and primary school pupils a maximum of 250ml of subsidised milk a day for drinking. The European Union Milk Subsidy Scheme is run by the Rural Payments Agency and claims should be made through the local education authority, dairy or organisation set up to provide milk in schools. For details see [www.rpa.gov.uk](http://www.rpa.gov.uk).

A number of organisations promote milk in schools. For details see [www.milkforschools.org.uk](http://www.milkforschools.org.uk).

Milk is an excellent source of nutrients, particularly calcium. Semi-skimmed or skimmed milk can be encouraged as a drink between meals and schools should be encouraged to look at innovative ways to offer milk to children and young people in schools. Flavoured sweetened milks should be restricted to meal times only.

Free school milk for all pupils should be considered as an option by local authorities.

## Food and drink for sports matches and other sporting events in school

Children and young people who engage in sport or matches at school are often given additional food and drink. It should be noted that where this activity is part of the 60 minutes of physical activity that children and young people are recommended to do each day, and for which energy intakes have been considered in the dietary reference values (see page 79), then water to rehydrate should be the priority, with fruit given as a treat if needed. If children and young people are engaged in high intensity sports and do require refuelling after activity, then snacks such as bananas, higher-fibre cereal bars or carbohydrate-based snacks such as sandwiches are preferable to biscuits and confectionery (see *Ideas for healthy after-school snacks* on the next page.)

## After-school care

Some children may remain after school in the school building, or in a facility near school, for child care until their parents return from work. After-school clubs offer children a safe environment to play, do their homework and relax after school and nearly always include a snack and a drink. There are currently no guidelines for the provision of food and drink in after-school clubs. Out-of-school provision provides young people with opportunities for constructive social interaction and the learning of life skills as well as opportunities to be active. Information on after-school care can be found on [www.4children.org.uk](http://www.4children.org.uk) (formerly the Kids' Club Network).

**All after-school clubs should ensure that the food and drink they provide meets the nutrient-based standards for after-school care given in chapter 5.**

Snacks for children and young people should be as varied as meals. Some examples of good snacks to choose are shown below.

## Whole-day school provision

Those children who attend both breakfast club and after-school club may be in school for the majority of each day and so they are likely to receive a significant proportion of their total daily nutritional requirements while at school. The Government's five-year education plan announced in 2004 aims to extend the school day in all primary schools to 8am to 6pm to allow parental flexibility with work.<sup>22</sup> This could mean that many more children are dependent on food in schools for the majority of their total daily nutrient intake.

Where children receive the majority of their food and drink in school – including at breakfast club, school lunch and in after-school care – there should be coordination and partnership working between providers in order to ensure that the food and drinks provided over the whole day meet the nutrient-based standards given in chapter 5.

## Vegetarianism

Vegetarian diets vary according to which foods are restricted. They exclude meat and fish and their products, but often allow the consumption of dairy products and eggs. There is a wide variation in vegetarian practices so it is important to find out from the individuals concerned which foods they do and do not eat.

### Ideas for healthy after-school snacks

- Any type of bread\* including white, brown or wholemeal bread, fruit bread, crumpets, teacakes, muffins, fruit buns, bagels, tortilla wraps, pitta bread, raisin toast, cheese scones, toast, chapatis.
- Sandwiches made with any type of bread\*. Suitable spreads and fillings include: cheese, cheese spread, hard-boiled egg, fish paste, peanut butter, banana, houmous, tahini, mashed avocado, any meat or meat paste, tinned fish, any vegetable or salad such as tomatoes, lettuce, cucumber, beetroot, peppers, watercress and combinations of any of these. Toasted sandwiches can also be made.
- Plain biscuits such as rich tea, oatcakes, breadsticks, cream crackers, matzos, rice waffles, melba toast or crispbread.
- Home-made plain popcorn, home-made oven-baked potato crisps or sweet potato crisps. (To make potato crisps, put thin slices of potato on a greased baking tray and bake in a hot oven.)
- Raw vegetables such as carrots, celery, cucumber, peppers or tomato can be served with dips made from fromage frais and soft cheese, houmous, yoghurt and cucumber, taramasalata, avocado, salsa or olive paste.
- Any fresh fruit, or dried fruit such as raisins, sultanas, apricots, dates and figs.
- Dairy foods such as yoghurts, frozen yoghurt and home-made rice pudding.
- Low-sugar, low-salt breakfast cereals.

\* Choose lower salt breads where available.

Vegetarian diets have traditionally been eaten by many people throughout the world, particularly in Asia. Vegetarianism is common among Hindus and some Sikhs, Rastafarians and Seventh Day Adventists. Some young people may choose to become vegetarian because they believe the diet is healthier, or because they are concerned about world resources, animal welfare or food safety. Approximately 5% of girls and 1% of boys aged 4-18 years in Britain choose a vegetarian diet, although this figure rises to a reported 10% among girls aged 15-18 years.<sup>23</sup>

A vegetarian diet which provides a good variety of foods can supply all the necessary nutrients. It has been shown that vegetarians have diets which are lower in fat and saturated fat and higher in complex carbohydrates and dietary fibre.<sup>24</sup> Research has shown that vegetarian adolescents have lower blood cholesterol levels (which may contribute to lower rates of heart disease) and a lower risk of obesity than non-vegetarians.<sup>25</sup>

Two nutrients which vegetarian diets sometimes lack are iron and zinc. The body absorbs iron more easily from animal sources – such as meat – than from non-animal sources such as cereals or bread (see page 31). This means that vegetarians have to take extra care to make sure that they get enough iron. There is some evidence that vegetarian women in particular have low levels of iron.<sup>26</sup> For advice on how to make sure there is enough iron in the diet and how to improve absorption of iron, see page 31.

Zinc intakes may also be lower among vegetarians. Vegetarian diets often have a high proportion of wholegrain cereals. Higher levels of fibre and phytates in such foods make it harder for the body to absorb the zinc in foods. Eating a good variety of foods ensures that vegetarians get enough zinc. Sources of zinc include fortified breakfast cereals, tofu, nuts, peas, beans and lentils, sesame seeds and milk and cheese.

Strict vegetarians (vegans) may have low intakes of vitamin B<sub>12</sub>.

Schools should ensure that the needs of those on vegetarian diets are adequately and appropriately met and that vegetarian options are as varied as possible. **Food provided for children and young people who eat only vegetarian menu options should meet the nutrient-based standards given in chapter 5.**

When cooking food for vegetarians it is important not to compromise the food in any way, for example by using the same cooking oil and utensils for meat and non-meat foods. Caterers should ensure that ingredients such as gelatine, lard or suet, and some emulsifiers made from animal fats or animal rennet are not included in dishes which claim to be suitable for vegetarians. Information and advice on ingredients to avoid can be obtained from the Vegetarian Society (see page 88).

## Special diets

Foods that meet the needs of those with special dietary requirements should be on offer.

For sources of information for schools and caterers on things to consider when providing food for children and young people with special requirements – for example, vegan diets, milk-free diets, diets for coeliac disease and considerations for diabetics – see page 88.

Advice on all special diets can be obtained from a registered dietitian (see *Health professionals* on page 88).

## Children and young people with special needs

Children and young people with disabilities may have particular problems associated with eating. It is important that anyone involved in caring for children and young people with eating difficulties is trained to ensure that they can give the best and most appropriate assistance. Cerebral palsy, muscular dystrophy and cleft palate in particular can lead to eating and swallowing difficulties. These problems, where they exist, should not be a barrier to enjoyment and participation in meals and food choice or in passing on eating well skills to young people.

Encouraging independence in eating might require special aids such as non-slip mats, dishes with wide bases and high walls, adapted cutlery and special drinking straws and beakers. Occupational therapists can advise on the most suitable equipment. Advice from speech and language therapists, dietitians and physiotherapists may also be needed to ensure mealtimes are safe and enjoyable and allow adequate nutrition (see *Health professionals* on page 88).

## Listening to children and young people

Young people are faced with numerous choices as they become increasingly responsible for themselves. Eating is one activity that all children and young people must do every day and that remains largely communal. Children and young people should have the opportunity to give their opinions and take an active part in decision-making about school food through school councils or school nutrition action groups (see page 53).

## A whole-school food policy

Every school should adopt and implement a whole-school food policy which covers both the teaching of nutrition and the provision of food within the school environment throughout the day, including breakfast, breaks, lunch and after-school provision.

The aim of any food policy is to outline the commitments made by all those working within the school to providing safe, tasty, appropriate food to pupils and the expectations of the school on children, young people, their families and food providers in supporting the school's mission.

A whole-school food policy should aim to ensure consistency between what is taught in the classroom and what is supplied through the food service. It should give new parents and families joining the school a clear picture of how the school will support eating well and should offer guidance to everyone in the school environment on how eating well is supported.

A whole-school food policy should be designed, written and agreed by a multi-disciplinary team representing management, governors, teachers, support staff, pupils,

caterers and parents. It should be a flexible document that is open to debate and change and it should be made available to every family attending the school and all staff within the school. It should have firm objectives that are measurable and time-bound, and evaluation of the objectives should be built into the food policy.

Governing bodies can play a key part in developing a whole-school food policy. Information on how they can develop strategies around food in schools can be obtained from the National Governors Council (NGC) through their website [www.tmmuk.com/ngc](http://www.tmmuk.com/ngc). Governing bodies should nominate an individual governor with responsibility for food in schools and for the implementation and monitoring of the whole-school food policy.

A food policy can highlight issues such as food availability and vending choices, tuck shops, breakfast and after-school club provision, items encouraged or discouraged in packed lunches, water availability and policy on drinking in lessons, environmental issues about food and waste, and the importance of physical activity.

Schools may choose to set up a school nutrition action group (SNAG) to develop a whole-school food policy. A SNAG

### Sample whole-school food policy

*You might wish to include some of the following points in a whole-school food policy:*

- Everyone in school – teachers, support staff, pupils and visitors – will contribute to the school's mission of being a health-promoting school by thinking about the food and drinks they have during the school day.
- Information about food to be served in school will be made available to everyone.
- Free, fresh, chilled water will be made widely available in school, and pupils will be allowed to carry water bottles in school for use between lessons.
- Vending machines in school will always offer water and fruit.
- Children and young people who choose to bring a packed lunch to school should follow the guidance given by the school about healthy packed lunchboxes.
- Anyone with special requirements will have suitable food made available to them in school.
- Breakfast is an important meal. Everyone is expected to get up in time to eat breakfast before they come to school or to make use of the breakfast club before school starts.
- Respect will be shown for other people's choice of food and manner of eating in school.
- Everyone will be encouraged to eat some fruit and vegetables during the school day.
- Everyone will be encouraged to take some exercise every day.
- Making derogatory remarks about people's body shapes or food choices is considered to be bullying and will be dealt with in line with the school's bullying policy.
- The school will ensure that any collaborations with business do not require endorsement of brands or specific company products.

*The policy should also include details of how the objectives of the policy will be met and evaluated.*

is a school-based alliance in which staff, pupils and caterers, supported by health and education professionals, work together to review and expand the range of food and drink in order to increase the uptake of a healthier diet and ensure consistent messages from the curriculum and the food service. Information on SNAGs can be found at [www.healthedtrust.com](http://www.healthedtrust.com).

A number of templates for a whole-school food policy have been developed and details of these can be found in the section on *Whole-school food policies* on page 86. A sample whole-school food policy is given on page 53. Information on how a whole-school food policy can be developed, managed and evaluated has been developed by Sustain and can be found on [www.grab5.com](http://www.grab5.com). Advice on school food policies can also be found on [www.foodinschools.org](http://www.foodinschools.org).

Schools and all the staff within them should be aware that they act as important sources of information and advice and as influential role models for children and young people. Staff should provide a positive role model for children and young people, for example in the snacks and drinks they choose for themselves, and in their own attitudes to food and eating and to the importance of physical activity. All members of the school community should therefore agree to abide by the whole-school food policy.

## Supporting families to encourage eating well at home

Schools may wish to provide information to parents on sources of advice on eating well for children and young people (for example, useful websites) that can help them to encourage eating well at home. This information could be included in the whole-school food policy (see page 53) which all parents receive when their children join the school.

## Product endorsement in schools

The school environment has become increasingly commercialised, with schools given free equipment and resources bearing company logos, and parents and schools encouraged to purchase specific products, or shop at particular locations, to earn the school goods or equipment. One example of this was the Cadbury's 'Get Active' campaign, where children were encouraged to eat confectionery to earn tokens for sports equipment in schools. Children would have needed to eat £71 worth of chocolate (some 40,000 calories) to earn just one £10 netball for their school.<sup>27</sup> Similar schemes have been run by Walkers Crisps to provide books for schools and Tesco's 'Computers for Schools' vouchers scheme required parents to spend almost a quarter of a million pounds in Tesco stores to earn a single computer. An increasing number of

schools are being paid to display advertising hoardings on school premises to generate income.

There is evidence that these aggressive marketing schemes to children result in long-term brand loyalty and that foods and drinks promoted in schools in this way will give children the impression that they are being given 'permission' to consume them.<sup>28</sup>

Schools should not advertise branded food and drink products on school premises, school equipment or on books and should ensure that any collaborations with business do not require endorsement of brands or specific company products.

Many companies also provide educational materials for use in schools. Schools should ensure that any resources produced by commercial organisations that they are offered should follow the *Guidelines on Educational Materials Concerned with Nutrition* developed by the Department of Health.<sup>29</sup>

## Food and nutrition in the curriculum

Schools provide a unique environment in which to encourage children and young people to learn more about food and health, food and the environment, food production and farming as well as cooking itself. In the formal curriculum, teaching about food and nutrition takes place in a number of subjects, particularly Science, Design and Technology, and Personal, Social and Health Education (PSHE) as well as through cross-curricular themes. Since devolution, Wales now has its own curriculum framework, as do Scotland and Northern Ireland.

Primary school children receive statutory education on food and nutrition in Science. However, in secondary schools the curriculum is separated into discrete subjects, usually taught by subject specialists, and the teaching of food and nutrition can become fragmented. Since Science is a statutory topic for all 5-16 year-olds, the inclusion of food and nutrition as a compulsory topic would seem sensible. Details of where food and nutrition teaching is found in the curriculum for all four countries of the UK can be found on the following websites:

*England:* Qualifications and Curriculum Authority [www.qca.org.uk](http://www.qca.org.uk)

*Wales:* Qualifications, Curriculum and Assessment Authority for Wales [www.accac.org.uk](http://www.accac.org.uk)

*Scotland:* Scottish Curriculum Authority [www.sqa.org.uk](http://www.sqa.org.uk)

*Northern Ireland:* Northern Ireland Department of Education [www.deni.gov.uk](http://www.deni.gov.uk)

In 2003 the Department for Education and Skills and the Food Standards Agency produced a document called *Getting to Grips with Grub*<sup>30</sup> which outlined core competencies relating to knowledge and understanding of food and healthy eating among 14-16 year-olds. This followed qualitative research<sup>31</sup> looking at these areas among 14-16 year-olds which reported that young people had learned and understood healthy eating messages but failed to put them into practice in their everyday lives, and that experience of practical food preparation was patchy and limited. There remains a need, therefore, to radically overhaul and improve teaching on food and nutrition in the national curricula of all four countries in the UK.

A new initiative called *Cook-it!*, which aims to promote out-of-school-hours cookery clubs among 11-14 year olds, has been developed. *Cook-it!* clubs aim to help young people acquire the food skills identified by the Food Standards Agency's *Getting to Grips with Grub* report.<sup>30</sup> For details of how to set up *Cook-it!* clubs see <http://www.continyou.org.uk/content.php?CategoryID=460>

Information on supporting nutrition in schools can be found on the British Nutrition Foundation website [www.nutrition.org.uk](http://www.nutrition.org.uk).

The national curriculum should ensure that all young people receive adequate and consistent information about eating well and a chance to learn practical cooking skills, up to the age of 16 years.

### Learning how to cook

Schools should ensure that all young people acquire knowledge, skills and practical experience in food and nutrition during their school career, so that they are better able to eat well when they become independent.

Before young people leave school, they should have the opportunity to develop skills in:

- understanding healthy eating
- budgeting and menu planning
- food storage and handling, and
- cooking – both for themselves and for others.

Skills need to be learnt throughout a young person's life and experience in these areas should be integrated into the core curriculum. There is currently little opportunity in the school curriculum for children and young people to learn about cooking and to develop their cooking skills.

Schools should re-establish the teaching of basic food preparation skills to all pupils and make cooking clubs available to all children and young people.

Young people who are about to leave school should all be able to:

- prepare potatoes, or other starchy food such as yams,

and cook them by boiling, baking or microwaving

- cook rice, pasta or noodles in the appropriate quantities
- boil, scramble and fry eggs
- prepare and cook vegetables such as carrots, beans, cabbage or broccoli on a gas or electric ring or in a microwave oven
- grill, oven-bake or fry foods such as sausages, fish fingers or bacon
- make a simple dish of something on toast
- make a simple pasta sauce
- make fillings for sandwiches or jacket potatoes
- make a simple stir-fry.

It is also useful to know how to make simple soups and stews, cook with pulses and beans, make omelettes, and prepare a variety of salads and vegetable dishes.

Resources to help schools set up healthier cookery clubs can be found in the *Food in Schools Toolkit*<sup>32</sup> on [www.foodinschools.org](http://www.foodinschools.org).

### Finding out about food

Children and young people should be encouraged to grow food and visit farmers, suppliers and manufacturers in order to improve their understanding of the connections between food, health and the environment. A number of farms offer farm trails to teach children about topics such as animal welfare, food chains and habitats. Information about farm visits can be found on [www.soilassociation.org](http://www.soilassociation.org) and [www.farmsforteachers.org.uk](http://www.farmsforteachers.org.uk).

Growing Schools, launched in 2001 by the Department for Education and Skills, aims to use the outdoor classroom as a learning resource and help to overcome the distance between most young people and rural life. (See [www.teachernet.gov.uk/growingschools](http://www.teachernet.gov.uk/growingschools))

Additional resources for teachers which can be used to enhance learning about food can be found on page 87.



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# Chapter 5

## Nutrient-based standards for school food

### Basic principles

This chapter contains the nutrient-based standards for school food. If school menus achieve these standards, and include a wide variety of foods, they are likely to make a significant contribution to the nutrients that children and young people need for good health and growth.

The standards include values for energy, macronutrients (protein, fat, saturated fat, total carbohydrate, non-milk extrinsic sugars and fibre), and the micronutrients iron, zinc, calcium, vitamin A, vitamin C, folate and sodium. The Expert Working Group recognises that a number of other micronutrients have been found to be insufficient in the diets of some children and young people (ie. riboflavin, magnesium, potassium and iodine) but believes that, if the food served in schools contains the amounts of nutrients and foods as specified on pages 59-69, children and young people will get sufficient amounts of all required micronutrients.

The standards are based on current dietary reference values published by the Department of Health in 1991.<sup>1</sup> Dietary reference values are the amounts of energy and nutrients needed by groups of people. They are the benchmarks which can be used to ensure that the needs of all the individuals in a population group are likely to be met. They also provide the basis for planning the diets for groups of people. Additional information on salt intakes was provided by the Scientific Advisory Committee on Nutrition (SACN) in 2003.<sup>2</sup>

The standards also include recommendations on fruit and vegetables, oily fish and fried or processed potato products.

### Targeting those most in need

It is known that many children and young people do not get enough of certain important nutrients – for example iron, calcium, zinc, vitamin A, vitamin C and folate.<sup>3</sup> In the nutrient-based standards on pages 59-69, the guideline for the proportion of the daily intake of these nutrients to be obtained from the school lunch has been increased in relation to energy, in order to protect individuals from insufficiency. So for example, although the guideline for

energy from the average day's school lunch is 30% of the total day's intake, the guideline for iron is 40% of the total day's intake. The reason for this is that the majority of some nutrients are likely to be consumed at mealtimes rather than between meals as snacks, and therefore meals should provide a greater proportion of some important nutrients.

The Expert Working Group also recommends that in a group of children or young people, the nutrient-based standards should meet the requirements of those children with the greatest needs. So, among mixed gender groups of children, the standard for iron will meet the needs of those girls in the group who have higher requirements, and the standards for calcium, zinc and vitamin A will meet the greater needs of the boys in the group. For single gender schools the figures relate to that gender only.

### Meeting the standards

The nutrient-based standards in this chapter provide figures for the recommended nutrient content of an average meal provided for children and young people in school over a period of one week or more. They are intended to provide a basis for nutritional standards in the specifications for contracts set by local education authorities and schools and for menu planning and monitoring.

**The standards are to be used for planning the supply of food.** This means that caterers and menu planners should be able to demonstrate that the food they are offering over a period of one week or more is able to meet the standards specified.

There is an urgent need for an easy-to-use computer-based tool to enable menu planners to devise menus which meet the nutrient-based standards. This tool should contain detailed and appropriate information on the composition of foods and recipes served in schools so that all those involved in the food system are able to make clear judgements on the suitability of menus based on the same information. One such computer program has been developed for use by all those responsible for planning and evaluating school meals in Scotland.<sup>3</sup> The development of similar tools for use in England, Wales and Northern Ireland will be an essential part of the implementation of these standards.

Caterers will also need to optimise the nutritional quality of food served by following good practice in food preparation and serving. Nutrient losses in storage of food and cooking should be minimised.

On any menu there are likely to be a range of foods, and combinations of foods, of differing nutrient composition. In order to ensure that children and young people do not consistently choose less good meal options, steps will need to be taken to positively promote healthier options and combinations of foods through careful marketing. Caterers should also consider the implications of children and young people choosing particular 'routes' through their menus. For example, if children and young people have to select a meal with *either* a soup *or* a pudding, will those on both 'routes' meet the guidance? For those who are vegetarian, will the vegetarian options on the menu fulfil the standards?

The Expert Working Group recognises that schools will need to make changes in catering practice over a period of time (for example six to nine months) in order to meet these standards. The standards provide the reference against which changes and improvements in school food can be assessed. The Expert Working Group also appreciates that the improvement of school food will be developmental and involve a whole-school approach but believes that it is essential that the standards become compulsory.

### How the standards should work in primary schools

It should be straightforward to adopt and implement the standards for primary schools since most food systems still provide a choice of main or light meals and puddings for a school lunch, and children are generally encouraged to consume all the elements of a meal. However, to encourage all pupils to make good choices, it will be necessary to put some restrictions on how frequently those components that contribute less to good meal choice are served. For example, fried or processed potato products should not be offered on the school lunch menu more than once a week.

### How the standards should work in middle and secondary schools

The majority of middle and secondary schools offer a cash cafeteria system for school lunches, which allows young people to choose any number of options each day, whether as part of a meal or to make up a full meal. It is essential that within every cash cafeteria service there is a choice of full meal options available (which can be hot or cold) which meet the standards in this report. These meal options should be heavily promoted and – in conjunction with measures to remove stigmatisation about the receipt of free school meals – should be encouraged as the meal of choice for this group of young people.

The Expert Working Group recognises that some young people will not choose to have a whole meal option. In

order to ensure that the choices made as far as possible fulfil the requirements for a balanced diet, it is strongly recommended that service providers consider the options they make available and positively promote a range of healthy meal components. Limiting the range of options available at lunch time and at other times in the day to healthier options will help to ensure that more pupils make healthy choices.

## The basis for the nutrient-based standards for school food

### Energy

The dietary reference values suggested for energy meet the requirements for growth, weight maintenance and physical activity. They vary according to age, gender and physical activity.

It has to be assumed that children and young people will eat to appetite at mealtimes: those with higher energy needs are likely to eat greater amounts of food to sustain higher energy requirements. The amount of energy consumed should however match the amount of energy expended.

Children and young people are unlikely to gain excessive amounts of weight from school meals that meet the standards on pages 59-69, provided they undertake moderate amounts of activity. Excess energy intake is more likely to be associated with snacking between meals on foods that are energy-dense (such as confectionery, savoury snacks and soft drinks) or with eating meals that do not fulfil the standards suggested here, as well as with low activity levels. There is likely to be a significant proportion of children and young people for whom the food provided in school remains the main source of food each day, and it is important for this group that the food provided should make a significant contribution to their requirements.

The amounts of fat and carbohydrates in school food are based on the amount of energy that these macronutrients provide, as recommended by the Department of Health.<sup>1</sup>

### Protein and micronutrients

The reference nutrient intake (RNI) has been chosen as the appropriate dietary reference value for planning food supplied in school meals for protein and micronutrients (vitamins and minerals).

The RNI is the amount of a nutrient which is sufficient to meet the dietary requirements for about 97% of the children or young people in a group (defined by age and sometimes by gender). Intakes above this amount will almost certainly be adequate.

## School lunches

TABLE 1:

### Nutrient-based standards for SCHOOL LUNCHES for children and young people aged 5–18 years: SUMMARY OF RECOMMENDATIONS

The table below summarises the proportion of nutrients that children and young people should receive from a school lunch. The figures are for the recommended nutrient content of an average lunch provided for children and young people over a one-week period.

Energy	30% of the estimated average requirement (EAR)
Fat	Not more than 35% of food energy
Saturated fat	Not more than 11% of food energy
Total carbohydrate	Not less than 50% of food energy
Non-milk extrinsic sugars	Not more than 11% of food energy
Fibre	Not less than 30% of the calculated reference value*
Protein	Not less than 30% of the reference nutrient intake (RNI)
Iron	Not less than 40% of the RNI
Zinc	Not less than 40% of the RNI
Calcium	Not less than 40% of the RNI
Vitamin A	Not less than 40% of the RNI
Vitamin C	Not less than 40% of the RNI
Folate	Not less than 40% of the RNI
Sodium	Not more than 30% of the SACN recommendation
Fruit and vegetables	Not less than 2 portions
Oily fish	On the school lunch menu at least once a week
Fried or processed potato products	Not on the school lunch menu more than once a week

TABLE 1

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

\* For details of the calculated reference value for fibre, see Appendix 2.

**EAR** = Estimated Average Requirement **RNI** = Reference Nutrient Intake **SACN** = Scientific Advisory Committee on Nutrition  
For an explanation of EAR and RNI, see below.

#### Estimated Average Requirement (EAR)

This is the average amount of energy or nutrients needed by a group of people. Half the population will have needs greater than this, and half will have needs below this amount.

#### Reference Nutrient Intake (RNI)

This is the amount of a nutrient which is enough to meet the dietary requirements of about 97% of a group of people. If people get more than this amount they will almost certainly be getting enough.

## Food served in schools throughout the school day

The Expert Working Group has also specified the proportions of nutrients that should be provided for children and young people who receive other food and meals in school, for example at breakfast clubs or in after-school care. These are outlined in Tables 2-4.

**TABLE 2:**

### **BREAKFAST AND LUNCH in school: nutrient-based standards for children and young people aged 5–18 years**

The table below summarises the proportion of nutrients that children and young people should receive if they have breakfast and lunch at school. The figures are for the recommended nutrient content of an average breakfast and lunch provided for children and young people over a one-week period.

TABLE 2		Breakfast	Lunch	Home
	<b>Energy</b> % of EAR		20%	30%
<b>Fat, saturated fat, total carbohydrate, non-milk extrinsic sugars</b> % of food energy		20%	30%	50%
<b>Fibre</b> % of the calculated reference value*		20%	30%	50%
<b>Protein</b> % of the RNI		20%	30%	50%
<b>Iron, zinc, calcium, vitamin A, vitamin C, folate</b> % of the RNI		20%	40%	40%
<b>Sodium</b> % of the SACN recommendation		20%	30%	50%
<b>Fruit and vegetables</b> portions		1	2	2+
<b>Oily fish</b>	On the school lunch menu at least once a week			
<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week			

\* For details of the calculated reference value for fibre, see Appendix 2.

**EAR** = Estimated Average Requirement **RNI** = Reference Nutrient Intake **SACN** = Scientific Advisory Committee on Nutrition  
For an explanation of EAR and RNI, see page 59.

**TABLE 3:**

### **BREAKFAST, LUNCH AND AFTER-SCHOOL SNACK in school: nutrient-based standards for children and young people aged 5–13 years**

The table below summarises the proportion of nutrients that children and young people should receive if they have breakfast and lunch at school and stay in after-school care for 2 hours or less, receiving only a snack. The figures are for the recommended nutrient content of an average breakfast, lunch and after-school snack provided for children and young people over a one-week period.

	<b>Breakfast</b>	<b>Lunch</b>	<b>After-school snack</b>	<b>Home</b>	<b>TABLE 3</b>
<b>Energy</b> % of EAR	20%	30%	10%	40%	
<b>Fat, saturated fat, total carbohydrate, non-milk extrinsic sugars</b> % of food energy	20%	30%	10%	40%	
<b>Fibre</b> % of the calculated reference value*	20%	30%	10%	40%	
<b>Protein</b> % of the RNI	20%	30%	10%	40%	
<b>Iron, zinc, calcium, vitamin A, vitamin C, folate</b> % of the RNI	20%	40%	10%	30%	
<b>Sodium</b> % of the SACN recommendation	20%	30%	10%	40%	
<b>Fruit and vegetables</b> portions	1	2	1	1+	
<b>Oily fish</b>	On the school lunch menu at least once a week				
<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week				

\* For details of the calculated reference value for fibre, see Appendix 2.

**EAR** = Estimated Average Requirement **RNI** = Reference Nutrient Intake **SACN** = Scientific Advisory Committee on Nutrition  
For an explanation of EAR and RNI, see page 59.

**TABLE 4:****ALL-DAY SCHOOL: nutrient-based standards for children aged 5–13 years**

The table below summarises the proportion of nutrients that each eating occasion in school should achieve for children who are in all-day school, spending more than 2 hours in after-school care. The figures are for the recommended nutrient content of an average breakfast, lunch, after-school snack and after-school 'meal' provided for children over a one-week period.

TABLE 4		Breakfast	Lunch	After-school snack	After-school 'meal'	Home
	<b>Energy</b> % of EAR	20%	30%	10%	20%	20%
<b>Fat, saturated fat, total carbohydrate, non-milk extrinsic sugars</b> % of food energy	20%	30%	10%	20%	20%	
<b>Fibre</b> % of the calculated reference value*	20%	30%	10%	20%	20%	
<b>Protein</b> % of the RNI	20%	30%	10%	20%	20%	
<b>Iron, zinc, calcium, vitamin A, vitamin C, folate</b> % of the RNI	20%	40%	10%	20%	10%	
<b>Sodium</b> % of the SACN recommendation	20%	30%	10%	20%	20%	
<b>Fruit and vegetables</b> portions	1	2	1	1	<i>Preferably additional portions at home</i>	
<b>Oily fish</b>	On the school lunch menu at least once a week					
<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week					

\* For details of the calculated reference value for fibre, see Appendix 2.

**EAR** = Estimated Average Requirement **RNI** = Reference Nutrient Intake **SACN** = Scientific Advisory Committee on Nutrition  
For an explanation of EAR and RNI, see page 59.

## How do the standards translate into specific nutrients for school children of different ages?

Tables 5-11 on pages 63-69 show what the nutrient-based and food-based standards mean in terms of nutrients and foods for children at different types of school.

### PRIMARY SCHOOLS

In primary schools there will be a wide range of appetites. The Expert Working Group agreed that, since menus in primary schools would be planned for all children together, caterers should achieve the standards based on the needs of children aged 7-10 years. Younger children will eat proportionally less to satisfy their appetites and caterers will use their skill and knowledge of the children to offer appropriately sized portions. By achieving the standards for older primary school-aged children, the needs of all children in the school will be met. Table 5 outlines the nutrient-based standards for primary schools for the whole school day. Some example meals which meet these standards are shown on page 70.

**TABLE 5:**

#### Nutrient-based standards for PRIMARY SCHOOL CHILDREN aged 5–11 years, for breakfast, lunch and after-school care

This table provides figures for the recommended nutrient content of an average day's food and drink over a period of one week or more.

			Breakfast	Lunch	After-school snack	After-school meal
<b>Energy</b>		kcal	371	557	186	371
<b>Fat</b>	MAX	g	14.4	21.6	7.2	14.4
<b>Saturated fat</b>	MAX	g	4.5	6.8	2.3	4.5
<b>Total carbohydrate</b>	MIN	g	49.5	74.2	24.7	49.5
<b>Non-milk extrinsic sugars</b>	MAX	g	10.9	16.3	5.4	10.9
<b>Fibre</b>	MIN	g	3	4.5	1.5	3
<b>Protein</b>	MIN	g	5.7	8.5	2.8	5.7
<b>Iron</b>	MIN	mg	1.7	3.5	0.9	1.7
<b>Zinc</b>	MIN	mg	1.4	2.8	0.7	1.4
<b>Calcium</b>	MIN	mg	110	220	60	110
<b>Vitamin A</b>	MIN	µg	100	200	50	100
<b>Vitamin C</b>	MIN	mg	6	12	3	6
<b>Folate</b>	MIN	µg	30	60	15	30
<b>Sodium</b>	MAX	mg	400	600	200	400
<b>Fruit and vegetables</b>	MIN	portions	1	2	1	1
<b>Oily fish</b>	On the school lunch menu at least once a week					
<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week					

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.



## SECONDARY SCHOOLS

For secondary schools catering for children aged between 11 and 18 years, the Expert Working Group has calculated the nutrient-based standards on the assumption that 70% of the children having school meals would be aged 11-14 and 30% would be 15-18, as this is likely to be fairly representative of the age breakdown of typical school populations.

The figures given in Table 6 are for secondary schools of mixed gender and for single sex secondary schools. Table 7 gives the figures for sixth-formers aged 16-18 years. Some example meals which meet these standards are shown on page 71.

**TABLE 6:**

### Nutrient-based standards for SECONDARY SCHOOL CHILDREN aged 11–18 years, for breakfast and lunch

This table provides figures for the recommended nutrient content of an average day's breakfast and lunch over a period of one week or more.

TABLE 6			ALL PUPILS 11-18 years		BOYS ONLY 11-18 years		GIRLS ONLY 11-18 years	
			Breakfast	Lunch	Breakfast	Lunch	Breakfast	Lunch
	<b>Energy</b>	kcal	430	646	476	714	385	578
	<b>Fat</b>	MAX g	16.8	25.2	18.5	27.8	15.0	22.5
	<b>Saturated fat</b>	MAX g	5.3	7.9	5.8	8.7	4.7	7.1
	<b>Total carbohydrate</b>	MIN g	57.4	86.1	63.5	95.2	51.3	77.0
	<b>Non-milk extrinsic sugars</b>	MAX g	12.6	18.9	14.0	20.9	11.3	16.9
	<b>Fibre</b>	MIN g	3.5	5.2	3.8	5.7	3.1	4.6
	<b>Protein</b>	MIN g	8.8	13.3	9.2	13.8	8.5	12.7
	<b>Iron</b>	MIN mg	3.0	5.9	2.3	4.5	3.0	5.9
	<b>Zinc</b>	MIN mg	1.8	3.7	1.8	3.7	1.7	3.4
	<b>Calcium</b>	MIN mg	200	400	200	400	160	320
	<b>Vitamin A</b>	MIN µg	130	250	130	250	120	240
	<b>Vitamin C</b>	MIN mg	7.3	14.6	7.3	14.6	7.3	14.6
	<b>Folate</b>	MIN µg	40	80	40	80	40	80
	<b>Sodium</b>	MAX mg	470	710	470	710	470	710
	<b>Fruit and vegetables</b>	MIN portions	1	2	1	2	1	2
	<b>Oily fish</b>		On the school lunch menu at least once a week					
	<b>Fried or processed potato products</b>		Not on the school lunch menu more than once a week					

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

TABLE 7:

### Nutrient-based standards for SIXTH-FORMERS aged 16–18 years, for breakfast and lunch

This table provides figures for the recommended nutrient content of an average day's breakfast and lunch over a period of one week or more.

			ALL PUPILS 16-18 years		BOYS ONLY 16-18 years		GIRLS ONLY 16-18 years	
			Breakfast	Lunch	Breakfast	Lunch	Breakfast	Lunch
<b>Energy</b>		kcal	487	730	551	827	422	633
<b>Fat</b>	MAX	g	18.9	28.4	21.4	32.1	16.4	24.6
<b>Saturated fat</b>	MAX	g	6.0	8.9	6.7	10.1	5.2	7.7
<b>Total carbohydrate</b>	MIN	g	64.9	97.3	73.5	110.2	56.3	84.4
<b>Non-milk extrinsic sugars</b>	MAX	g	14.3	21.4	16.2	24.2	12.4	18.6
<b>Fibre</b>	MIN	g	3.9	5.9	4.4	6.6	3.4	5.1
<b>Protein</b>	MIN	g	10.0	15.0	11.0	16.6	9.0	13.5
<b>Iron</b>	MIN	mg	3.0	5.9	2.3	4.5	3.0	5.9
<b>Zinc</b>	MIN	mg	1.9	3.8	1.9	3.8	1.4	2.8
<b>Calcium</b>	MIN	mg	200	400	200	400	160	320
<b>Vitamin A</b>	MIN	µg	140	280	140	280	120	240
<b>Vitamin C</b>	MIN	mg	8	16	8	16	8	16
<b>Folate</b>	MIN	µg	40	80	40	80	40	80
<b>Sodium</b>	MAX	mg	470	710	470	710	470	710
<b>Fruit and vegetables</b>	MIN	portions	1	2	1	2	1	2
<b>Oily fish</b>	On the school lunch menu at least once a week							
<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week							

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

## FIRST, MIDDLE AND UPPER SCHOOLS, AND INDEPENDENT SCHOOLS

In some areas of the UK the school system offers first schools (5-8 years), middle schools (9-12 years) and upper schools (13-18 years) and this broadly also fits into independent education systems of pre-preparatory schools (5-7 years), preparatory schools (9-13 years) and senior schools (14-18 years).

### First schools and pre-preparatory schools

The nutrient-based standards for first schools or pre-preparatory schools are based on the dietary reference values for 7-10 year-olds (for the same reason as explained on page 63 for all primary school children) and are therefore the same as the standards for all primary schools shown in Table 5 on page 63.

### Middle schools and preparatory schools

The standards for middle schools or preparatory schools are calculated on the assumption that 50% of those receiving the school meals are aged 7-10, and 50% are aged 11-14. Table 8 gives the standards for mixed schools, and Tables 9 and 10 give the standards for single sex schools.

**TABLE 8:**

### Nutrient-based standards for MIDDLE SCHOOL CHILDREN aged 9–12 years, for breakfast, lunch and after-school care: ALL PUPILS

This table provides figures for the recommended nutrient content of an average day's food and drink over a period of one week or more.

			Breakfast	Lunch	After-school snack	After-school meal
TABLE 8	<b>Energy</b>	kcal	389	583	194	389
	<b>Fat</b>	MAX g	15.1	22.7	7.6	15.1
	<b>Saturated fat</b>	MAX g	4.8	7.1	2.4	4.8
	<b>Total carbohydrate</b>	MIN g	51.8	77.8	25.9	51.8
	<b>Non-milk extrinsic sugars</b>	MAX g	11.4	17.1	5.7	11.4
	<b>Fibre</b>	MIN g	3.1	4.7	1.6	3.1
	<b>Protein</b>	MIN g	7.0	10.4	3.5	7.0
	<b>Iron</b>	MIN mg	2.4	4.7	1.2	2.4
	<b>Zinc</b>	MIN mg	1.6	3.2	0.8	1.6
	<b>Calcium</b>	MIN mg	160	310	80	160
	<b>Vitamin A</b>	MIN µg	110	220	60	110
	<b>Vitamin C</b>	MIN mg	6.5	13	3.3	6.5
	<b>Folate</b>	MIN µg	35	70	20	35
	<b>Sodium</b>	MAX mg	430	650	220	430
	<b>Fruit and vegetables</b>	MIN portions	1	2	1	2
	<b>Oily fish</b>	On the school lunch menu at least once a week				
	<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week				

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

**TABLE 9:**

### Nutrient-based standards for MIDDLE SCHOOL CHILDREN aged 9–12 years, for breakfast, lunch and after-school care: BOYS

This table provides figures for the recommended nutrient content of an average day's food and drink over a period of one week or more.

			Breakfast	Lunch	After-school snack	After-school meal
<b>Energy</b>		kcal	419	629	210	419
<b>Fat</b>	MAX	g	16.3	24.4	8.1	16.3
<b>Saturated fat</b>	MAX	g	5.1	7.7	2.6	5.1
<b>Total carbohydrate</b>	MIN	g	55.9	83.8	27.9	55.9
<b>Non-milk extrinsic sugars</b>	MAX	g	12.3	18.4	6.1	12.3
<b>Fibre</b>	MIN	g	3.4	5.0	1.7	3.4
<b>Protein</b>	MIN	g	7.0	10.6	3.5	7.0
<b>Iron</b>	MIN	mg	2.0	4.0	1.0	2.0
<b>Zinc</b>	MIN	mg	1.6	3.2	0.8	1.6
<b>Calcium</b>	MIN	mg	160	310	80	160
<b>Vitamin A</b>	MIN	µg	110	220	60	110
<b>Vitamin C</b>	MIN	mg	6.5	13	3.3	6.5
<b>Folate</b>	MIN	µg	35	70	20	35
<b>Sodium</b>	MAX	mg	430	650	220	430
<b>Fruit and vegetables</b>	MIN	portions	1	2	1	1
<b>Oily fish</b>	On the school lunch menu at least once a week					
<b>Fried or processed potato products</b>	Not on the school lunch menu more than once a week					

TABLE 9

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

**TABLE 10:**

### Nutrient-based standards for MIDDLE SCHOOL CHILDREN aged 9–12 years, for breakfast, lunch and after-school care: GIRLS

This table provides figures for the recommended nutrient content of an average day's food and drink over a period of one week or more.

			Breakfast	Lunch	After-school snack	After-school meal	
TABLE 10	Energy		kcal	359	538	179	359
	Fat	MAX	g	14.0	20.9	7.0	14.0
	Saturated fat	MAX	g	4.4	6.6	2.2	4.4
	Total carbohydrate	MIN	g	47.8	71.7	23.9	47.8
	Non-milk extrinsic sugars	MAX	g	10.5	15.8	5.3	10.5
	Fibre	MIN	g	2.9	4.3	1.4	2.9
	Protein	MIN	g	7.0	10.4	3.5	7.0
	Iron	MIN	mg	2.4	4.7	1.2	2.4
	Zinc	MIN	mg	1.6	3.2	0.8	1.6
	Calcium	MIN	mg	140	270	70	140
	Vitamin A	MIN	µg	110	220	60	110
	Vitamin C	MIN	mg	6.5	13	3.3	6.5
	Folate	MIN	µg	35	70	20	35
	Sodium	MAX	mg	430	650	220	430
	Fruit and vegetables	MIN	portions	1	2	1	1
	Oily fish	On the school lunch menu at least once a week					
	Fried or processed potato products	Not on the school lunch menu more than once a week					

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

## Upper schools and senior schools

The standards for upper schools or senior schools are calculated on the assumption that 50% of those receiving the school meals are aged 13-14 years and 50% are aged 15-18. Table 11 gives the standards for both mixed schools and single sex schools.

**TABLE 11:**

### Nutrient-based standards for UPPER SCHOOL CHILDREN aged 13–18 years, for breakfast and lunch

This table provides figures for the recommended nutrient content of an average day's breakfast and lunch over a period of one week or more.

			ALL PUPILS 13-18 years		BOYS ONLY 13-18 years		GIRLS ONLY 13-18 years		TABLE 11
			Breakfast	Lunch	Breakfast	Lunch	Breakfast	Lunch	
Energy		kcal	447	670	500	743	396	593	
Fat	MAX	g	17.4	26.1	19.3	29.0	15.4	23.1	
Saturated fat	MAX	g	5.5	8.2	6.1	9.1	4.8	7.3	
Total carbohydrate	MIN	g	59.5	89.3	66.3	99.5	52.7	79.1	
Non-milk extrinsic sugars	MAX	g	13.1	19.7	14.6	21.9	11.6	17.4	
Fibre	MIN	g	3.6	5.4	4.0	6.0	3.2	4.8	
Protein	MIN	g	9.2	13.8	9.7	14.6	8.6	12.9	
Iron	MIN	mg	3.0	5.9	2.3	4.5	3.0	5.9	
Zinc	MIN	mg	1.9	3.7	1.9	3.7	1.6	3.2	
Calcium	MIN	mg	200	400	200	400	160	320	
Vitamin A	MIN	µg	130	260	130	260	120	240	
Vitamin C	MIN	mg	7.5	15.0	7.5	15.0	7.5	15.0	
Folate	MIN	µg	40	80	40	80	40	80	
Sodium	MAX	mg	470	710	470	710	470	710	
Fruit and vegetables	MIN	portions	1	2	1	2	1	2	
Oily fish	On the school lunch menu at least once a week								
Fried or processed potato products	Not on the school lunch menu more than once a week								

**Salt:** Salt should **not** be made available at counters or at tables.

**Water:** Free, fresh, chilled water should be available to children and young people at school.

## Example menus

### Example menu for primary school children

Some example meals which would meet the nutrient-based standards for primary school age children are shown below.

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Breakfast</b>	Puffed wheat/shredded wheat/weet bisks/shreddie-type cereals with milk Orange juice Wholemeal toast and margarine or fresh fruit				
<b>Lunch</b>	Salmon fish cakes Jacket wedges Peas and sweetcorn  Fruit salad  Water	Chicken and broccoli lasagne Baguette Cucumber and carrot sticks  Yoghurt and fresh fruit  Water	Roast lamb in minted gravy Roast potatoes Carrots and French beans  Apple and blackberry crumble  Water	Spaghetti bolognese Mixed salad  Apricot condé  Water	Homemade cheese and tomato pizza Curried rice salad Mixed raw vegetable platter  Fruit squares  Water
<b>Lunch (vegetarian)</b>	Baked bean lasagne Baguette Carrot and cucumber sticks  Banana and chocolate brownie  Water	Homemade pizza Potato wedges Coleslaw Green and red pepper slices  Ice cream with canned fruit Oat cookies  Water	Vegetable curry Basmati rice Lentil dahl Chapati  Greek yoghurt with pears  Water	Vegetarian spaghetti bolognese Mixed salad  Jellied fruit salad  Water	Mexican beans New potatoes Broccoli florets Sweetcorn  Apple cinnamon crumble and custard  Water
<b>After-school snack</b>	Chewy cereal bar Clementine  Milk	Chocolate chip cookies Dried apricots  Milk	Breadsticks Raw baby carrots Raisins  Milk	Popcorn Apple  Milk	Fromage frais Orange  Water
<b>After-school meal</b>	Jacket potato with tuna Sweetcorn  Fruit yoghurt  Water	Mexican chicken pasta salad in tortilla wrap  Banana  Water	Bean bake Wholemeal roll  Melon  Water	Spanish omelette Cherry tomatoes Cucumber  Spiced apple cake  Water	Farmhouse tomato soup Oaty scones  Canned pineapple  Water

**Note:** Milk drinks are based on 150ml portions of semi-skimmed milk. Calcium-fortified soya milk is an acceptable alternative.

## Example menu for secondary school children

Examples of meals which would meet the nutrient-based standards for secondary school children for breakfast and lunch are shown below.

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Breakfast</b>	Puffed wheat/shredded wheat/weet bisks/shreddie-type cereals with milk Orange juice Wholemeal toast and margarine or fresh fruit or fruit yoghurt				
<b>Lunch (cooked)</b>	Beef curry Brown rice Lentil dahl  Fruit salad and crème fraîche  Milk	Homemade tuna pizza Jacket potato Baked beans  Jelly yoghurt whip with fruit  Milk	Spicy chicken casserole Noodles Green beans  Steamed fruit pudding and custard  Milk	Cowboy hotpot Boiled new potatoes Broccoli florets  Spiced apple cake  Milk	Salmon fishcakes Chips Carrots and peas  Ice cream and fruit  Milk
<b>Lunch (vegetarian, cooked)</b>	Vegetable and chickpea curry Chapati Lentil dahl  Fresh fruit platter  Milk	Lentil and tomato quiche Jacket potato Mixed salads  Apple brown Betty  Milk	Caribbean vegetable casserole Rice and peas  Banana custard  Milk	Three bean lasagne Broccoli spears  Fruit mousse  Milk	Spicy vegetable burgers in wholemeal buns Baked beans  Fruit square  Milk
<b>Lunch (sandwich-type)</b>	Onion bagel Egg salad Watercress  Apricot oat bar  Milk	Pitta bread with corned beef and coleslaw Celery Cherry tomatoes  Greek yoghurt with raisins  Milk	Tortilla wrap with smoked mackerel and sweetcorn Three bean salad  Dutch apple tart  Milk	Burger buns with homemade lentil or lamb burgers Raw carrot and red pepper slices  Winter fruit salad  Milk	Chicken tikka sandwiches on wholemeal bread Lettuce  Banana and chocolate brownie  Milk

**Note:** Milk drinks are based on 150ml portions of plain or flavoured semi-skimmed milk, milkshakes or smoothies (made with semi-skimmed milk and fruit) with an NMES content of up to 5g per 100ml. Calcium-fortified soya milk is an acceptable alternative.



## References

- 1 Department of Health. 1991. *Dietary Reference Values for Food Energy and Nutrients for the United Kingdom*. London: HMSO.
- 2 Scientific Advisory Committee on Nutrition. 2003. *Salt and Health*. London: The Stationery Office.
- 3 Scottish Executive. 2004. *H4S* (computer program). Edinburgh: Scottish Executive.

## Chapter 6

# Implementing and monitoring the nutrient-based standards for school food

### Improving school meals

School meals provide a vital social service for many children. In order for the school meal service to be successful there needs to be a commitment from all those involved in the school meals service to make school meals a positive and enjoyable experience. School food in many areas has to compete with high street shops and takeaways and the service must therefore address some of the issues that children and young people themselves raise about the cost, quality and acceptability of foods available in school. The American nutritionist Marion Nestle claims that for a healthy school meals service to be successful the three components required are a committed food service director, a supportive headteacher and interested parents.<sup>1</sup> While this may indeed be the magic combination that has allowed some schools to buck national trends and produce an excellent school meals service, there needs to be concerted action in a number of key areas nationally for healthy meals to become a reality in all schools. Those areas where changes need to be made are:

- government food policy
- the purchasing and provision of school meal services
- the procurement of food for school meals
- training, help and advice to caterers and schools
- influencing choice among children and young people through marketing and education
- the monitoring of the school meals service through Ofsted (and its equivalent in other countries of the UK), and provision of feedback on the results of monitoring, and
- whole-school food policy – including restrictions on food brought into school and on non-school food being purchased during the school day.

This chapter deals briefly with each of these issues (except for the whole-school food policy which is outlined in chapter 4 – see page 53).

An overall commitment within schools to a healthy school meals service is essential if the necessary changes suggested in this report are to be implemented.

### Food policy

The Department for Education and Skills has made a commitment to improving the health of school children through its Healthy Schools initiative, Healthy Blueprint for Schools and the Food in Schools programme. The Expert Working Group makes the following recommendations:

- The nutrient-based standards in this report should become compulsory for all school-aged children in England and Wales.
- Government departments should include reference to the nutrient-based standards in regulations and guidance to all those involved in the school meals service.

#### Practical suggestions for working in partnership

The Scottish Executive report *Hungry for Success*, published by an Expert Working Party in Scotland in 2003, provides many practical suggestions on how a better school food service can be developed, implemented and achieved through a partnership of local authorities, catering professionals, schools, teachers, parents and pupils.<sup>2</sup> The Expert Working Group recommends this report to all those interested in improving school food in their own area. (The report is available from [www.scotland.gov.uk/hungryforsuccess](http://www.scotland.gov.uk/hungryforsuccess).) A similar comprehensive report for schools in England, Wales and Northern Ireland, which includes the nutrient-based standards for food in schools given in this report, should be drawn together by the relevant government departments as a matter of urgency.

- Government should require the nutrient-based standards to be included in the school inspection process.
- A CD-ROM or Internet resource should be produced for all local education authorities and schools to help relevant staff produce nutritionally balanced menus. This resource should also be a means for children and young people to learn more about good nutrition.

## The purchasing and provision of school meal services

- Local education authorities and schools should draw up specifications for school meal tenders in line with the nutrient-based standards in this report. The Department for Education and Skills should provide a model template for this specification.
- Caterers, local education authority purchasing consortia and the Department for Education and Skills should cooperate to develop compulsory nutritional specifications (compositional standards) for all major commodities and foods used in schools.
- The cost of school meals needs to be addressed by both purchasers and providers. The uptake of meals will depend to some extent on price as well as quality, and consideration should be given to meal-pricing policies and subsidies. In some areas free school meals for all pupils could be a cost-effective public health initiative.
- The amount of money spent on food ingredients for school meals should be adequate to achieve the recommendations in this report, and commitment should be made to increase this in line with inflation. It is unlikely that providers can meet the nutrient-based standards for school lunches if they spend less than 70p on ingredients per pupil in primary schools, and 80p per pupil in secondary schools (2005 prices). These amounts should be kept under regular review.
- Local education authorities should agree on an amount of money per meal to be delegated to schools for free school meals. That amount should reflect the average amount required to supply a good-quality two-course meal and a drink and should be universally implemented across all local education authorities.
- All those responsible for food procurement should develop links with local sustainable food suppliers and set targets for the amount of locally sourced food, and organically grown food, that will be included in school meals in their area.
- Schools and local education authorities should ensure that adequate resources are available for appropriate kitchen tools and equipment to enable catering staff to provide food that meets the nutrient-based standards.

## Training

Training for catering staff and for all those involved in food service is a crucial factor in encouraging children and young people to eat well.

Local authorities should provide training and information to all relevant staff to enable them to use the nutrient-based standards effectively.

Training programmes are needed for school meal providers to ensure that they understand the links between food and health, the marketing techniques needed to encourage the choice of healthy meals and the practical preparation methods which will allow the standards to be implemented.

All catering staff should receive training on good nutrition and menu planning. This could be part of their skills development plan. Local authorities and other providers should ensure that this training takes place at local level and is also made available to managers, inspectors and other relevant staff.

Teachers and support staff should be trained to enable all children and young people to acquire information on healthy eating, and practical experience in cooking, budgeting for food, shopping, menu planning, and food storage and handling during their school career.

## Influencing choice among children and young people through marketing and education

- Appropriate marketing and presentation of food to make it attractive to children and young people are essential.
- Pricing policies and organisation of the food service should encourage the uptake of healthier options.
- The weekly menu should be prominently displayed in schools.
- Software allowing children and young people to look at menus and compare their choices with the standards in this report should be developed.
- Advertising the school meal service to parents and children is an important part of the marketing strategy.
- Partnership working between those involved in classroom education and those providing food in schools is important to ensure that food offered in schools is consistent with and reinforces classroom messages about eating well.

## Monitoring school meal provision

Monitoring of the implementation of the nutrient-based standards is crucial to ensure that the standards are being met and to provide feedback to the purchasers, providers and consumers of school meals. Time-bound monitoring systems need to be put in place throughout the school meal system so that evaluation of how schools achieve the standards can be used to provide feedback to the schools themselves, highlight areas that require intervention, and provide examples of good practice.

### Who currently has the responsibility for ensuring that the nutritional standards for school meals are met?

From 2000, funding for school meals was delegated to all secondary schools. Primary and special schools can opt for delegation. Where a school has a delegated budget for meals, the governing body takes on the responsibility for their provision. This will include, for example, providing a paid-for lunch service and a free lunch to eligible pupils that comply with the nutritional standards. They also have the freedom to choose their own suppliers or providers for the school meal service; this would also include the cost and ingredient content of the school meal. LEAs and schools are currently encouraged to monitor their school meals services 'from time to time' to ensure that the standards are being complied with, but monitoring and reporting are not compulsory.

Where schools have not delegated the budget for meals, the local education authority retains responsibility for school meals standards.

A recent review of the delegation of funding for school meals commissioned by the Department for Education and Skills also noted that where the responsibility for monitoring standards had been delegated to governing bodies these responsibilities were not always clearly understood.<sup>3</sup>

### Monitoring the standards

The flowchart on the next page outlines a mechanism for the monitoring of nutrient-based standards for food in schools. In 2005, the Department for Education and Skills suggested that Ofsted will become responsible for the monitoring of food in schools.<sup>4</sup> The Expert Working Group welcomes this as an acknowledgement of the importance of healthy food to the success of a school.

The Expert Working Group makes the following recommendations:

- Regular monitoring of school meals provision is essential and should be included in all contracts.
- Communication between children and young people and caterers about food in schools is essential. Asking children

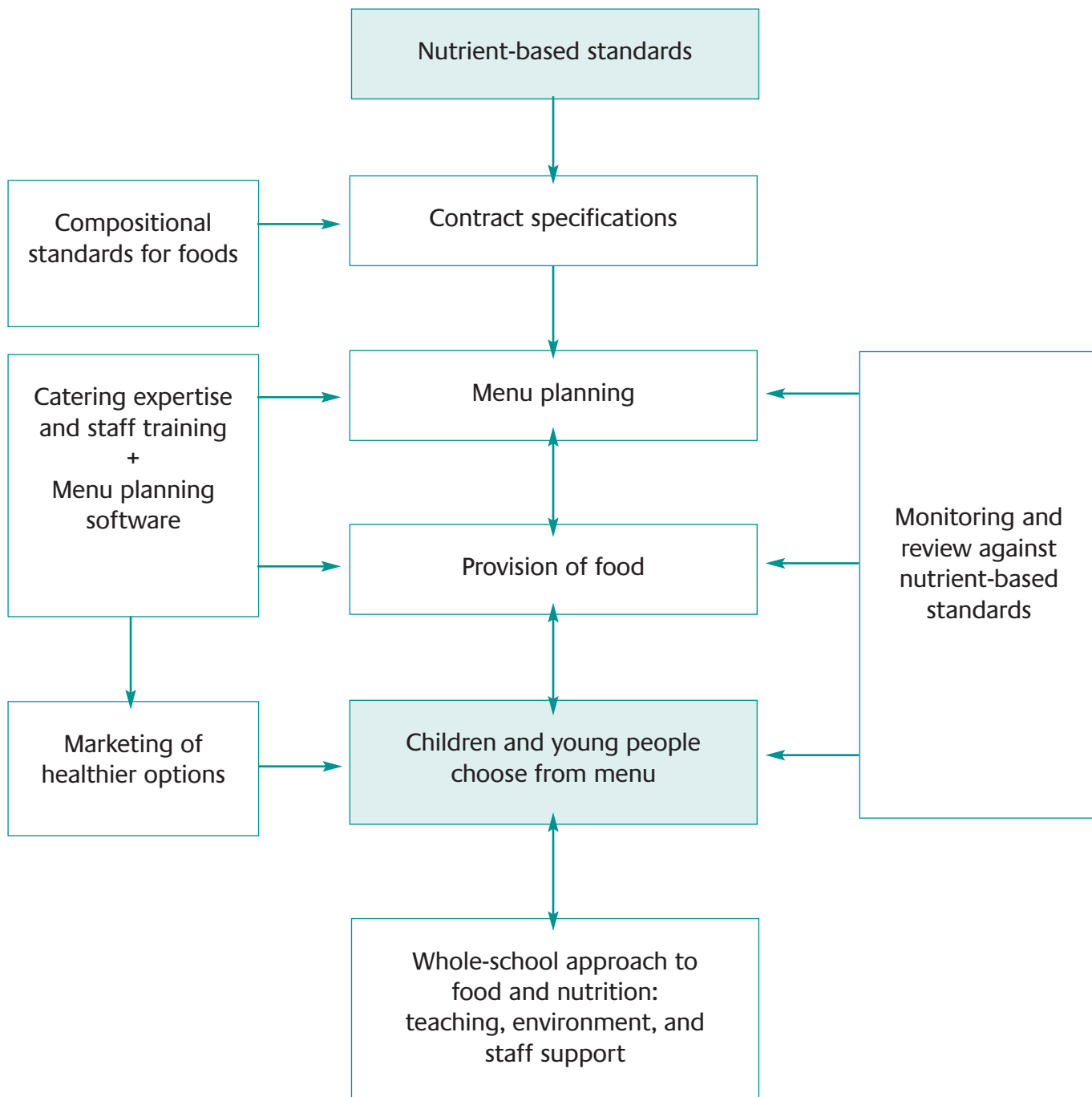
and young people their views on food and food-related issues should be a compulsory part of the feedback mechanism for monitoring the standards.

- Governing bodies and school boards should require an annual report on the provision and uptake of school meals and other food made available in schools.
- Caterers, local education authorities and the Department for Education and Skills should cooperate to develop a set of tools, including menu planning software, to facilitate the monitoring of standards for school meals.
- Ofsted should give feedback on the results of monitoring and offer appropriate advice and assistance to ensure that standards can be met.

## References

- 1 Nestle M. 2002. *Food Politics: How the Food Industry Influences Nutrition and Health*. Berkeley: University of California Press.
- 2 Scottish Executive. 2003. *Hungry for Success. A Whole School Approach to School Meals in Scotland*. Edinburgh: Scottish Executive. Accessed from: [www.scotland.gov.uk/hungryforsuccess](http://www.scotland.gov.uk/hungryforsuccess)
- 3 Storey P, Candappa M, for the Thomas Coram Research Institute, University of London. 2004. *School Meals Funding Delegation*. London: University of London.
- 4 Department for Education and Skills. 2005. Press release: *School Meals: Raising the Standards*. Press Notice 2005/0019.

## Using the nutrient-based standards



# Appendix 1

## Food-based standards for school meals (2001)

These are the minimum nutritional standards that were in force in England and Wales at the time of publication of this report in 2005. For full details see [www.dfes.gov.uk/schoollunches](http://www.dfes.gov.uk/schoollunches).

For school meal standards for Scotland, see [www.scotland.gov.uk/hungryforsuccess](http://www.scotland.gov.uk/hungryforsuccess).

	Nursery	Primary	Secondary
<b>What are the compulsory standards?</b>	<p>At least one item from each of the following food groups must be available every day:</p> <ul style="list-style-type: none"> <li>• Starchy foods such as bread, potatoes, rice and pasta.</li> <li>• Fruit and vegetables.</li> <li>• Milk and dairy foods.</li> <li>• Meat, fish and other non-dairy sources of protein.</li> </ul>	<p>At least one item from each of the following food groups must be available every day:</p> <ul style="list-style-type: none"> <li>• Starchy foods such as bread, potatoes, rice and pasta. Starchy food cooked in oil or fat should not be served more than <b>three</b> times a week.</li> <li>• Fruit <b>and</b> a vegetable must be available every day. Fruit-based desserts must be available <b>twice</b> a week.</li> <li>• Milk and dairy foods.</li> <li>• Meat, fish and other non-dairy sources of protein. Red meat must be served at least <b>twice a week</b>. Fish must be served at least <b>once a week</b>.</li> </ul>	<p>At least two items from each of the following food groups must be available every day and throughout the lunch service:</p> <ul style="list-style-type: none"> <li>• Starchy foods such as bread, potatoes, rice and pasta. At least one of the foods available in this group should not be cooked in oil or fat.</li> <li>• Fruit and vegetables.</li> <li>• Milk and dairy foods.</li> <li>• Meat, fish and other non-dairy sources of protein. Red meat must be served at least <b>three times a week</b>. Fish must be served at least <b>twice a week</b>.</li> </ul>

	<b>Nursery</b>	<b>Primary</b>	<b>Secondary</b>
<b>What do the standards apply to?</b>	<p>All lunches provided during term time, whether they are free or lunches which children pay for.</p> <p>There is no obligation to provide a paid meals service for part-time children in nursery schools and units. But part-time children whose parents receive income support or income-based jobseeker's allowance are entitled to a free lunch.</p> <p>Children cannot spend their entitlement on other school food such as breakfast or break-time snacks.</p> <p><b>Hot and cold food,</b> including packed lunches provided by the school for pupils on school trips.</p>	<p>All lunches provided during term time, whether they are free or lunches which children pay for.</p> <p>Pupils cannot spend their entitlement on other school food such as breakfast or break-time snacks.</p> <p><b>Hot and cold food,</b> including packed lunches provided by the school for pupils on school trips.</p>	<p>All lunches provided during term time, whether they are free or lunches which children pay for.</p> <p>Pupils cannot spend their entitlement on other school food such as breakfast or break-time snacks.</p> <p><b>Hot and cold food,</b> including packed lunches provided by the school for pupils on school trips.</p>
	Special schools are able to comply with either primary or secondary school standards		
<b>Who is legally responsible for ensuring compliance?</b>	Responsibility for ensuring that nutritional standards are met rests with the local education authority or, if they have delegated the school meals budget, with the school governing body.		
<b>How are the standards monitored?</b>	Monitoring is not compulsory. Guidance is offered on the use of checklists and more detailed nutrient analysis. How it is done is at the discretion of local education authorities, schools and caterers.		
<b>What additional guidance is offered?</b>	Accompanying guidance notes to the nutritional standards also set out suggestions for good catering practice and ideas for improving the meals service. (See <a href="http://www.dfes.gov.uk/schoollunches">www.dfes.gov.uk/schoollunches</a> .)		

## Appendix 2

# Dietary reference values and derived amounts for nutrients used in this report

Tables 12 and 13 show the dietary reference values and derived amounts for nutrients per day which were used as the basis for calculating the nutrient-based standards in Tables 1-11<sup>1</sup>.

**TABLE 12:**

### Dietary reference values and derived amounts for nutrients per day: BOYS

	Dietary reference value (DRV)		4-6 years	7-10 years	11-14 years	15-18 years
<b>Energy</b>	EAR	kcal	1,715	1,970	2,220	2,755
<b>Fat</b>	DRV: average 35% of food energy*	g	66.7	76.6	86.3	107.1
<b>Saturated fat</b>	DRV: average 11% of food energy*	g	21.0	24.1	27.1	33.7
<b>Total carbohydrate</b>	DRV: average 50% of food energy*	g	228.7	262.7	296.0	367.3
<b>Non-milk extrinsic sugars</b>	DRV: average 11% of food energy*	g	50.3	57.8	65.1	80.8
<b>Fibre</b>	Proportion of DRV for adults (18g)/CRV**	g	13.7	15.8	17.8	22.1
<b>Protein</b>	RNI	g	19.7	28.3	42.1	55.2
<b>Iron</b>	RNI	mg	6.1	8.7	11.3	11.3
<b>Zinc</b>	RNI	mg	6.5	7.0	9.0	9.5
<b>Calcium</b>	RNI	mg	450	550	1,000	1,000
<b>Vitamin A</b>	RNI	µg	500	500	600	700
<b>Vitamin C</b>	RNI	mg	30	30	35	40
<b>Folate</b>	RNI	µg	100	150	200	200
<b>Sodium</b>	SACN recommendation	mg	1,177	1,961	2,353	2,353

TABLE 12

\* As there is no absolute requirement for sugars or fats (except essential fatty acids), these values represent a maximum.

\*\* The dietary reference value for non-starch polysaccharides (fibre) is 18g for adults, and children should eat proportionately less, based on their lower body size. For pragmatic reasons, this has been calculated for these guidelines as a percentage of the energy recommendation, to give the Calculated Reference Value. The calculated NSP guideline is 8g per 1,000 kcal.

EAR = Estimated Average Requirement

RNI = Reference Nutrient Intake

SACN = Scientific Advisory Committee on Nutrition<sup>2</sup>

For an explanation of EAR and RNI, see page 59.

#### Energy values

Energy values calculated from the amount of fat, carbohydrate and protein in this table will not equal total energy EAR for two reasons. Firstly, the protein values here are based on the RNI, which is equivalent to protein providing about 8% of food energy whereas in typical British diets protein provides about 15% of food energy. This was accounted for in the estimates of % food energy from fat and carbohydrate when these figures were estimated by the Department of Health in 1991<sup>1</sup>. Secondly, the carbohydrate DRV (excluding that for NMES) is a minimum figure and intakes may be greater than this and therefore contribute higher calorie intakes.



**TABLE 13:**  
**Dietary reference values and derived amounts for nutrients per day: GIRLS**

TABLE 13	Dietary reference value (DRV)		4-6 years	7-10 years	11-14 years	15-18 years
<b>Energy</b>	EAR	kcal	1,545	1,740	1,845	2,110
<b>Fat</b>	DRV: average 35% of food energy*	g	60.1	67.7	71.8	82.1
<b>Saturated fat</b>	DRV: average 11% of food energy*	g	18.9	21.3	22.6	25.8
<b>Total carbohydrate</b>	DRV: average 50% of food energy*	g	206.0	232.0	246.0	281.3
<b>Non-milk extrinsic sugars</b>	DRV: average 11% of food energy*	g	45.3	51.0	54.1	61.9
<b>Fibre</b>	Proportion of DRV for adults (18g)/CRV**	g	12.4	14.0	14.8	16.9
<b>Protein</b>	RNI	g	19.7	28.3	41.2	45.0
<b>Iron</b>	RNI	mg	6.1	8.7	14.8	14.8
<b>Zinc</b>	RNI	mg	6.5	7.0	9.0	7.0
<b>Calcium</b>	RNI	mg	450	550	800	800
<b>Vitamin A</b>	RNI	µg	500	500	600	600
<b>Vitamin C</b>	RNI	mg	30	30	35	40
<b>Folate</b>	RNI	µg	100	150	200	200
<b>Sodium</b>	SACN recommendation	mg	1,177	1,961	2,353	2,353

\* As there is no absolute requirement for sugars or fats (except essential fatty acids), these values represent a maximum.

\*\* The dietary reference value for non-starch polysaccharides (fibre) is 18g for adults, and children should eat proportionately less, based on their lower body size. For pragmatic reasons, this has been calculated for these guidelines as a percentage of the energy recommendation, to give the Calculated Reference Value. The calculated NSP guideline is 8g per 1,000 kcal.

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## References

- 1 Department of Health. 1991. *Dietary Reference Values for Food Energy and Nutrients for the United Kingdom*. London: HMSO.
- 2 Scientific Advisory Committee on Nutrition. 2003. *Salt and Health*. London: The Stationery Office.

# Appendix 3

## Good sources of nutrients

This Appendix shows a number of foods and drinks which are important sources of certain vitamins and minerals. These are based on average servings.

	<b>EXCELLENT</b>	<b>GOOD</b>	<b>USEFUL</b>
<b>VITAMIN A</b>	liver liver sausage/pâté carrots spinach sweet potatoes red peppers mango cantaloupe melon dried apricots	nectarine peach blackcurrants fresh or canned apricots watercress tomatoes cabbage (dark) broccoli Brussels sprouts runner beans broad beans margarine butter cheese kidney	canned salmon herrings egg honeydew melon prunes orange sweetcorn peas whole milk
<b>VITAMIN D</b>	fortified breakfast cereals herrings pilchards sardines tuna canned salmon egg	liver (other than chicken liver) liver sausage/pâté margarine	chicken liver malted-style drinks
<b>THIAMIN</b>	liver and liver pâté pork, bacon and ham fortified breakfast cereals malted drinks	wholemeal bread yeast extract oatcakes currant buns nuts potatoes	lean meat chicken and other poultry eggs white or brown bread semi-sweet biscuits
<b>RIBOFLAVIN</b>	liver kidney	milk malted drinks fortified breakfast cereals almonds	lean meat or poultry bacon mackerel, tuna, salmon sardines, pilchards cheese yoghurt eggs
<b>NIACIN</b>	fortified breakfast cereals canned salmon, tuna pilchards chicken	lean meat sausages kidneys herrings sardines	wholemeal bread peanut butter yeast extract bacon liver sausage

	<b>EXCELLENT</b>	<b>GOOD</b>	<b>USEFUL</b>
<b>VITAMIN B<sub>6</sub></b>	bran flakes red meat poultry liver oily fish	potatoes bananas nuts peanut butter dried fruit white fish	baked beans lentils and other pulses green vegetables tomatoes wholemeal bread cheese
<b>VITAMIN B<sub>12</sub></b>	liver kidney oily fish	beef lamb pork turkey white fish eggs	chicken milk cheese yoghurt marmite ribena bran flakes
<b>FOLATE</b>	most fortified breakfast cereals, eg. cornflakes, branflakes, crisped rice liver spinach	yeast extract cabbage Brussels sprouts broccoli peas orange melon kidney	wholemeal bread/flour wheat bisks cauliflower broccoli beef runner beans tomatoes parsnip potatoes green leafy salads ackee peanuts
<b>VITAMIN C</b>	blackcurrants orange (and orange juice) strawberries canned guava spring greens green and red peppers (raw)	broccoli, cabbage cauliflower, spinach tomato Brussels sprouts watercress kiwi fruit mango grapefruit	potatoes green beans peas satsumas eating apples nectarines peaches raspberries blackberries
<b>IRON</b>	fortified breakfast cereals pig liver kidney chicken liver liver sausage/pâté	wholemeal bread/flour wheat bisks beef, beefburger corned beef lamb sardines, pilchards soya beans chick peas, lentils spinach, broccoli spring greens dried apricots raisins	white bread baked beans broad beans black-eyed peas blackcurrants salmon, tuna herrings sausage chicken and other poultry egg tofu
<b>CALCIUM</b>	green leafy vegetables sardines cheese tofu	pilchards yoghurt milk (all types) soya drink fortified with calcium cheese spread sesame seeds sesame paste	canned salmon muesli white bread/flour peas, beans, lentils dried fruit orange egg yolk

	<b>EXCELLENT</b>	<b>GOOD</b>	<b>USEFUL</b>
<b>ZINC</b>	liver kidney lean meat corned beef	bacon ham poultry canned sardines shrimps and prawns tofu wholegrain breakfast cereals, eg. puffed wheat, branflakes, wheat bisks nuts	sausages cold cooked meats canned tuna or pilchards eggs milk cheese beans and lentils brown or wholemeal bread plain popcorn sesame seeds
<b>FIBRE (non-starch polysaccharides – NSP)</b>	wholegrain or wholewheat breakfast cereals such as bran flakes, wheat bisks, shreddies, shredded wheat, sultana bran wholemeal breads baked beans, chick peas, kidney beans (and most beans) lentils dried apricots, figs, prunes	muesli wholemeal pasta brown breads white bread with added fibre baked potato with skin sweet potato broad beans fresh or frozen peas sweetcorn broccoli, Brussels sprouts quorn blackberries dried dates almonds, hazelnuts	puffed wheat cereal brown rice white pitta bread pizza potatoes yam houmous canned peas cabbage carrots plantain banana mango raisins sunflower seeds potato crisps

## Appendix 4

# Food customs of different religious and cultural groups

Below is a guide to some of the differences in food choice commonly observed by those from different religious and cultural groups. It is important to emphasise that there may be individual differences in food choices between families, and carers should not make assumptions about anyone's food preferences. It is important to find out about each child or young person, either from themselves, or from family members or previous carers.

*'Some' means that some people within a religious group would find these foods acceptable.*

	<b>Jewish</b>	<b>Hindu<sup>1</sup></b>	<b>Sikh<sup>1</sup></b>	<b>Muslim</b>	<b>Buddhist</b>	<b>Rastafarian<sup>2</sup></b>
<b>Eggs</b>	No blood spots	Some	Yes	Yes	Some	Some
<b>Milk/yoghurt</b>	Not with meat	Yes	Yes	Yes	Yes	Some
<b>Cheese</b>	Not with meat	Some	Some	Possibly	Yes	Some
<b>Chicken</b>	Kosher	Some	Some	Halal	No	Some
<b>Mutton/lamb</b>	Kosher	Some	Yes	Halal	No	Some
<b>Beef and beef products</b>	Kosher	No	No	Halal	No	Some
<b>Pork and pork products</b>	No	No	Rarely	No	No	No
<b>Fish</b>	With fins and scales	With fins and scales	Some	Some	Some	Yes
<b>Shellfish</b>	No	Some	Some	Some	No	No
<b>Butter/ghee</b>	Kosher	Some	Some	Some	No	Some
<b>Lard</b>	No	No	No	No	No	No
<b>Cereal foods</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Nuts/pulses</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Fruits/vegetables</b>	Yes	Yes <sup>3</sup>	Yes	Yes	Yes	Yes
<b>Fasting<sup>4</sup></b>	Yes	Yes	Yes	Yes	Yes	Yes

1 Strict Hindus and Sikhs will not eat eggs, meat, fish, and some fats.

2 Some Rastafarians are vegan.

3 Jains have restrictions on some vegetable foods. Check with the individuals.

4 Fasting is unlikely to apply to young children.

# Appendix 5

## Resources

### Eating well

#### PUBLICATIONS

##### Food Standards Agency publications

The publications listed below are available from the Food Standards Agency.

*The Balance of Good Health* FSA0008

*Healthy Diets for Infants and Young Children* FSA0249

*Feeding Your Growing Child*  
FSA/0456/0602

Publications can be ordered from:  
Food Standards Agency  
PO Box 369

Hayes

Middlesex UB3 1UT

T: 0845 606 0667

F: 020 8867 3225

Minicom (for people with hearing disabilities): 0845 606 0678

E: [foodstandards@eclogistics.co.uk](mailto:foodstandards@eclogistics.co.uk)

#### National Heart Forum publications

##### A Lifecourse Approach to Coronary Heart Disease Prevention: Scientific and Policy Review

A comprehensive set of research reviews examining the trends in coronary heart disease risk factors and health inequalities among children and young people.

##### Towards a Generation Free from Coronary Heart Disease

Sets out policy action for children's and young people's health and well-being.

##### Nutrition + Food Poverty

A toolkit for those involved in developing or implementing a local nutrition and food poverty strategy.

##### Let's Get Moving

A handbook for developing local physical activity programmes.

For information about how to obtain these and other publications, see [www.heartforum.org.uk](http://www.heartforum.org.uk)

#### Caroline Walker Trust publications

**School Meals and Sustainable Food Chains: The Role of Creative Public Procurement. The Caroline Walker Trust Lecture**  
By K Morgan

##### Eating Well for Looked After Children and Young People: Nutritional and Practical Guidelines. Report of an Expert Working Group

Sets out nutritional guidelines for looked after children and young people. The report also contains a wealth of practical advice on ways of encouraging healthy eating among looked after children and young people.

##### Eating Well for Under-5s in Child Care: Practical and Nutritional Guidelines. Report of an Expert Working Group

Sets out nutritional guidelines for under-5s in child care and gives practical advice on ways of encouraging healthy eating among under-5s.

##### CHOMP Menu Planner

A computer program to help plan menus which meet the nutritional guidelines for under-5s in child care.

##### Eating Well for Under-5s in Child Care: Training Materials

Training materials for people working with under-5s in child care.

The materials listed above can be ordered from: CWT, 22 Kindersley Way, Abbots Langley, Herts WD5 0DQ. See also [www.cwt.org.uk](http://www.cwt.org.uk).

#### WEBSITES

British Nutrition Foundation  
[www.nutrition.org.uk](http://www.nutrition.org.uk)  
For information on nutrition and healthy eating.

##### Government websites

The following websites may provide information about new reports and press releases about nutrition, health and food:

##### Department for Environment, Food and Rural Affairs

[www.defra.gov.uk](http://www.defra.gov.uk)

##### Department of Health

[www.dh.gov.uk](http://www.dh.gov.uk)

[www.5aday.nhs.uk](http://www.5aday.nhs.uk)

##### Food Standards Agency

[www.food.gov.uk](http://www.food.gov.uk)

[www.eatwell.gov.uk](http://www.eatwell.gov.uk)

[www.salt.gov.uk](http://www.salt.gov.uk)

##### Scientific Advisory Committee on Nutrition

[www.sacn.gov.uk](http://www.sacn.gov.uk)

#### ORGANISATIONS

##### British Heart Foundation

14 Fitzhardinge Street

London W1H 6DH

T: 020 7935 0185

Heart information line: 08450 70 80 70

[www.bhf.org.uk](http://www.bhf.org.uk)

##### The Food Commission

94 White Lion Street

London N1 9PF

T: 020 7837 2250

E: [enquiries@foodcomm.org.uk](mailto:enquiries@foodcomm.org.uk)

[www.foodcomm.org.uk](http://www.foodcomm.org.uk)

##### National Heart Forum

Tavistock House South

Tavistock Square

London WC1H 9LG

T: 020 7383 7638

[www.heartforum.org.uk](http://www.heartforum.org.uk)

##### National Institute for Health and Clinical Excellence (NICE)

Mid City Place

71 High Holborn

London WC1V 6NA

T: 020 7067 5800

[www.publichealth.nice.org.uk](http://www.publichealth.nice.org.uk)

## PUBLICATIONS ON THE SCIENTIFIC BASIS OF HEALTHY EATING

*Committee on Medical Aspects of Food Policy and Health (COMA) reports*

**Nutritional Aspects of Cardiovascular Disease.** Report No 46, 1994

**Nutrition and Bone Health.** Report No 49, 1998

**Nutritional Aspects of the Development of Cancer.** Report of the Working Group on Diet and Cancer of the Committee on Medical Aspects of Food and Nutrition Policy, 1998.

The above reports are available from The Stationery Office. *The Nutritional Aspects of the Development of Cancer* report is also available from [www.dh.gov.uk](http://www.dh.gov.uk)

### Salt and Health

By the Scientific Advisory Committee on Nutrition.  
Published by The Stationery Office, 2003.  
Available from the Department of Health website [www.dh.gov.uk](http://www.dh.gov.uk)

### Dietary Reference Values: A Guide

By the Department of Health.  
Available from The Stationery Office or the Department of Health website [www.dh.gov.uk](http://www.dh.gov.uk)

## Exercise and activity

### ORGANISATIONS

#### Sport England

3rd Floor  
Victoria House  
Bloomsbury Square  
London WC1B 4SE  
T: 08458 508 508  
[www.sportengland.org](http://www.sportengland.org)

#### Sport Scotland

Caledonia House  
1 Redheughs Rigg  
South Gyle  
Edinburgh EH12 9DQ  
T: 0131 317 7200  
[www.sportscotland.org.uk](http://www.sportscotland.org.uk)

#### Sports Council for Northern Ireland

House of Sport  
Upper Malone Road  
Belfast BT9 5LA  
T: 02890 381 222  
[www.sportni.org](http://www.sportni.org)

#### Sports Council for Wales

Sophia Gardens  
Cardiff CF11 9SW  
T: 02920 300 500  
[www.sports-council-wales.co.uk](http://www.sports-council-wales.co.uk)

#### Youth Sport Trust

Sir John Beckwith Centre for Sport  
Loughborough University  
Loughborough  
Leicestershire LE11 3TU  
T: 01509 226600  
[www.youthsporttrust.org](http://www.youthsporttrust.org)

### WEBSITES

#### Active Places

[www.activeplaces.com](http://www.activeplaces.com)  
A database of information on sports facilities throughout England.

#### British Heart Foundation

[www.bhf.org.uk](http://www.bhf.org.uk)

#### The Children's Play Council

[www.ncb.org.uk/cpc](http://www.ncb.org.uk/cpc)  
Raises awareness of the importance of play.

#### Learning through Landscapes

[www.ltl.org.uk](http://www.ltl.org.uk)  
Helps schools to improve their grounds and create interesting landscapes to encourage play.

#### Qualifications and Curriculum Authority (QCA)

[www.qca.org.uk/pess](http://www.qca.org.uk/pess)  
Advice for teachers, subject leaders and managers on achieving high quality PE and school sport.

### WALKING AND CYCLING TO SCHOOL

#### Living Streets

[www.walktoschool.org.uk](http://www.walktoschool.org.uk)  
Living Streets runs the Walk to School campaign that includes a series of initiatives to encourage children to walk to school including national Walk to School Week and establishing walking buses.

#### Safe Routes to Schools and Bike It

[www.saferoutestoschools.org.uk](http://www.saferoutestoschools.org.uk)  
Sustrans runs Safe Routes to Schools to encourage and enable children to walk and cycle to school through a combined package of practical and educational measures. It also runs Bike It, a team of advisors working with schools to increase cycling to school and other cycle journeys for 9-12 year-olds.

### PUBLICATIONS

#### The Active School – Resource Pack for Secondary Schools

Published by the British Heart Foundation  
See [www.bhf.org.uk](http://www.bhf.org.uk) for details.

#### Travelling to School: A Good Practice Guide

Published by the Department for Education and Skills and Department for Transport, 2003.  
Available from [www.dft.gov.uk](http://www.dft.gov.uk)

See also *Let's Get Moving!* on page 85.

## Food in schools

**Food in Schools programme**  
[www.foodinschools.org](http://www.foodinschools.org)

**Healthy Schools Programme**  
[www.wiredforhealth.gov.uk](http://www.wiredforhealth.gov.uk)

**The National Healthy Schools Standard. Confirming Healthy School Achievement**  
Published by the Health Development Agency, 2003.  
Available from [www.publichealth.nice.org.uk](http://www.publichealth.nice.org.uk)

#### Teachernet

[www.teachernet.gov.uk/healthyliving](http://www.teachernet.gov.uk/healthyliving)  
Provides information and advice for headteachers, teachers, governors and others, to help children and young people lead healthy lifestyles.

**Healthy Living Blueprint for Schools**  
Department for Education and Skills, 2004  
Guidance document for headteachers, teachers and parents. Available from [www.teachernet.gov.uk](http://www.teachernet.gov.uk)

### FREE SCHOOL MEALS

#### Recipe for Change: A Good Practice Guide for School Meals

By C Hurley and A Riley.  
Published by the Child Poverty Action Group, 2004.  
See [www.cpag.org.uk](http://www.cpag.org.uk) for details.

### VENDING AND TUCKSHOPS IN SCHOOLS

#### Drinks Vending Toolkit

Available from [www.healthedtrust.com](http://www.healthedtrust.com)

#### Fruit Tuck Shops in Primary Schools. A Practical Guide to Planning and Running a School Fruit Tuck Shop

Published by the Food Standards Agency Wales in collaboration with the National Assembly for Wales. Available in English or Welsh from: [wiredforhealth.gov.uk](http://wiredforhealth.gov.uk) or [www.food.gov.uk](http://www.food.gov.uk)

#### Set Up a Fruit Tuckshop

Available from: [www.grab5.com](http://www.grab5.com)

#### Vending Healthy Drinks: A Guide for Schools

and  
Top Tips on Running a Healthy Drinks Vending Machine in School  
Available from [www.food.gov.uk](http://www.food.gov.uk).

### WHOLE-SCHOOL FOOD POLICIES

#### [www.grab5.com](http://www.grab5.com)

Provides a sample whole-school food policy, and information on how a whole-school food policy can be developed, managed and evaluated. Developed by Sustain.

See also [www.foodinschools.org](http://www.foodinschools.org)

## USEFUL ORGANISATIONS

### Food for Life

The Soil Association  
Bristol House  
40-56 Victoria Street  
Bristol BS1 6BY  
T: 0117 9290661  
E: info@soilassociation.org  
www.soilassociation.org  
The Food for Life targets for school meals published in 2003 give targets for the percentage of food to be from a local source, the percentage to be from an organic source, and the number of days per week that children should have unprocessed foods.

### School Nutrition Action Groups

Health Education Trust  
18 High Street  
Broom  
Alcester  
Warwickshire B50 4HJ  
E: enquiries@HealthEdTrust.com  
www.healthedtrust.com

## Resources for caterers

See also *Food safety and hygiene*, on the next page.

## PUBLICATIONS

### Catering for Health

FSA0010 (Also available in Welsh.)  
Published by the Food Standards Agency.  
See page 85 for details of how to order.

### The Dinner Lady

By Jeanette Orrey  
Published by Bantam Press, 2005. ISBN 0-593-05429-6  
Available from:  
www.booksatransworld.co.uk

### The Manual for Sustainability in Public Sector Food and Catering

Published in 2003 and available from Sustain (address above right).

## WEBSITES

### DEFRA Sustainable food procurement initiative

www.defra.gov.uk/farm/sustain/procurement

### Jamie Oliver's website

www.feedmebetter.com  
Provides guidance for caterers, and recipe ideas.

## ORGANISATIONS

### Local Authority Caterers Association (LACA)

Bourne House  
Horsell Park  
Woking GU21 4LY  
T: 01483 766777  
E: admin@laca.co.uk  
www.laca.co.uk

## LACORS

Local Authorities Coordinators of Regulatory Services  
10 Albert Embankment  
London SE1 7SP  
T: 020 7840 7200  
www.lacors.com

## Sustain

94 White Lion Street  
London N1 9PF  
T: 020 7837 1228  
www.sustainweb.org

## Resources for teachers

See also *Eating well* on page 85, and *Exercise and activity* on page 86.

### British Nutrition Foundation

www.nutrition.org.uk  
Provides scientifically-based advice on nutrition and health-related matters. Publishes a wide range of teaching materials which are useful for Science, Design and Technology, and Personal, Social and Health Education.

### FACE

www.face-online.org.uk  
Online signpost for teachers looking for educational material about food, farming and the countryside.

### Grab 5

www.grab5.com  
Sustain's *Grab 5* curriculum pack and action pack are available to download free from the internet. They provide ideas of ways to encourage children to eat more fruit and vegetables.

See also  
www.teachernet.gov.uk/healthyliving

## PUBLICATIONS

### Food for Life Curriculum Pack

Available from  
education@soilassociation.org

## Alcohol

### Al-Ateen

T: 020 7403 0888  
www.al-anonuk.org.uk/alateen.php  
A help group for teenage family members of alcoholics.

### Alcohol Concern

Waterbridge House  
32-36 Loman Street  
London SE1 0EE  
T: 020 7928 7377  
E: contact@alcoholconcern.org.uk  
www.alcoholconcern.org.uk

Operates Drinkline, a free 24-hour information service, on 0800 917 8282. (This is not a helpline for individuals.) Also produces *Enough Bottle – Can You Handle Booze?*, a leaflet for teenagers, price 50p.

## Drinkline Youth

T: 0345 320 202 (6pm-11pm). Calls are charged at local rates.  
A helpline giving confidential advice to young people with alcohol problems, and their families.

## Eating disorders

### Eating Disorders Association

First Floor  
Wensum House  
103 Price of Wales Road  
Norwich NR1 1DW  
T: 01603 619090  
E: helpmail@edauk.com  
www.edauk.com

*Youth Helpline* (18 years and under): 0845 634650 (Monday-Friday 4pm-6pm)  
Youthline email service:  
talkback@edauk.com  
Youthline TEXT service: 07977 493345

*Main Helpline*: 0845 634 1414 (Monday to Friday 9am-6.30pm)

Recorded message about anorexia and bulimia nervosa (about 8 minutes long): 0906 302 0012

The Eating Disorders Association also publishes a wide range of leaflets, some for young people. They are available from the above address. Please ask for a current price list. They include:

*Eating Disorders in Young People*  
*Helping a Friend or Relative*  
*Booklist for Young People*  
*Confidentiality and Your Rights*  
*Talkback*. A youth newsletter

## Food allergy and food intolerance

### Be Allergy Aware

Advice for catering establishments. Booklet published by the Food Standards Agency (FSA0002). For ordering details see *Food Standards Agency publications* on page 85.

## Food customs

### Celebration!

By Barnabas and Annabel Kindersley.  
Published by Dorling Kindersley, London.  
ISBN 0 7513 5650 6

### Festivals and Celebrations

By Jim Fitzsimmons and Rhona Whiteford.  
Published by Scholastic Educational Books.  
ISBN 0 590 53083 6



**'SHAP' calendar of religious festivals**  
A calendar of festivals for the current year.  
Available from:  
SHAP Working Party  
c/o National Society Religious Education  
Centre  
36 Causton Street  
London SW1P 4AU  
T: 020 7932 1194

## Food safety and hygiene

### Chartered Institute of Environmental Health

Chadwick Court  
15 Hatfields  
London SE1 8DJ  
T: 020 7928 6006  
For training and resources e-mail:  
centresupport@chgl.com  
www.cieh.org.uk

### Royal Institute of Public Health and Hygiene

28 Portland Place  
London W1B 1DE  
T: 020 7580 2731  
www.riph.org.uk

## PUBLICATIONS

### Food Standards Agency publications

*Ten Tips for Food Safety*. FSA0006

*The Food Safety Act 1990 and You*.  
Booklet summarising the Food Safety Act.  
FSA0238

For ordering details see *Food Standards Agency publications* on page 85.

### Department of Health publication

*Practical Food Hygiene*. Poster in A3 or A2 sizes.

Available from:  
Department of Health  
PO Box 777  
London SE1 6XH  
T: 0800 555777

## Special diets

### British Dietetic Association (Paediatric Group)

5th Floor  
Elizabeth House  
22 Suffolk Street  
Queensway  
Birmingham B1 1LS  
T: 0121 616 4900  
E: info@bda.uk.com  
www.bda.uk.com

**Coeliac Society**  
PO Box 220  
High Wycombe  
Bucks HP11 2HY  
T: 01494 437278  
Helpline: 0870 444 8804  
www.coeliac.co.uk

**Diabetes UK**  
Macleod House  
10 Parkway  
London NW1 7AA  
T: 020 7424 1000  
E: info@diabetes.org.uk  
www.diabetes.org.uk

## Special needs

**Council for Disabled Children**  
8 Wakley Street  
London EC1V 7QE  
T: 020 7843 1900  
www.ncb.org.uk/cdc  
Working together for disabled children and their families. Offers a forum for discussion and dissemination of policy and good practice.

**Disabled Living Foundation**  
380 Harrow Road  
London W9 2HU  
T: 020 7289 6111  
Helpline open Monday to Friday 10.00am – 4.00pm: 0845 130 9177  
www.dlf.org.uk

**Hyperactive Children's Support Group**  
www.hacsg.org.uk

## Vegetarianism

**Vegan Society**  
Donald Watson House  
7 Battle Road  
St Leonard's on Sea  
East Sussex TN37 7AA  
T: 01424 427393  
www.vegansociety.com

**Vegetarian Society**  
Parkdale  
Dunham Road  
Altrincham  
Cheshire WA14 4QG  
T: 0161 925 2000  
www.vegsoc.org

## Health professionals

### Dietitians

Dietitians can provide advice on all aspects of eating and diet including special therapeutic diets for medical conditions. An individual referral to a dietitian is usually through a GP, but sometimes it may be possible to access community dietitians directly (through the health authority or local health promotion unit). More information about dietitians can be found on the website [www.bda.uk.com](http://www.bda.uk.com) or from the British Dietetic Association (address below).

### Registered public health nutritionists

Registered public health nutritionists are qualified in providing information about food and healthy eating, but not about special therapeutic diets. A list of registered nutritionists can be found on the Nutrition Society website: [www.nutritionistsociety.org](http://www.nutritionistsociety.org)

## ORGANISATIONS

### British Dietetic Association (Paediatric Group)

5th Floor  
Elizabeth House  
22 Suffolk Street  
Queensway  
Birmingham B1 1LS  
T: 0121 616 4900  
E: info@bda.uk.com  
www.bda.uk.com

### College of Occupational Therapists

106-114 Borough High Street  
London SE1 1LB  
T: 020 7357 6480  
www.cot.co.uk

### Royal College of Paediatrics and Child Health

50 Hallam Street  
London W1W 6DE  
T: 020 7307 5600  
www.rcpch.ac.uk

### Royal College of Speech and Language Therapists

2 White Hart Yard  
London SE1 1NX  
T: 020 7378 1200  
www.rcslt.org.uk

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