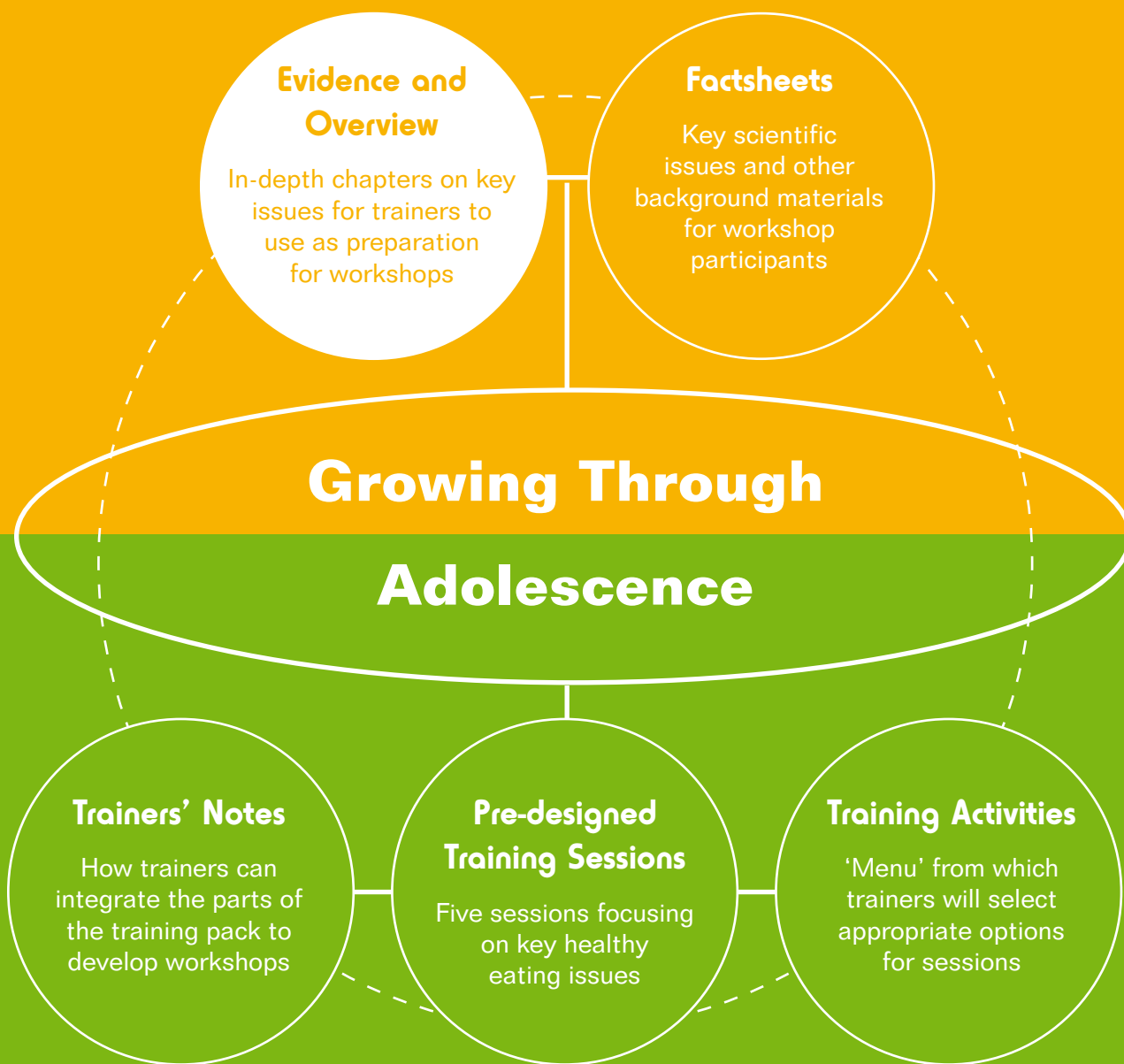


Growing Through Adolescence

Book 1: Evidence and Overview



A training pack based on a Health Promoting School approach to healthy eating



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Book 1: Evidence and Overview

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Factsheets

- 1 Current eating patterns among Scottish children and adolescents
- 2 Dietary targets and activity guidelines for young people in Scotland
- 3 Energy balance and nutrient requirements
- 4 Food initiatives in schools
- 5 Dental and oral health in young people
- 6 Biological changes in puberty
- 7 Water
- 8 The media
- 9 Breastfeeding

Why is the training pack necessary?

There are several reasons why this training pack has been produced:

- Society is undergoing major social changes that have implications for healthy eating and health promotion. Examples of this include:
 - changing patterns of lifestyle and physical activity
 - the influence of media images
 - the changing nature of work and family life.
- Concerns about the eating patterns of young people in Scotland are not going to be addressed by simply passing on more knowledge or 'messages' to them. There are also key psychological and cultural issues that can have profound effects on the way people eat.
- There are *some* positive trends in eating behaviours in school-age children in relation to fruit and raw vegetables and salads, but there are also negative trends such as the increase in consumption of high fat foods, sweet drinks and confectionery (Todd *et al.*, 2000, Currie *et al.*, 2004).
- There is growing evidence that increasing numbers of young people are unhappy with their body shape (Todd *et al.*, 2000, Currie *et al.*, 2004) and the gap between their perceived ideal shape and their actual shape is widening.
- The number of young people and adults in Scotland who are overweight is increasing (Shaw, McMunn and Field, 2000), and the health risks associated with this give cause for concern. Both eating behaviour and increasingly inactive lifestyles are thought to contribute to this trend.

There is evidence in Scotland of an increase in dieting behaviours in teenagers, now affecting boys as well as girls (Todd *et al.*, 2000, Currie *et al.*, 2004).

Advertising regulations in the UK are less restricted than in some European countries (Dibb and Castell, 1995). The extent to which high sugar and high fat snacks are promoted at times when young children are watching TV (Young, 2002) may undermine efforts to offer education on healthy eating.

Hungry for Success: A whole school approach to school meals in Scotland (Scottish Executive, 2003) highlights the need to address the complex issues of food and young people within a Health Promoting School (HPS) approach.

Findings from the European Network of Health Promoting Schools (ENHPS) Project (Inchley and Currie, 2003) indicated that teachers have identified issues around healthy eating as important, but are sometimes unsure of how to take health education and health promotion forward in the school. Training based on this pack, used in tandem with the *Health Education 5–14 National Guidelines* (Learning and Teaching Scotland, 2000), *Being Well Doing Well* (Scottish Health Promoting Schools Unit 2004) and the *Hungry for Success* guidelines (Scottish Executive, 2003), will offer teachers practical support to build a coherent and progressive curriculum on healthy eating.

The HPS approach is an integral part of school policy. The Scottish Executive (2003) has called on every school to become a health promoting school by 2007. *Growing Through Adolescence* puts healthy eating in the context of the HPS approach.

Key references

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About this book

Who is this resource for?

Book 1 of *Growing Through Adolescence* offers a comprehensive, evidence-based overview of healthy eating in relation to young people, and addresses many of the controversies that surround this complex and fascinating subject.

It has been produced for trainers for use in training sessions with teachers of pupils in upper primary schools and lower secondary schools.

It will enable trainers to build on teachers' existing skills and experience and consequently increase their confidence in exploring a broad range of issues relating to young people and their food choices within a **Health Promoting School (HPS)** approach.

What does Book 1: Evidence and Overview offer to trainers?

Book 1 offers information on subjects relevant to healthy eating among young people. The diverse areas explored include growth and development, body image, self-esteem, puberty, the role of the media, nutrition and physical activity.

The aim is to raise awareness of some of the key issues as they relate to young people and present the science of healthy eating in a way that is as clear and as up-to-date as possible. Healthy eating has rapidly moved up the research and policy agendas (WHO, 2003), and understanding continues to evolve.

The resource should help trainers introduce the issues to teachers from a holistic perspective that takes account of the wide range of factors that impact on young people's attitudes, beliefs, experiences and behaviours. A particular feature of the resource is that it acknowledges the emotional and social issues at the heart of any exploration of healthy eating.

How should Book 1 be used?

Each chapter in the resource presents background information that will help trainers as they prepare to design and facilitate training sessions. The chapters explore specific themes and provide references and further reading that the trainer may use to consolidate his or her knowledge and understanding of the issues. The **Factsheets** offer further detail and factual information on key points raised in the chapters.

Trainers will find recurrent themes, for example, the role of the media in influencing beliefs and behaviour, throughout the resource. They may wish to take this into account when planning their background reading for specific workshops, or when deciding on whether to make appropriate chapters available for participants.

An integral aspect of the *Growing Through Adolescence* pack is the **Trainers' Notes** in Book 2. These offer advice and guidance on planning, designing and facilitating training sessions.

Key references and further reading

Scottish Executive (2003). *Improving Health in Scotland: The challenge*. Edinburgh: The Stationery Office.

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World Health Organization European Region (2003). *The First Action Plan for Food and Nutrition Policy*. Copenhagen: WHO.

Taking a Health Promoting School approach

Related factsheet	Related pre-designed training session	Related training activities
4: Food initiatives in schools	Healthy eating through a Health Promoting School	9. Where do you stand? 10. What factors affect healthy eating? 11. Features of a Health Promoting School 12. How can schools promote mental and emotional health? 15. How do we know what children think and feel? 33. Puberty storyboards 34. What help can be given? 46. What would you do?

Taking a Health Promoting School approach

Key points

- The Health Promoting School (HPS) approach integrates health promotion into every aspect of the school setting.
- The Scottish Executive expects all schools to be Health Promoting Schools (HPSs) by 2007.
- HPS programmes are most effective when they are multi-faceted and the curriculum is integrated with broader school and community initiatives and when schools work in partnership with parents and local agencies.
- Studies have shown that the HPS can have a positive impact on the social and physical environments of a school.

The Health Promoting School (HPS) approach now used in a growing number of schools in Scotland integrates health promotion into every aspect of the school setting and involves everyone attached to the school: pupils, teachers and other staff, parents, and the wider community. The Scottish Executive has stated an expectation that all schools will become HPSs by 2007 (Scottish Executive, 2003). The establishment of the Scottish Health Promoting Schools Unit (SHPSU) has highlighted the national commitment and policy drive to support HPS.

In Scotland, the aims of the HPS, as laid out by the framework paper *Being Well, Doing Well* (SHPSU, 2004) are:

- to promote the physical, social, spiritual, mental and emotional health and well-being of all pupils and staff
- to work with others in identifying and meeting the health needs of the whole school and its wider community.

All the systems and mechanisms at the school's disposal — teaching and learning styles, management structures, communication systems and social environments — are used to help pupils, teachers and others involved with the school to take control over and improve their physical and emotional health.

Research which asked children for their views identified the following key features of a HPS (MacGregor and Currie, 1995). It is one which:

- everybody wants to come to
- wants people to be healthy, whoever they are
- has an ethos in which everyone counts
- enables everyone to feel safe.

The HPS depends on partnership as its bedrock. Partnerships have evolved at all levels — international, national and local — to cement the principles by which the HPS operates, disseminate good practice, and set goals for the future.

Effective practice in promoting health in schools

HPS research carried out in Scotland and elsewhere has shown that effective school-based health promotion programmes and interventions are:

- holistic — based on a broad understanding of health, including physical, social and emotional well-being
- multifaceted — including classroom-based learning and skills acquisition reinforced by the social and physical environment of the school
- participative — involving teachers and other staff, pupils, parents and external agencies in all stages of planning, development and evaluation
- sustainable — having long-term plans, building on existing good practice, and integrating into the life of the school.

HPSs encourage review and self-evaluation to reflect on progress and identify planning priorities. Her Majesty's Inspectorate of Education (HMIE, 2004) has developed a framework for self-evaluation to assist schools.

Case study research into the HPS (Inchley and Currie, 2003) has identified a number of important features for successful implementation of the HPS concept. These include:

Leadership

- Active support of senior management.
- Identification of a named school co-ordinator.
- Enthusiasm and commitment of key members of school staff.
- Establishment of a HPS committee.

Local ownership

- Identification of local needs.
- Linking with and building on existing good practice.
- Appropriate training and support for school staff.
- Involvement of pupils in planning and implementation.
- Involvement of relevant parent bodies from the outset.

Communication

- Clearly defined aims and objectives.
- Clear, shared understanding of the HPS concept by the school community.
- Effective communication and dissemination channels.
- Sharing good practice through local networks and wider dissemination.

Partnership working

- Identification of key local partners.
- Establishment of partnership structures to allow for sharing of expertise and resources.
- A planned and co-ordinated approach to specialist input to curricular activities.
- Involvement of parents in planning and implementation.

Integration

- Long-term integration into school development processes, especially the school development plan.
- Establishment of monitoring and review processes.

Potential barriers to successful HPS implementation include:

- lack of staff and curricular time
- existing staff workload
- lack of understanding and commitment to the HPS
- over-reliance on individual members of staff
- lack of support from teachers and parents
- lack of (or inconsistent) input from external agencies
- hierarchical management structures
- compartmentalisation of subject and topic areas.

The benefits of a HPS

Studies have shown that the HPS can have a positive impact on the social and physical environments of a school (Lister-Sharp *et al.*, 1999). Research findings also indicate that efforts to improve the health of students and their schools appear to enrich and improve education outcomes.

The HPS offers an approach that has the potential to increase the learning capacity of students (St Leger, 1999). HPS programmes are most effective when they are multi-faceted and the curriculum is integrated with broader school and community initiatives and when schools work in partnership with parents and local agencies.

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HM Inspectorate of Education (2004). *How Good is our School? The Child at the Centre: The Health Promoting School*. Edinburgh: HM Inspectorate of Education.

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Websites

www.healthpromotingschools.co.uk

The Scottish Health Promoting Schools Unit national portal on HPS.

<http://inclusion.ngfl.gov.uk/>

The Inclusion website on Scotland's national grid for learning.

www.scotland.gov.uk/about/ED/PSI/00018930/Foreword.aspx

Details of Integrated Community Schools on the Scottish Executive website.

Section 1: Growing and changing

Section plan

Chapter	Related factsheets	Related pre-designed training sessions	Related training activities
1.1: Food for growth	1: Current eating patterns among Scottish children and adolescents 2: Dietary targets and activity guidelines for young people in Scotland 3: Energy balance and nutrient requirements 7: Water	What is healthy eating?	4. What will you have? 5. Food is for/ I eat because 8. What information do children need?
1.2: Physical activity	1: Current eating patterns among Scottish children and adolescents 3: Energy balance and nutrient requirements	Energy balance: the importance of physical activity	20. Keeping the balance 21. Listing physical activities 22. Physical activity case study/ scenarios 23. Priorities and consensus 24. What do I think?
1.3: Adjusting to puberty	6: Biological changes in puberty	Adjusting to puberty	29. Body image scenarios 31. Puberty thought shower 32. Being different 33. Puberty storyboards 34. What help can be given?

Chapter 1.1

Food for growth

Key points

- The amount of energy taken in through food and drinks, on a daily basis, should ideally be equal to the amount of energy 'burnt off' (expended) in physical activity and body functions.
- Energy (kilocalorie) needs increase during adolescence and peak in the mid to late teenage years, before reducing again in adulthood.
- Food satisfies our physical hunger, but also meets strong psychological, sensory and social needs.
- Promoting balanced eating is important at any time of life, but is particularly vital during childhood when habits for life are being established.
- Young people should be encouraged to drink adequate amounts of fluids.



The enormous growth that occurs in young people as they develop from infancy, through childhood, to adolescence and on to adulthood is dependent upon a number of key factors. Genetic inheritance, for instance, has great significance for growth and eventual height. This chapter, however, concentrates on the contribution food makes to the growth process

Food and growth

Normal growth requires large amounts of energy. Energy — measured in kilocalories (kcal) or kilojoules (kJ)¹ — is provided through the food and drinks young people consume. It is important for healthy growth that the amount of energy taken in through food and drinks is equal to the amount of energy 'burnt off' (expended) in physical activity and body functions — in other words, being in 'energy balance' (see Factsheet 3: *Energy balance and nutrient requirements*).

In adults, the degree to which energy intake and output are balanced determines weight gain or loss. In children, it is also necessary to take account of the energy intake required for rapid growth.

Energy acquired through ingesting food and fluids is used for a variety of purposes by the body:

- to support normal growth
- to repair damaged tissues
- to fuel normal body functions such as the heart beating and temperature regulation
- to fuel the activities of the brain
- to enable the young person to participate in physical activity.

The amount of energy each individual requires

¹The standard unit of measurement of energy is the kilojoule. However, as kilocalorie (conventionally shortened to *Calorie*) tends to be used more commonly, we shall adopt the use of kilocalorie in this resource. One kilocalorie = 4.2 kilojoules.

will be determined to a large extent by how active he or she is. Energy need rises during adolescence and peaks in the mid to late teenage years, before reducing again in adulthood. Between the ages of 15-18, therefore, boys and girls need more energy than full-grown adults. A guide to average energy intakes is shown in Box 1.

Box 1. Estimated average energy requirements (DoH, 1991)		
Age	Boys (kcal/day)	Girls (kcal/day)
7-10 years	1970	1740
11-14 years	2220	1845
15-18 years	2755	2110
Adults 19-50	2550	1940

As can be seen from Box 1, requirements increase with age, reflecting the amount of energy needed to ensure normal growth and meet the demands of physical activity levels as the young person grows. But the values given in the box are average values only — while boys in general tend to be more active and have a more active metabolism, some girls will need as much energy as boys.

While the focus of this chapter will be on food and its relationship to growth, it's important to remember that food is enjoyable, and food is fun.

Food satisfies physical hunger, but also meets strong psychological, sensory and social needs. For instance:

- food can be a catalyst for social interaction — people use mealtimes as a time to get together and talk
- it provides the centre-piece for many celebrations and social occasions
- it offers a way to give rewards and to express love, affection and appreciation
- food and eating can be a source of exquisite pleasure
- food provides opportunities to have new experiences and to learn about different cultures.

Young people should be helped to value food and understand its importance beyond meeting physical need. From this, a respect for food may grow which will help them to make better health-related choices.

Balanced eating

Promoting balanced eating is important at any time of life, but there is evidence that it is particularly vital during childhood, because:

- food preferences are learned and established early in life and are influenced by attitudes, beliefs and behaviour
- poor eating patterns in childhood can have harmful effects on health, increasing the chances of diabetes, heart disease, cancers and hypertension in later life.

There is good evidence to suggest that children in Scotland eat higher than recommended amounts of fat. Fats and oils are important components of the food we eat as they are:

- very effective providers of essential energy
- part of the structure of the cell membrane of every living cell in the body
- part of the structure of nerve and brain tissue
- providers of insulation for the body, helping to regulate temperature control
- essential for normal reproductive development.

But some types of fat, primarily saturated fat, can be damaging for the heart and circulation. The target in Scotland is to reduce intakes of saturated fat to no more than 11% of food energy. Recent data indicate that the average Scottish boy currently derives 14.2% of energy from saturated fat, and the average Scottish girl 14.3%.

High-fat foods are common and well-loved components of the food intake of many people in Scotland. It would not be advisable to try to deny them to children and young people completely. The amount of energy consumed must be sufficient to support the young person's growth and activity level. Fats are unquestionably valuable in meeting this need, and do so without the damaging effect on teeth typical of sugar, the other main high-energy food.

To achieve a healthier balance, however, the amount of energy derived from high-fat foods should be reduced and the amount coming from *complex carbohydrates* increased.

This can initially seem confusing to some young people who are aware that sugars are a type of carbohydrate, and who may believe that they are being encouraged to eat more sugar. A distinction should be made between the simple sugars found in sweet confectionery and soft drinks, which are concentrated energy sources and are damaging to teeth and gums, and the *complex carbohydrates* found in starchy foods such as pasta, rice, bread, potatoes and cereals.

Current advice is to encourage children and young people to eat complex carbohydrates more frequently — indeed, half the energy consumed should be derived from these kinds of foods. Starchy foods have the advantage of being 'good fillers' and release energy slowly for body requirements as needed. Children and young people can be encouraged to eat generous portions to satisfy their hunger and meet their increasing energy requirements.

Essentially, the aim is to help the young person to eat a sufficient variety of foodstuffs to ensure enjoyment and the provision of adequate energy and nutrients to meet his or her needs, but also to develop balanced eating patterns based on the 'Eating for Health' plate model recommendations (see Factsheet 2: *Dietary targets and activity guidelines for young people in Scotland*).

Fluids

Young people should be encouraged to drink adequate amounts of fluids, in particular water and low-fat milk, which are the safest drinks for teeth. Water is essential to ensure that bodily functions and activities are carried out efficiently. *Hungry for Success* recommends that water should be freely available in school dining halls (Scottish Executive, 2003)(see Factsheet 7: *Water*).

Vitamins and minerals

Calcium, magnesium and phosphorus are essential for bone growth and strengthening, especially during puberty. Bone development during puberty plays a major part in ensuring that a satisfactory maximum bone density can be reached in early adulthood, which may reduce the risk of osteoporosis developing in later life. Adequate amounts of minerals and vitamins are necessary; as well as proteins, to ensure bones are flexible and not brittle. In addition, adequate levels of physical activity are necessary to develop and maintain satisfactory levels of bone density.

The main sources of calcium are milk and dairy products such as cheese and yoghurt. Low-fat versions of these products contain as much calcium as full-fat varieties. It is difficult for children to meet the recommended daily intake of calcium (Box 2) without consuming dairy products, but for those who either dislike, are allergic to or choose not to eat them, dark green leafy vegetables, calcium-enriched soya milk, tofu and sesame seeds are also rich sources. Girls and boys both have good intakes above the reference nutrient intake (RNI) at 7-10 years, but intakes for both sexes fall off at 11-14 years to 80% of the RNI.

Iron is vital for many normal growth and body functions. Most significantly, it is a component of haemoglobin, the red pigment in the blood that carries oxygen to the body tissues. Increased dietary iron is necessary for girls after the onset of periods to compensate for menstrual losses (Box 2).

In the UK, iron deficiency has been found in very young children, and studies have shown the presence of iron deficiency anaemia in adolescents in London (Nelson, 1996). Young people with this condition may suffer from attention deficit, tiredness and reduced cognitive function.

Box 2. Reference Nutrient Intake (RNI)* for calcium and iron for girls and boys

Mineral	Age	RNI (per day)	
Calcium	7-10 years	550mg	
	11-18 years	Girls	Boys
800mg		1000mg	
Iron	7-10 years	8.7mg/day	
	11-18 years	Girls	Boys
14.8mg		11.3mg	
* The RNI is the amount of a nutrient effectively sufficient to meet the requirements of all children, taking into account their differing needs.			

For girls, the mean intake of iron across the whole age range (4-18 years) is only 82% of the RNI, and falls with age. For 11-14 year-old girls, the mean intake is 60% of the RNI (compared with 96% for 7-10 year-old girls). Boys do better, with a mean intake of 95% of the RNI at 11-14 years (and 111% at 7-10 years).

The best source of iron is red meat, and it is also found in green leafy vegetables, dried fruits, pulses and fortified breakfast cereals. The iron in red meat is more easily absorbed than that found in the other foodstuffs listed. Iron is absorbed better if these foods are eaten at the same time as foods rich in vitamin C (see Box 3).

A description of key vitamins that have a bearing on healthy growth (as well as many other bodily functions) is given in Box 3, and minerals in Box 4.

In general, most vitamins are needed in only very small amounts, and eating a variety of foods should provide sufficient quantities to support healthy growth.

Box 3. Vitamins and healthy growth

Vitamins and functions	Sources
<p>A</p> <ul style="list-style-type: none"> • Maintains and repairs tissues • Essential for immune function, normal and night vision 	<p>As retinal (which is pre-formed Vitamin A): milk, fortified margarines, cheese, egg yolk, liver, fatty fish.</p> <p>As carotenes (which are transformed into Vitamin A in the body): vegetables and fruit, especially carrots, tomatoes and green leafy vegetables, mangoes, apricots.</p>
<p>B1 (thiamin)</p> <ul style="list-style-type: none"> • Energy release from carbohydrate, fat and alcohol • Important for brain and nerve function 	<p>Potatoes, all cereals, bread, milk and dairy products, meat and meat products, vegetables.</p>
<p>B2 (riboflavin)</p> <ul style="list-style-type: none"> • Energy release from carbohydrate, fat and protein • Normal growth 	<p>Milk and dairy products, fortified breakfast cereals, potatoes, fish.</p>
<p>Niacin</p> <ul style="list-style-type: none"> • Energy release 	<p>Meat and meat products, milk and dairy products, bread, fortified breakfast cereals, potatoes, fish.</p>
<p>B6 (pyridoxine)</p> <ul style="list-style-type: none"> • Protein metabolism • Formation of healthy blood 	<p>Many foods especially potatoes, breakfast cereals, meat, fish, eggs.</p>
<p>B12 (cyanocobalamin)</p> <ul style="list-style-type: none"> • Formation of healthy blood cells and nerve fibres 	<p>All animal foods: meat and meat products, milk and dairy products, fish, eggs. Also fortified breakfast cereals and yeast extract.</p>
<p>Folate (or folic acid)</p> <ul style="list-style-type: none"> • Formation of blood cells • Reduces risk of neural tube defects (such as spina bifida) in early pregnancy 	<p>As folate: green leafy vegetables (sprouts, spinach, green beans, peas), potatoes, fruit (especially oranges), milk and dairy products.</p> <p>As folic acid: fortified breakfast cereals, bread, yeast extract.</p>
<p>C</p> <ul style="list-style-type: none"> • Structure of bones, cartilage, muscle and blood vessels • Aids wound healing and iron absorption • Acts as an antioxidant (protecting cells from damage from oxygen, which can cause heart disease and cancer) 	<p>Fruits (especially citrus fruits), fruit juices, green vegetables, peppers, tomatoes, potatoes.</p>
<p>D</p> <ul style="list-style-type: none"> • Promotes absorption of calcium from food • Essential for bones and teeth • Helps maintain heart action and nervous system 	<p>Fortified margarines and spreads, oily fish, meat, egg yolk, fortified breakfast cereals. Also formed in the skin by the action of sunlight.</p>
<p>E</p> <ul style="list-style-type: none"> • Acts as an antioxidant 	<p>Vegetable oils, margarines, wholegrain cereals, nuts, green leafy vegetables.</p>
<p>K</p> <ul style="list-style-type: none"> • Essential for normal blood clotting 	<p>Dark green leafy vegetables, vegetable oils, cereals, meat.</p>

Source: FSA Scotland/SEHD, 2002

Box 4. Minerals and healthy growth	
Minerals and functions	Sources
<p>Calcium</p> <ul style="list-style-type: none"> • Bone and teeth formation • Muscle contraction • Nerve function • Blood clotting 	Milk and dairy products, bread, pulses, green vegetables, dried fruit, nuts and seeds, soft bones in tinned fish, water.
<p>Magnesium</p> <ul style="list-style-type: none"> • Component of bones and teeth • Nerve and muscle function • Energy release 	Cereals and cereal products, green vegetables, milk, meat, potatoes, nuts and seeds.
<p>Phosphorus</p> <ul style="list-style-type: none"> • Bone and teeth formation 	Milk and dairy products, bread, red meat, poultry.
<p>Potassium</p> <ul style="list-style-type: none"> • Controlling balance of body fluids • Muscle and nerve functioning 	Vegetables, potatoes, fruit, fruit juices, bread, fish, meat, milk, nuts, seeds.
<p>Sodium*</p> <ul style="list-style-type: none"> • Maintains normal fluid balance • Nerve functioning • Muscle contraction <p>*The Scottish Diet Action Plan places restrictions on the recommended intake of sodium.</p>	Processed foods, bread, cereal products, breakfast cereals, meat products, pickles, canned vegetables, tinned and packet sauces/soups, packet snack foods, salt added during cooking and at the table.
<p>Iron</p> <ul style="list-style-type: none"> • Blood cell formation 	Meat, meat products, cereal products, vegetables, pulses.
<p>Zinc</p> <ul style="list-style-type: none"> • Protein, carbohydrate and fat metabolism • Taste • Normal growth • Wound healing 	Meat and meat products, milk and dairy products, bread and other cereal products, eggs, beans, pulses, nuts.
<p>Copper</p> <ul style="list-style-type: none"> • Component of a number of enzymes 	Shellfish, meat (especially liver), bread and cereal products, vegetables, water.
<p>Selenium</p> <ul style="list-style-type: none"> • Component of a number of enzymes, some of which act as antioxidants 	Cereals and cereal products, meat, fish, brazil nuts, shellfish.
<p>Iodine</p> <ul style="list-style-type: none"> • Regulation of growth, development and energy expenditure 	Fish, sea vegetables (such as kelp), milk and dairy products.
<p>Fluoride</p> <ul style="list-style-type: none"> • Constituent of bones and teeth • Protects against tooth decay 	Tea, fish, water.

Source: FSA Scotland/SEHD, 2002

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www.food.gov.uk/scotland
Food Standards Agency in Scotland website.

www.nutrition.org.uk
British Nutrition Foundation website.

Chapter 1.2

Physical activity

Key points

- Children should be encouraged to recognise the value of lifestyle activities such as walking, in addition to valuing more formal sports, dance and physical activities. Physical activity is not only about organised exercises and PE lessons.
- Children and young people should accumulate at least one hour of moderate physical activity most days of the week.
- The challenge for teachers and parents is to maintain and develop children's early enthusiasm for being active.
- Activities that are chosen and enjoyed are more likely to result in continued participation than those that are enforced.
- Reported physical activity levels among 11-15 year olds in Scotland remain below recommended levels.
- Physical activity has beneficial effects on emotional well-being and self-esteem.



Physical activity is necessary for all areas of functioning in our life — walking, lifting and carrying, pulling and pushing doors, playing, dancing and taking part in sports.

We often use the terms physical activity, physical fitness and exercise interchangeably in everyday language, but they actually have different meanings.

Physical activity is about bodily movements produced by muscles that result in energy expenditure. This would include activities as diverse as walking, helping around the house, climbing stairs and sprinting in a race.

The standard definition of **physical fitness** is a set of attributes that people have or achieve and that relates to their ability to perform physical activity (Casperson *et al.*, 1985). It relates to factors like endurance, strength, power, speed, flexibility, agility, balance, reaction time and body composition.

We can also think about physical fitness under two headings:

- *Performance-related fitness*, often applied to sports performance or to the fitness required in specialised occupations such as the fire service and the armed forces.
- *Health-related fitness*, which is about enhancing health and preventing disease. It includes aerobic fitness, cardio-respiratory endurance, muscular strength, body composition and flexibility.

The term **exercise** is used to describe planned, structured and repetitive movements — such as sit-ups and push-ups — that are usually done to improve or maintain specific aspects of fitness.

In a health-promoting environment, we are concerned most with *physical activity* and *health-related fitness*.

Physical activity for children

The main messages from the physical activity strategy *Let's Make Scotland More Active* (Physical Activity Taskforce, 2003) are:

- be active most days
- moderate activities are good for you
- be active for at least... one hour if you are a child or young person.

Promoting the health-related aspects of children's physical activity is not as daunting as it might at first seem. Many activities are already very appealing to children; for instance:

- running, jumping and skipping — all of which can help to develop aerobic fitness
- lifting, carrying, pushing and pulling — actions that require muscular exertion and build strength
- reaching, stretching and bending — activities that are effective in maintaining and promoting flexibility (see *The Class Moves!* Health Education Board for Scotland, 2002).

Indeed, some of the most mundane day-to-day activities — those which children and young people may not consider to be 'activities' at all — can also cumulatively contribute to improvements in people's energy balance. Box 1, *Getting Fitter is Easier than You Think* (Health Scotland, 2004), overleaf, sets out the kilocalorie expenditure on a range of everyday activities, illustrating the extraordinary discrepancies between the 'sedentary' and 'active' ways and translating this into potential weight loss over 12 months.

The challenge for teachers and parents is to maintain and develop children's early enthusiasm for being active. In a Health Promoting School (HPS), this not only means taking maximum advantage of the opportunities for children to be physically active, but also addressing the broader issues at play — knowledge, understanding, behavioural skills and the development of positive attitudes and confidence for lifelong physical activity.

Following the publication of the *Report of the Review Group on Physical Education* (Scottish Executive, 2004), the Scottish Executive committed to measures to boost opportunities for pupils to adopt a more active lifestyle, including:

- at least two hours of PE per week for all pupils
- a greater choice of activities
- more PE teachers.

The Active Schools Programme encourages physical activity in all Scottish schools. Active School Co-ordinators will work in schools to increase physical activity levels of all pupils.

The physical changes boys and girls go through during puberty may affect their ability to participate in activities. Pre-puberty, there is little difference in body strength between boys and girls, but boys develop a marked increase in muscle strength during puberty and, to a lesser extent, the later teenage years. There appears to be no comparable 'spurt' in girls' muscle strength during their adolescent years, with strength tending to increase at the same rate as it did pre-puberty (Armstrong and McManus, 1998).

Boys and girls also tend to develop strength in different parts of the body. For boys, the main development seems to be in shoulder and upper-body strength, allowing them greater leverage and more powerful arms. Girls tend to experience broadening of the hips, giving them a lower centre of gravity and, consequently, greater stability and ability to manoeuvre.

Physical activity has a significant role in disease prevention and contributes to the development of healthy personal and social growth. The commonly held perception of physical activity being mainly about organised fitness and PE needs to be balanced with a more ecological view that places physical activity as an integral part of living, and something that is essential for the healthy completion of tasks for daily living.

Box 1. Getting Fitter is Easier than You Think (Health Scotland, 2004)

The Sedentary Way		The Active Way	
Activity	kcal	Activity	kcal
• Use remote control to change TV channel	<1	• Getting up and changing the TV channel	3
• 30 minutes of phone calls (reclining)	4	• Standing for a 30-minute phone call	20
• Hiring help to clean and iron	0	• 30 minutes of ironing, 30 minutes of vacuuming	152
• Heat a microwave meal	15	• 30 minutes of cooking	25
• Buying pre-sliced vegetables	0	• Prepare vegetables	10-13
• Using a leaf-blower for 30 minutes	100	• Rake leaves, 30 minutes	150
• Hire a gardener	0	• Garden or mow lawn, 30 minutes	360
• Using a car wash once a month	18	• Washing/waxing the car for 1 hour per month	300
• Letting the dog out the back door	2	• Walking the dog for 30 minutes	125
• Drive 40 minutes, walk 5 minutes (parking)	22	• 15 minute walk to bus stop	60
• E-mailing a friend, 4 minutes	2-3	• Walk 1 minute, talk 3 minutes (standing)	6
• Taking lift up 3 flights	0.3	• Walking up 3 flights of stairs	15
• Park at door of supermarket	0.3	• Park and walk 2 minutes	8
• Take escalator 3 times	2	• 1 flight of stairs 3 times a week	15
• Watch TV for 1 hour	30	• Walk and shop, 1 hour	145
Sedentary Way monthly total	1,700	Active Way monthly total	10,500
The difference of 8,800 kcal per month is the energy equivalent of losing or gaining 2.5 pounds per month or 30 pounds per year.			

Physical activity recommendations for children and adolescents

Physical activity targets for adults (30 minutes moderate activity on most days) are based on the minimum amount of activity required to provide protection from cardio-vascular diseases. The targets are backed by consistent research findings which indicate that being inactive or sedentary increases the risk of coronary heart disease, independent of other factors such as diet or smoking.

The activity guidelines for *children* are more complicated to determine, for a number of reasons (Box 2).

Box 2. Complications of measuring physical activity levels in children

- When children's fitness levels are measured, even inactive children may have scores that indicate they are fit. Children have a natural cardio-respiratory fitness because of the biological efficiency of their bodies.
- There are difficulties in obtaining reliable measures of how active children are; their activity is often spontaneous and undertaken in short bouts.
- Many of the diseases physical activity protects against do not occur in childhood, and few research studies have tracked childhood activity into adult health.

Despite these complications, there are three main arguments for promoting physical activity in children, each of which has a theoretical basis:

- Active children are likely to be healthier children.
- Active children are more likely to become active adults.
- Active adults are likely to be healthier adults.

The current guidelines for physical activity for children endorsed in *Let's Make Scotland More Active* (Physical Activity Taskforce, 2003) state that children should accumulate (build up) at least one hour of moderate activity on most days of the week. According to the Scottish Health Survey 1998 (Scottish Executive, 2000), however, 27% of boys and 40% of girls are not active enough to meet the guidelines.

There is no optimal amount of activity that can be defined precisely, but one step is always better than none at all. And activities that are chosen and enjoyed are more likely to result in continued participation than those that are enforced.

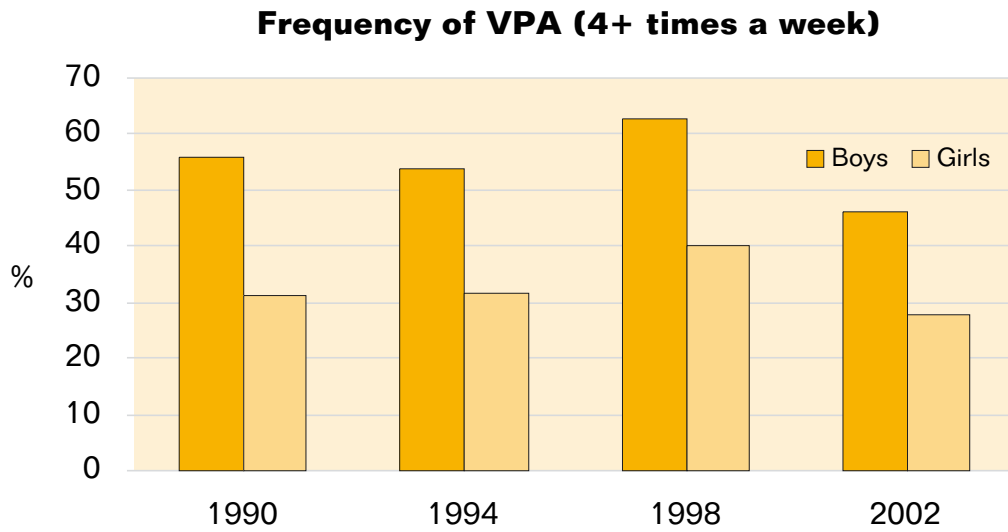
Recent trends in children's activity levels

As stated in Box 2, there are difficulties in obtaining accurate measures of children's activity levels. There have nevertheless been two important studies in Scotland relating to children's activity levels.

The World Health Organization supports a cross-national research study — the Health Behaviours of School-aged Children (HBSC). As part of this research, schoolchildren aged 11, 13 and 15 years in Scotland have been surveyed every four years since 1990. Although the survey includes only a few questions about physical activity, it is the only national survey to date to provide any information about trends in physical activity levels for under-16 year-olds.

Throughout this period, persistent gender and age differences have been found. Boys consistently report higher levels of vigorous physical activity (VPA) than girls at all ages, and VPA decreases with age (see Figure 1, overleaf).

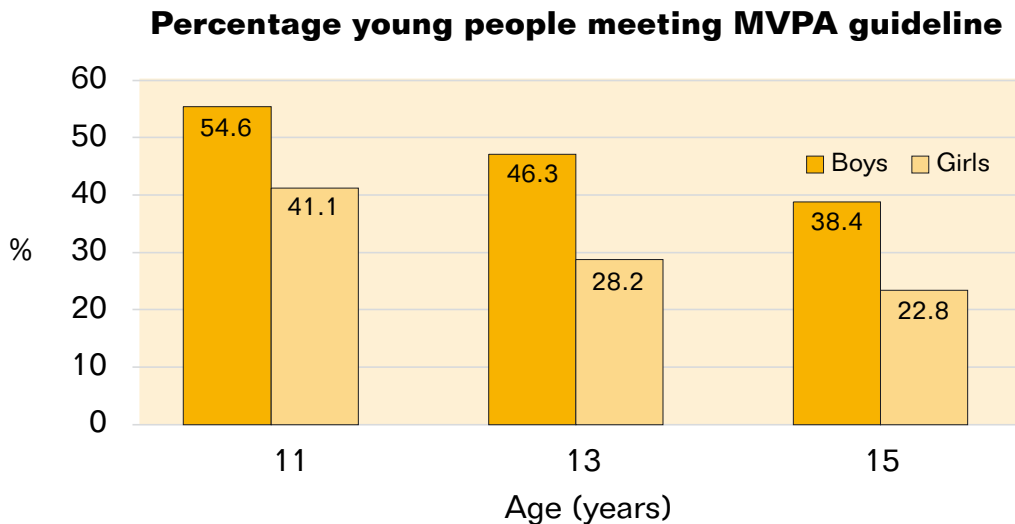
Figure 1



Data from 2002 HBSC on moderate to vigorous physical activity (MVPA) indicate that a substantial number of young people do not meet the current recommendations for 60 minutes MVPA on five or more days a week (Figure 2).

As with VPA, levels of activity were lower among girls and older children. At age 11, 55% of boys and 41% of girls reported meeting the current guideline, but this fell to 38% boys and 23% girls at age 15 (Currie *et al.*, 2004).

Figure 2



Data from the Scottish Health Survey 1998 (Scottish Executive, 2000) provide a picture of physical activity levels for children from the age of 2 to 16 years in Scotland. This study looked at all activity among children, and shows that

the differential activity levels between boys and girls start in the pre-school years and continue to diverge all the way through primary and secondary school.

Currently there are no Scottish data about the impact of ethnicity or disabilities on activity, but there is some evidence that both of these factors can negatively influence the amount and the type of physical activity young people pursue. In particular, the research highlights the reluctance of some adult supervisors to recognise that most physical activities are suitable for all children. Many children with disabilities can adapt activities to suit themselves and need not be left out.

The surveys and research studies provide valuable information about children's activity levels, but it's important that inactive girls or boys are not categorised as 'not liking' physical activity. The question should be asked as to whether the opportunities provided for them are relevant to the types of physical activity they enjoy. Is the right balance between offering creative and expressive physical activities and more performance-oriented and competitive activity being struck? Are lifestyle activities such as walking to school, helping with physically active chores or taking part in playground games recognised and rewarded?

Children should be encouraged to recognise the value of these broader lifestyle activities, in addition to valuing more formal sports, dance and physical activities. Lifestyle activities can be made more easily accessible to children who perhaps lack confidence in formal sport contexts as a result of poor body image, weight issues or poor motor skills development.

Impacts of being physically active

Physical health

The major diseases associated with an inactive lifestyle tend to become apparent in adulthood (coronary heart disease, stroke and osteoporosis) and therefore cannot be used as an outcome measure in studies of children and their activity levels.

But even if sound research evidence on the links between children's activity and the development of major health problems is lacking, there are nevertheless some physiological processes worth considering. These are discussed in Box 3, overleaf.

Emotional well-being

When considering the benefits of physical activity to children's emotional well-being, a broad view that includes the promotion of emotional well-being and cognitive and social development should be taken. For instance:

- Studies in this area have shown consistent and positive relationships between physical activity and promotion of emotional well-being, particularly in relation to self-esteem (Biddle, *et al.* 1998).
- Research suggests that more active children have a greater sense of emotional well-being than less active children (Steptoe *et al.*, 1996).
- In one Scottish study, a quarter of children said that 'doing sport made them feel happy and good about themselves' (Gordon and Grant, 1997).

Box 3. Impacts of activity on physical health

Skeletal health and growth

- There is some evidence to suggest that children's play activities — in particular jumping and skipping — promote strong, healthy bones through increased bone mineral density (BMD).
- Increased BMD provides a stronger skeletal frame, which protects against many injuries throughout life and may reduce the risk of osteoporosis in later life.

Prevention of overweight and obesity

- There are three reasons why it is important to consider the potential of physical activity both to prevent and to treat overweight children:
 - obesity is a major risk factor for diseases such as diabetes and atherosclerosis (narrowing of the arteries)
 - obesity in children tends to track into adulthood
 - adults who were obese as children have increased health problems.

Developing health-promoting behaviours

- Developing healthy behaviours in early life to avoid health problems in later life should be the primary focus.
- Learning basic motor skills (such as riding a bicycle and developing hand-eye co-ordination) will increase children's confidence and enjoyment, and is more likely to lead to regular physical activity.

Cognitive development

A number of studies have shown that even when curricular time or free time for study is reduced, academic performance is maintained or even enhanced by increases in students' levels of physical activity (Shephard, 1997). The ability to concentrate and learn may improve with physical activity due to:

- increased cerebral blood flow
- changes in hormone levels
- relief of boredom from sedentary classroom activity
- increased self-esteem.

Social development

There are few proven outcomes in the research in this area, but data suggest a considerable potential for play, games and sports to encourage positive social development. There is clear potential to use group contexts for physical activity to develop leadership responsibilities and co-operation with classmates. Many sports and games provide an opportunity for children to engage with other children and adults in ways that are different from the standard teaching environment.

The precise mechanisms linking physical activity to positive mood and emotional well-being are not entirely clear, but biochemical, physiological and psychological explanations have been suggested. Prominent among these is the notion of physical activity causing an increased production of endorphins, one of the groups of substances in the body responsible for creating the 'feel-good' factor. But the fact that physical activity tends to have a positive impact on self-esteem is also important.

Factsheet 1: *Current eating patterns among Scottish children and adolescents*; and Factsheet 3: *Energy balance and nutrient requirements*, have more detail.

Nutritional requirements for active lifestyles

Regular, varied meals will provide the required nutrients and energy for regular daily physical activity and for most sports undertaken by children and adolescents. The timing of sports sessions can sometimes mean that meals are delayed or missed — it is important that children learn to plan ahead for these occasions. Carrying healthy snacks and some water with their sports/activity kit is advisable.

There is no need for children to take nutritional supplements, high-energy foods or special 'sports drinks' simply because they participate in sports. Food and fluid intake will need to be considered more carefully only if a child is training and competing at a high level. The child should have access to a sports coach in this instance, who can advise on food and nutrition issues. If necessary, specialist advice from a sports dietitian should be sought.

Implications for a Health Promoting School approach

There are many things in addition to the direct provision of sports and games facilities that schools can do to promote physical activity. With the support of Active School Co-ordinators, schools can:

- demonstrate physical activity is enjoyable and can encompass dance, drama, and other expressive arts
- encourage staff, parents and students to walk or cycle to school
- act as advocates for local environments which are attractive to young people for physical activity (safe places to play, safe routes to school, bicycle training and secure bicycle parking facilities)
- encourage participation in community activities (through, for instance, the provision of an activities noticeboard)

- recognise and celebrate cultural diversity (by encouraging parents, staff and pupils to lead or teach ethnic dances and games, for instance)
- provide adequate changing and showering facilities.

Thinking of activity from this broad perspective opens many opportunities for links with issues such as sustainable living, active transport, good health and promoting independence. In this way the importance of young people participating and reaching their potential is highlighted.

The largely spontaneous physical activity of children at home, at school, in the streets and parks is fundamentally a healthy behaviour. Their chasing, wrestling, climbing and other games should be encouraged and supported.

Support for safe physical activity is, of course, paramount. But a balanced approach which reflects the potential of physical activity to contribute to a life of healthy independence should be adopted.

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Websites

www.bhf.org.uk

British Heart Foundation (BHF) aims to play a leading role in the fight against heart disease so that it is no longer a major cause of disability and premature death through, research, training, education, support and other projects.

www.bhfactive.org.uk

BHF National Centre for Physical Activity and Health (BHFNC) was established in 2000 by the British Heart Foundation and is committed to developing and promoting initiatives that will help professionals stimulate more people to take physical activity as part of everyday life.

www.cyclingscotland.com

Cycling Scotland: a site developed by Visit Scotland which gives details and descriptions of routes and roads for cyclists of any age.

www.forestry.gov.uk

Forestry Commission: the mission of the Forestry Commission is to protect and expand Britain's forests and woodlands and increase their value to society and the environment

www.gflscotland.org.uk

Grounds for Learning (GfL) is the school grounds charity for Scotland running a programme designed to help schools use and develop their grounds for positive play, learning and growth.

www.hbsc.org

Health Behaviour in School-aged Children (HBSC) is a cross-national research study conducted in collaboration with the WHO Regional Office for Europe. The study aims to gain new insight into, and increase our understanding of young people's health and well-being, health behaviours and their social context. There are 38 member countries including Scotland.

www.healthyliving.gov.uk

The national website to promote Scotland's healthyliving programme. It is designed to explain healthy eating and physical activity, and how small changes can lead to big benefits by providing resources, advice and support on healthy eating and physical activity.

www.jogscotland.org.uk

Jog Scotland, Scotland's jogging network. Their aim is to help people in their quest to improve their quality of life and to enjoy finding out how they can have a big impact on their long-term health and wellbeing.

www.pathsforall.org.uk/pth

Paths to Health exists to support the development of local Paths to Health Schemes in Scotland to promote walking for health.

www.saferoutestoschools.org.uk

Safe Routes To Schools is part of the Sustrans transport charity. They aim to create a Safe Route to School for every child in the UK.

www.sportscotland.org.uk

The national agency for sport and physical recreation. More information on the Active Schools Programme can be found on this website.

www.sustrans.org.uk

Sustrans is a transport charity which encourages people to walk, cycle and use public transport for health, safety and environmental reasons.

www.youthsporttrust.org

The Youth Sport Trust is a registered charity dedicated to building a brighter future for young people through sport. Their mission is to support the education and development of all young people through physical education (PE) and sport.

Chapter 1.3

Adjusting to puberty

Key points

- Puberty is not a purely physical transition, but also has important social, emotional and cognitive aspects.
- The age-range for development of puberty is wide, with great variety in the sequence and tempo of developmental changes and huge variation in resulting body shapes and sizes.
- The development of primary and secondary sexual characteristics and hormonally influenced moods and feelings can lead to a range of emotional reactions in girls and boys, including pride and embarrassment.
- Puberty and associated bodily changes result in a wide range of changes in people's reactions to the young person and in their relationships and popularity with peers.
- For most age groups, the social context fits the majority of 'on-time' pubertal developers best. Consequently, those who are 'off-time' may experience more risk of difficulties.

Providing effective support, advice and education on puberty is an essential challenge for health education.

Puberty affects many aspects of young people's lives and consequently is a central issue for all teachers.

The transition through puberty signals the change from being a child to being an adolescent, and brings with it a range of bodily developments that are often significant both to the child and those around him or her.

These changes occur during a phase of development that is also marked by transitions in social relationships and friendships. During late childhood and early adolescence, individuals become increasingly involved with and concerned about their peer groups and make social comparisons between themselves and other children. The co-occurrence of these important physical and social developments means that children are not only coming to terms with changes in their own body and associated moods and feelings, but are also comparing their development to that of children around them.

As teachers know, late childhood and early adolescence are marked by significant improvements in cognitive ability, giving children the ability to reason about their bodies and their development in more complex ways than was possible earlier in childhood. But it can also coincide with a falling-off in motivation for learning, particularly for young people who have found learning challenging or who have concerns about their future.

Puberty is not, therefore, a purely physical transition, but has important social, emotional and cognitive aspects as well.

Getting used to a changing body

Adapting to a changing body is challenging to a young person. At a very basic level, pubertal development leads to fast changes in actual body shape and size, changes that are not always fully mapped on to changes in the child's mental representation of his or her body. This can lead to temporary 'clumsiness' as children over- and under- estimate their body's dimensions as they move around (see also Box 1, *Growing pains*).

Children can be self-conscious about their bodies as they progress through puberty and develop concerns about being 'normal'. They sometimes have anxieties about when puberty should begin, what changes should occur, when puberty should be expected to end, and what a new adolescent body will be like. As Factsheet 6: *Biological changes in puberty*, explains, there is a wide range in age at which children can begin puberty, great variety in the sequence and tempo of developmental changes, and huge variation in resulting body shapes and sizes. It's therefore not surprising that many young people experience uncertainty and apprehension about puberty (Coleman and Hendry, 1999).

At the social-psychological level, the development of primary and secondary sexual characteristics and hormonally influenced moods and feelings can lead to a range of emotional reactions, including pride and embarrassment. Girls often find that early breast development can make them self-conscious and that people's insensitive reactions to breast development can exacerbate these feelings (Silbereisen and Kracke, 1997). There is also much sensitivity and concern about menstruation.

Although there is comparatively little research on boys' reactions to puberty, there is evidence that 'wet dreams' and first ejaculation can cause great embarrassment and confusion.

Box 1. Growing pains

Growing pains are the most frequent form of pain (after headache) found in otherwise healthy schoolchildren, affecting one in every six children aged 6-11 years, predominantly girls. Despite their name, the pains probably have no association with growth, except that they do not usually persist after the child reaches his or her final height.

The child usually complains of intermittent pain deep in the muscles of the arms and/or legs, generally in the front of the thighs, in the calves and behind the knees, away from the site of joints. He or she may also feel restlessness in the arms or legs. The pains range from a mild ache, sometimes associated with tiredness, to severe pain that may waken the child from sleeping. No cause can be found.

The discomfort may come on suddenly or gradually, does not occur every day, and affects the child late in the day and in the evening. It has usually gone by the morning. In older children, the pain may resemble cramps, 'creeping sensations' or restless legs (Brown and Kelnar, 2001).

Osgood Slater syndrome has a similar appearance, primarily affecting boys and girls aged 11-18. It presents with pain below the knee (generally in one leg only) and tends to occur in very strong, active boys, often following forceful physical activity (running or jumping, for example). Mild analgesics and encouraging the young person to avoid vigorous weight-bearing physical activity until the pains subside (generally within one to two years of onset) is the best method of treatment (Werner, 1999).

While uncomfortable and sometimes distressing for the child, growing pains are harmless and self-limiting. Medical advice should be sought where they are persistent, affect the joints or are accompanied by redness or swelling, as a more serious condition may be present.

Scottish data reveal that schools are already playing a key role in educating young people about sexual development and puberty (Figure 1). However, a small but significant percentage of young people report not having discussed sexual development and puberty in school at all. There are also significant gender differences in where young people access their information, and schools have a particularly important role with boys as they are less likely to discuss the issues with friends and parents (Todd *et al.*, 1999).

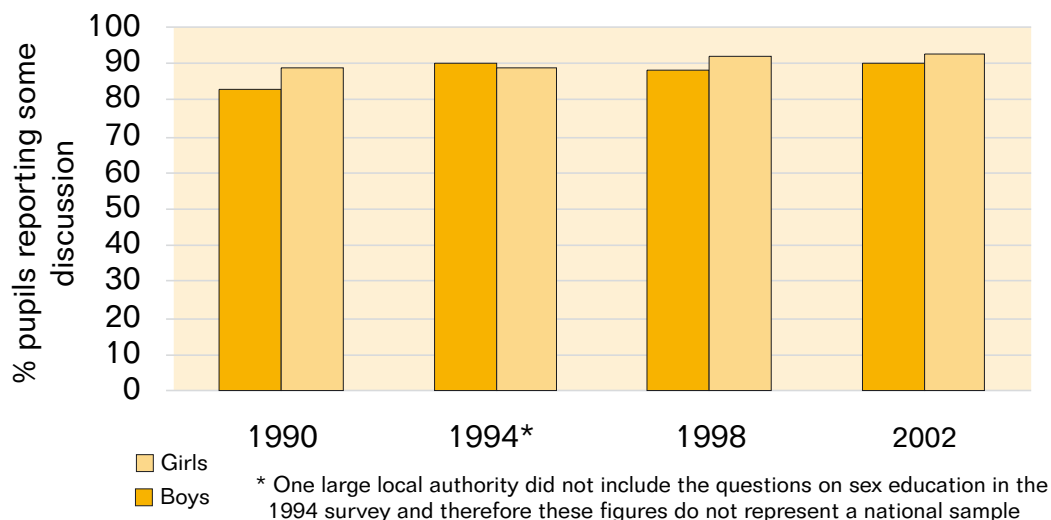
It is important that sex education should be seen as more than preparing young people for coping with changes that may be seen as problematic. There is great potential for the young person to develop a sense of pride and respect in his or her developing body.

Body image, self-esteem and puberty

One of the most obvious adjustments to puberty involves changes in body image and related self-esteem. During early adolescence, individuals measure their own self-worth to varying and, in some cases, to a great extent on their physical appearance.

When girls reach puberty, their bodies often develop in ways that do not reflect Western society's apparent preference for thinness. The natural increase in body fat and related changes in body shape throughout puberty often lead young teenage girls to be less satisfied with their body, and consequently to develop a poor body image. This in turn can lead to reductions in self-esteem. Other aspects of puberty, such as increases in the oiliness of skin and appearance of spots, might also lead to poorer self-image and increased self-consciousness.

Figure 1: Discussion about sexual development (puberty) at school, among Scottish 15 year-olds



Source: Health Behaviours of School-aged Children Surveys in Scotland

Conversely, as boys mature, the development of a relatively muscular physique, body hair, and a deepening voice may lead to a rather more positive body image (Silbereisen and Kracke, 1997).

The links between puberty, self-image and self-esteem are complex. The timing and rate of physical development, gender, culture and the reactions of those around them will all have an impact on how the child's body image and self-esteem develop during puberty (see Section 3, *Image and Reality*).

Puberty and relationships

Puberty and associated physical development result in a wide range of changes in people's reactions to the young person and in their relationships and popularity with peers. Interactions with parents and shared activities may subtly change. Puberty may be associated with more conflict with parents, greater conflict in the family as a whole and lower satisfaction in parental relationships, although the extent and seriousness of these problems will vary.

Friendships with peers and group activities may also alter as children begin to develop more emotional and sexually oriented relationships with peers. Inevitably, teachers will also adjust their interactions and treatment of young people in response to their evident maturity.

Being an 'early' or 'late' developer

One of the main issues influencing how well adolescents adapt to puberty is its timing relative to the development of the child's age group. In typical adolescent development, each age group shows a wide range of pubertal development. Among 11-year-old girls, for example, one child may have started menstruating and have well-developed breasts, while another child in the same class may not exhibit any observable signs of pubertal development.

Those at the stage of maturation reached by the majority may be described as being 'on-time'. Those comparatively small numbers of children not in this group may be considered comparatively 'early' or 'late' — 'off-time' in their pubertal timing. Clearly, then, pubertal development occurs in a *social context*, and this is crucial for the child's adjustment to puberty.

Research has tended to focus on the problems faced by children who are relatively 'off-time' in their pubertal development. There are several theories about the effects of being 'off-time' on psychological adjustment (Connolly *et al.*, 1997). One predicts that any children who are not 'on-time' will experience adjustment difficulties simply because they are different from the norm for their age. An alternative theory is that 'early' developers will be the group who experience most problems because their physical development is more advanced than their social or cognitive competencies, resulting in difficulties in coping with the challenges of puberty.

Taking a slightly different approach, it has been suggested that as long as the timing of physical development matches the social context of development, there will be a 'goodness of fit' between the adolescent and his or her social environment, with few developmental problems. Female ballet dancers and gymnasts, for example, may develop relatively 'late' compared to their age group, but there is nevertheless a 'good fit' between their development and the social context of their chosen activities.

For most age groups, the social context fits the majority of 'on-time' developers best. Consequently, those who are 'off-time' may experience more risk of difficulties. A final idea on the effect of timing is that children have a mental model of the age at which puberty 'normally' occurs, and are more likely to experience adaptive difficulties if their development differs from their mental model (Bee, 1998). Each of these broad theories has found some support from research evidence, and each adds to our understanding of the psychological impact of puberty on the growing child.

Puberty and problem behaviours

The teenage years are often associated with what adults may perceive as a range of 'problem' behaviours that are sometimes (although not always) considered to be concrete signals that the child is not adapting well to his or her development or social context. As a result, many studies have examined how 'early' and 'late' puberty is related to 'problem' behaviour in an effort to explore adolescent adjustment.

'Early' developing girls and boys are more likely to experience emotional difficulties, including anxiety and depression, compared to their age-peers. There is also growing evidence that 'early' development in particular is especially problematic for girls. 'Early' developing girls also exhibit higher rates of eating disorders such as anorexia. Unpublished Scottish research data show that 'early' developers are more likely to smoke cigarettes, drink alcohol and use illicit drugs than 'on-time' developers. These behaviours may be a form of coping mechanism, or they may be the result of 'early' developing children participating in older peer group activities.

'Late' developers have also been reported to have an increased risk of problem behaviours. 'Late' and 'early' developing boys show increased rates of delinquency, including school opposition behaviours, compared to 'on-time' age-mates (Williams and Dunlop, 1999). 'Late' developing boys may also show excessive alcohol drinking as a means of gaining prestige within the peer group.

The underlying causes of these adaptive problems are complex and seem to differ depending on the particular problem at issue. Importantly, although 'off-time' puberty increases the risk of behaviour and psychological problems, not all such children will develop problems. A range of other factors in the 'off-time' developing child's life, including their own personal coping resources and the support they receive from others, will determine whether these problems arise. Clearly, both the home and school environments have an important part to play.

Challenges for the future

Puberty is a potentially confusing but also exciting developmental transition, and one that yields both costs and benefits for the young person.

Despite a comparative lack of research on the psychological consequences of puberty, especially among boys, there is mounting evidence that children are often ill-equipped for puberty. Problems can arise among a minority where development occurs out of step with age-mates (such as their school class or year group). This can be serious and can have long-term consequences for these young people.

There is a need for greater awareness of the risk of 'off-time' puberty for adjustment problems. The right support at the right time for these children may enhance their future development and adjustment. Providing effective support, advice and education on puberty is an essential challenge for health education and schools.



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Section 2: Food and young people

Section plan

Chapter	Related factsheets	Related pre-designed training sessions	Related training activities
2.1: Food patterns and preferences	<p>2: Dietary targets and activity guidelines for young people in Scotland</p> <p>4: Food initiatives in schools</p> <p>5: Dental and oral health in young people</p> <p>8: The media</p> <p>9: Breastfeeding</p>	What is healthy eating?	<p>3. An enjoyable meal</p> <p>5. Food is for/eat because</p> <p>6. That's me!</p> <p>7. Trends in food patterns</p> <p>18. Statues of balance</p>
2.2: Over-weight and obesity	<p>1: Current eating patterns among Scottish children and adolescents</p> <p>2: Dietary targets and activity guidelines for young people in Scotland</p> <p>3: Energy balance and nutrient requirements</p> <p>4: Food initiatives in schools</p>	From one extreme to another	<p>25. A sorry tale</p> <p>30. What it means to be overweight</p>
2.3: Dieting	<p>1: Current eating patterns among Scottish children and adolescents</p> <p>2: Dietary targets and activity guidelines for young people in Scotland</p> <p>3: Energy balance and nutrient requirements</p>	From one extreme to another	<p>41. All change</p> <p>43. Diet fads and fictions</p> <p>44. Reasons for dieting</p> <p>45. DIETING!</p> <p>46. What would you do?</p>
2.4: Eating disorders			<p>3. An enjoyable meal</p> <p>5. Food is for/I eat because</p> <p>6. That's me!</p> <p>7. Trends in food patterns</p> <p>18. Statues of balance</p>

Chapter 2.1

Food patterns and preferences

Key points

- In general, the dietary patterns of Scottish schoolchildren are less healthy than those of many of their European counterparts.
- Children who were breastfed as infants experience significant health benefits in childhood.
- Studies show that children who eat meals with their families consume more fruit and vegetables, drink fewer fizzy drinks and eat less fat.
- There is evidence that some children in Scotland — as many as 20% of 11-15 year-olds and many below that age group — are regularly missing breakfast.
- To foster a balanced diet, and one which is enjoyed, parents of young children should be urged to offer a wide range of foods with encouragement for the child to sample them.
- Scotland's oral health is poor in comparison with other areas of the UK, with high consumption of sugary snacks and fizzy drinks implicated in the incidence of dental caries.

Food choices are mediated by the variety of foodstuffs available and tastes acquired in the course of a lifetime. Information about food from parents and peers or through the media, and cultural influences such as religious rites — Halaal meats, Kosher foods and fasting during Lent and Ramadan, for instance — determine to a large extent food likes and dislikes, and also *when* people eat.

Biological processes which govern the level of hunger we feel are, of course, important. Indeed, there is some evidence that people are biologically 'programmed' to seek out sweet things to eat. These can be over-ridden by cultural influences and learning. Examples of these include religious fasting, food avoidance due to allergies, and avoidance due to choice (vegetarianism, for instance).

Eating well is a long-term investment in health, so it is the choices of food people make on a daily basis that will have the greatest effect. The Scottish Diet Action Plan (Scottish Office, 1996) sets out a framework for achieving the targets for the Scottish diet by 2005.

The Diet Action Plan calls for increases in the consumption of:

- fruit and vegetables
- bread
- breakfast cereals
- complex carbohydrates (like rice, pasta and potatoes as well as bread and cereals)
- oily fish.

It also aims to ensure that more than half of all new mothers breastfeed their babies for at least the first six weeks of life.

Reductions in consumption are targeted for:

- salt, by over 30%
- sugars consumed by children, by 50% (except lactose, the sugar found in milk, which is not damaging to teeth)

- fats, to no more than 35% of food energy with saturated fat at no more than 11% of food energy.

More details on the targets are shown in Factsheet 2: *Dietary targets and activity guidelines for young people in Scotland*.

Infant feeding

The first food choice for infants is usually made by parents, particularly mothers, who opt either to breastfeed or formula-feed their babies. This may seem irrelevant in a consideration of the food patterns and preferences of school-age children, but this crucial choice can have long-term effects on the child. Children who have been breastfed benefit from:

- reduction in allergies
- reduction in risk of childhood infections
- improved active immune response (to immunisation, for example).

There is also some evidence to suggest a link between breastfeeding and enhanced cognitive development in pre-term babies (Lucas *et al.*, 1992), and a lower risk of obesity in childhood (Armstrong and Reilly, 2001; von Kreiz *et al.*, 1999).

Open discussion of breastfeeding issues is important. Creating an environment in which people are not embarrassed by the act of breastfeeding in public is a key topic to be discussed with children. There are many pressures which implicitly promote bottle-feeding and perpetuate the belief that breastfeeding is 'more difficult', meaning it is particularly important to tackle the issues at an early stage in life (see Factsheet 9: *Breastfeeding*).

Developing preferences in early life

Children in the pre-school years, especially at two to three years, often become suspicious when presented with novel, 'different-looking' foods. Parents may despair about the lack of

variety and adventure in their child's eating habits and worry about the adequacy of their diet. But the child may be genuinely wary of taking something that he or she does not recognise and which might appear 'unsafe'.

Children come to like foods largely as a result of being offered them frequently. Regrettably, many parents will respond to a child refusing a particular type of food in early life by withdrawing the food from the child's diet, perhaps because they do not want to waste either food or money. But experimental evidence shows the importance of continued exposure to foods in increasing their acceptability to children (Wardle *et al.*, 2003).

Seeing an influential role model eating and enjoying particular foods can be another effective mechanism in improving children's eating habits. Children of nursery school age have started eating a previously unacceptable vegetable after sitting just two or three times at meal tables with children who eat the vegetable.

Strategies such as rewarding the child for eating a non-preferred food (cabbage, for instance) by offering a preferred food (such as ice-cream) seem to make sense from a parental viewpoint, particularly in the short-term, but in fact are counterproductive in the long-term. The influence on the child's preferences tends to be the opposite of what is desired — invariably, cabbage becomes even less acceptable, while the liking for ice-cream grows! This provides solid support for not encouraging the use of sweets as a reward for a desired behaviour.

But completely banishing much-desired foods from the diet can be similarly counterproductive. Foods that have been forbidden may be over-consumed when children finally have independent access to them and parental control over the diet wanes. Parents should be encouraged to moderate, rather than totally ban, these foods.

To foster a balanced diet, and one that is *enjoyed*, parents of young children should be urged to offer a wide range of foods with encouragement for the child to sample them. New tastes should be introduced as rewards for eating existing favourites, rather than the other way round.

There are many companies only too eager to provide children with a large variety of cheap, sweet, fatty and salty foods. Special children's menus offered by fast-food chains and restaurants also tend to concentrate on food choices that are high in fat and sugar. Against this background, parents and children need much support and advice to help them develop healthier eating habits.

Yet from as young as four years, children asked to draw the foods that keep people healthy will draw fruit and vegetables, and also make reference to not eating too many sweets. It is the gap between this knowledge and their and others' behaviours, particularly when they move into adolescence, that is of concern.

Developing preferences in adolescence

As children move into adolescence, they acquire greater autonomy over food choices, with increasing opportunities for teenagers to select and purchase their own food and drinks outside the home. Adolescent food choice is influenced by a wide range of factors, including social and cultural pressures, income, tastes, exposure to foods and food advertisements and personal concerns about weight and body size.

Advertising, especially on TV, seems a particularly pernicious influence on children's and young teenagers' eating habits. Recent research has shown that manufacturers target children's TV programmes through commercials for high-sugar, high-fat foods (Young, 2002). The advertisements often contradict healthy eating advice. Some countries have taken legislative steps to limit this practice.

Differences in disposable income and other socio-economic factors also play a significant part in dictating preferences and influencing choices. Scottish data have shown that schoolchildren from less affluent families have a higher intake of high-fat and high-sugar foods, and a lower intake of fruit and vegetables (Inchley *et al.*, 2001). There are important issues of availability and cost that need to be addressed to ensure that people have access to a wide range of foods and, in particular, fresh produce at affordable prices.

General picture of dietary patterns

In general, the dietary patterns of Scottish schoolchildren are less healthy than those of many of their European counterparts. Scottish schoolchildren have a high consumption of crisps, chips, sweets and chocolates compared with same-age children from other European countries (Currie *et al.*, 2000, Currie *et al.* 2004).

These cross-national differences are likely to be influenced by a wide range of factors, including historical precedents, cultural traditions and food production (in particular, issues such as availability, freshness, taste, price, and food safety). The role of the family meal is thought to have a significant influence. American studies show that children who eat meals with their families consume more fruit and vegetables, drink fewer fizzy drinks and eat less fat in food, both at home and away from home (Gillman, 2000).

But changes in family lifestyles have led to changes in the way families prepare and consume meals. Set family mealtimes have in many cases been replaced with a looser arrangement, with family members eating at different and irregular times. There has been a significant decline in family eating in the adolescent age group throughout the last decade. In Scotland, some 45% of 11-15 year-olds eat a meal with a parent every day, but at the same time more than one in ten children do so only once a week or less. Some children rarely sit down for a family meal and instead eat food at frequent intervals — an activity known as 'grazing'.

There is also evidence that some children in Scotland — as many as 20% of 11-15 year-olds — never have breakfast during the week, and many below that age group are regularly missing breakfast. The trend towards missing breakfast is accelerating; this is particularly marked with girls, who may adopt breakfast-avoidance as a deliberate weight-reduction strategy.

The benefits of breakfast are well documented. Ruxton *et al.* (1996) found that breakfast contributed up to 14% of the energy (kilocalorie) intake of Scottish 7-8 year-olds, and 9-36% of the essential vitamins and minerals. Crawley (1993) found a higher intake of essential vitamins and minerals and a lower intake of fats in teenagers who regularly consumed a breakfast cereal.

Studies have also suggested that children who do not eat breakfast are less attentive in classes at school. In an attempt to ensure as many children as possible benefit from having breakfast, a number of education authorities in Scotland have set up breakfast clubs for students in recent years (Anderson and Bell, 2000).

But breakfast may not be the only meal some young people are 'skipping'. Eating lunch in school can be a hurried experience as a result of the short time allocated, the large number of pupils to get through the system, and lack of space within the dining hall. As a result, pupils may rely on food that can be eaten quickly and on the move (Inchley and Currie, 2003).

The motivation of young people is also important. They may value the opportunity to get out to 'play' more than the opportunity to eat lunch. Of course, the desire to get involved in physical activity is to be encouraged, but there is a need to be conscious of whether young people, in their enthusiasm, are either 'bolting' their lunches, taking the quickest (and not always healthiest) choice from the menu, or skipping lunch altogether.

Some may miss lunch in an attempt to lose weight or as a means of saving lunch money for other purposes, while other children, for a variety of reasons, may not have the opportunity to have a meal in the middle of the day.

There is a requirement for local authorities and schools in Scotland to provide food free of charge for children whose families are eligible for family income support. In addition food is available for all children in Scottish schools at an appropriate charge. Currently nutrient standards are being introduced and should be in operation by December 2006 in all schools (Scottish Executive, 2003).

Many children take packed lunches to school and these can be every bit as appealing and nutritious as a cooked meal. They might, however, swap items for less healthy options with friends, not eat what is provided, or augment their lunches with visits to the local shop, where many of the snack foods they can purchase have high fat and sugar contents.

Children who are missing vital meals may be missing out on essential energy and nutrients, with consequent risks to their physical well-being and mental performance.

Developing healthy food choices

In Scotland, the 'Eating for Health' plate model has been promoted as a means of communicating the concept of a balanced diet (see Factsheet 2: *Dietary targets and activity guidelines for children in Scotland*). The 'plate' sets out the broad proportions in which foods from each of the different food groups should be consumed, not necessarily at each meal, but across a day, a few days or even a week. These proportions will be the same for adults and children from five years old upwards, the main difference being that children's portions will generally be smaller according to their age and appetite.

As the 'plate' suggests, most of the food consumed should consist of starchy foods such as rice, pasta and potatoes, and fruits and vegetables. Smaller amounts of protein and low-fat dairy produce are also important. Minimal amounts of foods high in saturated fat or sugar should be consumed. Such foods are not necessary for a healthy diet and can safely be omitted altogether if this is feasible, or eaten occasionally. It is also important to drink adequate fluids, sufficient to prevent thirst developing.

The route to developing the eating patterns of children along these lines must begin in the pre-school years. As they grow older, relentless media pressure and food advertising prove particularly difficult for children and adolescents to resist (see Factsheet 8: *The media*).

Foods are fashionable — just like branded trainers and jeans. Successful campaigns on healthy eating must recognise these issues, as well as continuing to inform children about nutrition. Within the school setting, it is important that the school meal services are integrated with nutrition education in the curriculum to ensure consistent support for healthy eating as referred to in the policy report *Hungry for Success* (Scottish Executive, 2003). In addition, specific positive initiatives designed to promote healthy eating can be considered, such as:

- introducing breakfast clubs
- setting up fruit snack bars
- installing healthy vending machines
- improving the school dining room environment
- improving access to drinking water in schools.

The issues surrounding these initiatives are set out in Factsheet 4: *Food initiatives in schools*.

Dental and oral health in young people

Children within the 8-14 age group are at the stage of losing their first teeth and having them replaced by adult teeth, so it is a period in their life when they may be very aware of the mouth and its changes. This is also an age when orthodontic treatment, either with fixed or removable braces, is often carried out to help the newly emerging adult teeth to develop, and children and young people may have increased contact with the dental services during this time.

Scotland's oral health is poor in comparison with other areas of the UK, though the situation has improved over the last 10 years. The Oral Health Strategy for Scotland (Scottish Office, 1995) set a target average of 1.5 decayed, missing and filled teeth (DMFT) for 12 year-old children by the year 2005. Current figures for Scotland show a mean (average) of 1.75 DMFT, indicating that there is still room for improvement with this age group.

A report looking at the health behaviours of schoolchildren found that 48% of Scottish 13 year-olds drank fizzy drinks on a daily basis (Currie *et al.*, 2004). Both sugary and 'diet' fizzy drinks have been implicated in erosion (acid damage) of adolescents' teeth.

Children's access to these drinks has been facilitated over recent years by the increase in the number of carbonated drinks vending machines in schools. Healthier options such as mineral water and milk should always be made available as an alternative.

Snacking or 'grazing' on sugary foods is also very damaging to children's dental health. Approximately 49% of 13 year-olds in Scotland consume sweets on a daily basis, and healthier snack options should be made available in school dining rooms and cafeterias. There is evidence to suggest that healthier foods, priced competitively and presented attractively, can attract a good market in schools (see Factsheet 4: *Food initiatives in schools*). More examples of positive policies that encourage healthy eating can be found in *Hungry for Success* (Scottish Executive, 2003).

There are strong links between dental/oral health and deprivation. Children from disadvantaged backgrounds are much more likely to experience dental decay. Research in Scotland shows that while over 60% of children in the 'most affluent' groups were free of dental caries, only 20% of those in the 'least affluent' groups had no caries. All of the decaying teeth were found in 50% of the children. Distribution of dental disease is also unequal among disadvantaged groups, with some children having very high levels of disease and half of the untreated decayed teeth being found in just 9% of the children (Pitts *et al.*, 1997).

Children's attitudes to dental/oral health

Young children's attitudes to dental health are greatly influenced by media images of good teeth. Teeth are thought to be healthy only if they are white, shiny and even, and few children have any understanding of what constitutes a healthy mouth and healthy gums (see *Healthy Teeth in Healthy Mouths*, Health Education Board for Scotland, 1996).

Most children know about the negative impact of sugar on dental health but do not understand that *frequency* of consumption and the total amount of sugar consumed are important determinants of damage done. The importance of brushing teeth is also recognised, although a number of children admit to not always doing so. Most children do not understand that fluoride plays a vital role in protecting teeth.

Prevention of dental disease

Children and young people have much to gain from preventative dental behaviours that establish good oral health for adult life.

Dental and oral health should not be seen in isolation from general health, lifestyle and dietary issues (Box 1). Diet, in particular the frequency of intake of sugars, is known to have an impact on the development of tooth decay. Smoking has also been shown to be linked to the development of gum (periodontal) disease and oral cancer.

Many dentists will offer fissure sealant treatment, a very effective means of reducing the incidence of dental decay involving plastic coatings being applied to the back molar teeth. But regular brushing with a fluoride toothpaste provides the most effective means of protecting against tooth decay.

Approximately 69% of Scottish 13 year-olds brush their teeth more than once a day. Girls are more likely to be regular brushers (77%) than boys (60%) (Currie *et al.*, 2004). These figures are an improvement on 1990, when only 60% of children brushed more than once a day. Access to fluoride, usually in the form of toothpaste, is one of the key elements in the prevention of dental decay in this group. Acquisition of the habit of brushing will also help prevent gum disease in later life.

Box 1. Key steps to good dental and oral health

- *Diet*: reduce the consumption and especially the frequency of intake of sugar-containing foods and drinks.
- *Toothbrushing*: clean the teeth thoroughly twice a day with a fluoride toothpaste.
- *Dental attendance*: register with a dentist, and have an oral examination twice every year.

For further information on dental health, see Factsheet 5: *Dental and oral health in young people*.

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www.bhf.org.uk

British Heart Foundation (BHF) aims to play a leading role in the fight against heart disease so that it is no longer a major cause of disability and premature death through, research, training, education, support and other projects.

www.dietproject.org.uk

The Scottish Community Diet Project aims to help improve Scotland's diet and health by supporting work within low-income communities to improve access to and take-up of a healthy diet. It offers a grants scheme for community initiatives; toolkits and guides for groups to use; information exchange and networking facilitation; development of partnership working models; and support action research and practice development.

www.education.ed.ac.uk/cahru/

The Child and Adolescent Health Research Unit (CAHRU) at the University of Edinburgh. The remit of CAHRU is to undertake research relevant to the promotion of health among children and adolescents at local, national and international levels. The health behaviour, health and well-being of school-aged children are monitored and studied in social and developmental context.

www.food.gov.uk/scotland

Food Standards Agency Scotland was launched on 3 April 2000. Its commitment is to improve food safety and standards in Scotland and protect the health of Scotland's population in relation to food.

www.hbsc.org

Health Behaviour in School-aged Children (HBSC) is a cross-national research study conducted in collaboration with the WHO Regional Office for Europe. The study aims to gain new insight into, and increase our understanding of young people's health and well-being, health behaviours and their social context. There are 38 member countries including Scotland; the next cross-national survey is in 2005/6

www.healthpromotingschools.co.uk

This website, managed by the Scottish Health Promoting Schools Unit, is a portal for everyone in Scotland working on health promoting schools.

www.healthscotland.com

Health Scotland provides a national focus for improving health, and works with the Scottish Executive and other key partners to take action to improve health and reduce inequalities in Scotland.

www.healthyliving.gov.uk

The national website to promote Scotland's healthyliving programme. It is designed to explain healthy eating and physical activity, and how small changes can lead to big benefits by providing resources, advice and support on healthy eating and physical activity.

www.shcas.co.uk

Scottish Healthy Choices Award Scheme works with caterers to encourage them to provide healthier options in the meals they provide.

www.youngscot.org.uk

Young Scot offers incentives, information and opportunities to people aged 12 to 26 to help them make informed choices, play a part in their community, and make the most of their free time and learning.

Chapter 2.2

Overweight and obesity

Key points

- Recent research has shown that the prevalence of obesity is increasing among children and young people in Scotland and in many other parts of the world. Obesity rates have risen threefold in many countries; WHO has calculated that worldwide, there are now over one billion people overweight, and over 300 million obese.
- Social deprivation is associated with high levels of obesity in Scotland.
- By far the most common cause of obesity is the combination of reduced physical activity and increased kilocalorie intake. The mainstay of weight management is to increase the child's activity levels and review his or her eating patterns and behaviours.
- Being overweight or obese has significant social and psychological consequences. Obesity is also recognised as a significant risk factor in the development of serious illnesses in adulthood such as cardiovascular disease, Type 2 (non insulin-dependent) diabetes, hypertension, osteoarthritis, depression and a number of cancers, including breast and colon cancer.
- Even modest kilocalorie reductions can make a significant impact on weight — a 100kcal deficit per day can lead to a 10lb (4.5kg) weight loss over a year.

Obesity rates have risen threefold in many countries; WHO has calculated that worldwide, there are now over one billion people overweight, and over 300 million obese (WHO, 2002).

Obesity among children and young people is an increasingly common problem in Scotland. Obesity is now considered a disease in its own right and is also recognised as a significant risk factor in the development of serious illnesses in adulthood such as cardiovascular disease, Type 2 (non insulin-dependent) diabetes, hypertension, osteoarthritis, depression and a number of cancers, including breast and colon cancer.

Definitions

Obesity is defined numerically. An adult is said to be obese when his or her Body Mass Index (BMI)² exceeds 30 kg/m², and would be considered overweight if the BMI was in the range 25-30 kg/m². This means, for example, that a woman who is 1.64 metres tall (5 feet 5 inches) and weighs 73.2 kg (11 stones 7 pounds) will have a BMI of 27.2 kg/m², and would be considered 'overweight'.

Care should be taken in interpreting BMI, particularly in children. It is important to link the child's age and gender to his or her BMI, and separate BMI assessment charts are available for boys and girls.

The BMI in children is expressed within a range of 10 *centiles*. The number of a centile predicts the percentage of children who will fall below a particular measurement at a given age. The 10th centile, for instance, means that 10% of the population will be smaller and 90% bigger at that age. A child's progress can be plotted against centile lines on the BMI chart.

² The BMI is calculated by dividing the weight in kilograms by the height in metres squared.

Prevalence

In 1997 63% of Scottish men and 54% of Scottish women were classified as overweight or obese (20% and 22% respectively classified as obese). Research carried out between 1974-1994 (Chinn and Rona, 2001) showed the prevalence of overweight and obesity among Scottish children aged 9-11 years was:

- boys: overweight, 13.4%; obese, 2.1%
- girls: overweight, 19.6%; obese, 3.2%

More recent data suggest that these figures have increased over the last decade (Armstrong and Reilly, 2003). The research found a tendency for obesity prevalence in girls to increase with age and a very strong association between obesity and social deprivation was identified, with young people from the most disadvantaged backgrounds having higher prevalence rates.

These research studies reflect the findings of a study carried out among schoolchildren in England in 1996 (Reilly and Dorosty, 1999), in which the numbers of overweight and obese children and young people found in almost all of the age groups studied were higher than predicted. The prevalence tended to increase with age, to the point that at age 15, the frequency of obesity was over three times the expected 5% level.



Causes

Basal metabolism is the energy used to fuel body functions such as the heart beating and breathing. If basal metabolism and other energy expenditure in the form of physical activity is less than energy *intake* from the food we eat, then we will gain weight as surplus energy is laid down as fat (see Factsheet 3: *Energy balance and nutrient requirements*). Body fat is the main way in which we store excess energy and we can draw on these reserves in times of food shortage.

While food shortages do not appear to exist for the majority of people in Scotland, there are important issues of access, cost and availability of food for some communities. It is probably significant that the least expensive meals are often those high in fat content. Fast-food and highly processed foods are more likely to be:

- high in saturated fat
- energy-dense (meaning that only small amounts are required to significantly increase kilocalorie uptake)
- supplied in large portions
- lower in dietary fibre, micronutrients and antioxidants.

Adolescents eat more than the recommended levels of sugar, salt and saturated fat (The National Diet and Nutrition Survey, 2000) (see Factsheet 1: *Current eating patterns among Scottish children and adolescents*). The consumption of soft drinks is also an issue related to obesity. The effects of energy intake on satiation appear to be different for fluids compared to solid foods (WHO and FAO, 2003). This could result in more energy being taken in at meals because the extra energy in the drinks is not adjusted by a corresponding reduction in the energy in the solid food. (Ludvig *et al.* 2001)

Compared to the resources available to previous generations and those in developing countries, a wide variety of food is available to the majority of people in Scotland from many sources. Food availability and consumption is therefore rising at a time when access to energy-saving technology such as escalators, lifts, remote control devices, cars and sedentary leisure activities like watching TV and using computers are also on the rise.

The proportion of young people walking or cycling to school has dropped substantially in the last generation, and this has contributed to a daily reduction in energy expenditure for many young people. In addition, many of us live in environments with central heating, meaning we have to expend less energy in keeping ourselves warm³. Consequently, there is a very real risk of a child's energy *intake* (the amount of kilocalories ingested in food) exceeding his or her energy *expenditure* (the amount of energy he or she expends in physical activity and in meeting metabolic requirements).

There are defined medical causes of obesity, but they are relatively rare. There may be a genetic component, but the appearance of obesity in children of obese parents may relate to family activity and eating patterns as much as genetic inheritance. By far the most common cause of obesity is the combination of reduced physical activity and increased energy intake (see Box 1).

There is some evidence that of the two, reduced physical activity may be the more significant. Reilly and Dorosty (1999) found evidence implicating lower energy expenditure (in other

words, reduced physical activity) as the prime reason for weight increases in the children they studied, and they believed that this was more convincing than the evidence on higher energy consumption (increased kilocalorie intake). Some caution should be exercised in generalising from these results, as it is difficult to measure accurately both energy consumption and expenditure in young people as they go about their daily lives. It is safe to assume that in relation to the population, food consumption and physical activity are both important factors in relation to the problem of weight increase.

Box 1. A sorry tale...

A very dramatic example of the effects of assuming a less active lifestyle and adopting a 'Western'-style, high-fat, high-sugar diet is provided by the story of the inhabitants of Nauru island in the Pacific Ocean.

This tiny island had some of the richest phosphate reserves in the world due to the resident seabird population. The purchase of the phosphate by fertiliser companies led to significant increases in the average per capita income of the islanders over the last 30 years. This, in turn, persuaded them to abandon their traditional diet of fish and vegetables in favour of expensive, imported 'Western' foods, and acquire labour-saving devices that allow them to adopt a much less active lifestyle.

In the course of a single generation, they have become one of the most obese populations on the planet. Thirty per cent of the islanders now suffer from diabetes.

³ The term 'obesogenic' has been coined to describe our modern environment, which encourages high-energy intake and inactivity. A recent report (WHO and FAO, 2003) concluded that the obesogenic environment has a particularly high impact on young people.

What and how a child learns about food and eating is also a crucial consideration. Experiments with pre-school children suggest they learn how filling different foods are, and adjust how much they eat according to how full they feel. But common parental strategies designed to ensure that children 'eat up' their meals, such as getting them to finish everything on their plates or being rigid about the child eating at defined times (whether hungry or not), may interfere with this kind of learning.

Consequently, the child may become accustomed to consuming more than he or she needs, a habit that can accompany him or her into adolescence and adult life as it is generally accepted that eating habits acquired in early childhood are likely to endure.

There is also a range of physiological and psychological factors that can be related to obesity. Eating styles such as eating too fast, poor sensitivity to the 'feedback mechanism' indicating fullness, inability to control impulses to eat, or unhappiness and depression are examples.

Consequences

Our society places great value on attractiveness, which generally tends to be perceived as being synonymous with slimness, particularly in women. The disparity between the proportion of women who are overweight or obese (approximately 54%) and those who have tried to diet (approximately 90%) demonstrates that while much dieting may be unnecessary in health terms, it is still seen as a necessary component in the struggle to become 'attractive'.

A serious consequence of the perception that being overweight is unattractive is evidence of prejudice against obese children. Even from an early age, children can be subjected to systematic discrimination. By the time they reach school-age, research from America

suggests that children become 'sensitised' to obesity and associate it with a number of negative characteristics, such as 'laziness' and 'sloppiness' (Dietz, 1998).

The US research also refers to reports that suggest that at ages 10-11 years, children show signs of discriminating against obese peers when it comes to choosing friends. When boys in one study were asked to assign each of 39 adjectives to one of three silhouettes of a thin, muscular or obese body shape, the obese shape was least frequently described as a 'best friend', and most frequently as 'gets teased'.

In the UK, a study of nine year-old children found that they associated an overweight body image with poor social functioning, impaired academic success, and low perceived health and fitness (Hill and Silver, 1995).

Even children as young as five or six years show signs of discriminating against their obese peers. In one study, children were shown a series of drawings including an obese child, a normal-weight child and three drawings of children with various disabilities. Ranking the drawings by asking which the child liked best resulted in a robust order of preference, with the normal-weight child at the top and the obese one at the bottom.

Measures to reduce obesity

A key strategy in reducing obesity is to increase a child's activity levels and review his or her eating patterns and behaviours.

The definite health benefits of being active far outweigh any possible risk of associated injury. There is a need to ensure that an overweight child is not required to carry out activities that place him or her at a disadvantage in front of peers, but the importance of physical activity (such as walking and cycling to school) should be on the agenda for discussion with parents.

Children may not appreciate that dancing or vigorous play are important sources of physical activity. Even stretching and gentle exercises undertaken routinely at the end of prolonged periods of sitting in the classroom can make a valuable contribution to a physical activity programme as demonstrated in *The Class Moves!* (HEBS, 2002). The Scottish Executive initiative, the Active Schools Programme, aims to help schools combat rising trends in overweight and obesity through the promotion of physical activity in the life of the school.

In children, energy intake can be reduced by encouraging healthy eating behaviours following the general advice of the *Eating for Health* plate model (see Factsheet 2: *Dietary targets*). Many high-sugar foods can be replaced by more starchy ones like bread, potatoes and cereals. This way, the child can still eat satisfying food, but will be able to reduce his or her kilocalorie intake in the process. It is important to place restrictions on the consumption of high-sugar drinks as this can have important effects on energy intake and satiation. Children and families can be encouraged that even modest kilocalorie reductions can make a significant impact on weight — a 100kcal deficit per day can lead to a 10lb (4.5kg) weight loss over a year (see Factsheet 2: *Dietary targets and activity guidelines for young people in Scotland*).

Dieting does not appear to be very effective in the long-term management of overweight and obese adults. Most dieters will regain the majority of their lost weight within a year of ceasing their diets (see Chapter 2.3, *Dieting*, in this section).

Schools are important settings for promoting healthy eating for children generally, and can provide excellent opportunities for physical activity through the curriculum and ethos of the school as a health promoting organisation. They are also well placed to make a significant contribution to promoting equity and social inclusion through the development and implementation of appropriate and effective school policies (see *Hungry for Success* (Scottish Executive, 2003) and Factsheet 4: *Food initiatives in schools*).

Policies on name-calling and teasing children on any aspects of body shape or attractiveness should be given priority (www.antibullying.net). Teachers can enable overweight and obese children to gain confidence during class-work unrelated to physical activity by providing a range of options that draw on and reward different skills and abilities.

Measures that help children to develop responsibility for their own bodies and health foster a strong internal sense of empowerment and control. This has been shown to be important in relation to all areas of health, and will have an important contribution to weight control and obesity.



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Websites

www.antibullying.net

A network set up by the Scottish Executive so that teachers, parents and young people can share ideas about how bullying should be tackled. It is freely open to all.

www.bbc.co.uk/science/hottopics/obesity
Page with information on key points around obesity.

www.healthyliving.gov.uk

The national website to promote Scotland's healthyliving programme. It is designed to explain healthy eating and physical activity, and how small changes can lead to big benefits by providing resources, advice and support on healthy eating and physical activity.

Chapter 2.3

Dieting

Key points

- There has been a significant increase in recent years in the proportion of 15 year-old girls and boys who report having been on a diet to lose weight.
- More teenagers choose to diet than there are teenagers who meet the criteria for obesity or who are even overweight.
- The age at which dieting becomes common continues to fall, with reports of children as young as five to seven years restricting their food intake.
- The pressure that idealises a thin shape for girls and a broad muscular shape for boys starts early and continues to be reinforced through the media.
- The triggers for dieting are likely to be concerns about appearance and associated changes in body shape that accompany puberty, particularly for girls.
- Weight is lost successfully through small changes in eating patterns instigated over long periods of time. Most of the people who lose weight in dieting will regain most of the weight they have lost, leading to further attempts at weight loss.

People diet to reduce body weight by means of food restriction. Dieting has become more common among young women in the last decade in the UK. Evidence indicates it is also on the increase in young men, although it is a less common behaviour than in young women.

Many researchers argue that, far from being a consequence of obesity, dieting can lead to ongoing weight problems.

Dieting has become a global commercial business. Many diets are commercial products, and the range of choices on offer (often carrying conflicting nutritional messages) contributes to the current confusion surrounding weight management practices.

How many children and young people diet?

Numerous surveys in different areas of the UK have examined aspects of dieting in children and, despite differences in methodology, have found very similar results.

In Scotland, the Health Behaviours of School-aged Children (HBSC) survey found a significant increase between 1990 and 2002 in the proportion of 15-year-old girls and boys who reported ever having been on a diet to lose weight (Currie *et al.*, 2004). In 2002, some 52% of S4 girls considered themselves to be 'too fat', and 29% of girls in this age group reported that they were currently on a diet or doing something else to lose weight. Levels of reported dieting were considerably lower among boys, but a worrying trend is the proportion of 11-year-old boys (11%) and 13-year-old boys (9%) who consider themselves to be 'too fat'.

In a study in the Northwest of England, the incidence of dieting among 11-15 year-old girls was reported as 35% (Roberts *et al.*, 1999). Forty-five per cent of the girls from independent schools had started to diet by the age of 10 years, compared to 24% from comprehensive schools. Of those who had dieted, 30% had done so on up to two occasions in the previous 12 months, 17% had dieted up to four times, and 6% dieted for most of the time. Diets averaged two to four weeks duration at a time, and 66% of the children in the study thought that dieting was good for health.

Why do children and young people diet?

There are significantly more teenagers who choose to diet than there are teenagers who meet the criteria for obesity or who are even overweight (see Chapter 2.2: *Overweight and obesity*). So why is it that more than half of 15-year-old girls in Scotland believe they are 'too fat'?

The answer has to lie in the unrelenting exposure to an idealised image of young women, an image which has no basis in biological reality. There has been a dramatic shift in perceptions of the 'perfect' female form from the full figures of the mid-18th century to the overly thin images of models and celebrities in the present day.

Studies of the waist: hip ratio of mannequins and calculation of the amount of body fat this would represent show that if women possessed the shapes commonly used to display clothes from about 1970 onwards, they would have ceased to menstruate and therefore be infertile. Similarly, it has been calculated that for a woman to have the same proportions as a 'Barbie Doll', she would have to grow an additional 17 inches in height and have an overall body shape found in less than 1 in 100,000 women within the general population (Norton *et al.*, 1996).

The age at which dieting becomes common continues to fall, with reports of children as young as five to seven years restricting their food intake (Carper *et al.*, 2000). This seems to be in part a response to parents encouraging children to eat up their food and placing restrictions on the kinds of foods they should eat. Mothers have been shown to play a central role in transmitting cultural values regarding weight, shape and appearance to their daughters (Carper *et al.*, 2000), including information that daughters gather about their mothers' own regulation of food intake.

The pressure that idealises a thin shape for girls and a broad, muscular shape for boys starts early and continues to be reinforced through magazines, TV and film.

What triggers dieting?

The triggers for dieting are likely to be concerns about appearance and associated changes in body shape that accompany puberty, particularly for girls. For some girls, the increased fluid retention in the later stages of the menstrual cycle before the onset of a period can precipitate anxieties about weight gain, as can the increased appetite and carbohydrate craving sometimes associated with the later phase of the cycle.

At a time when self-esteem may be fragile, these physiological changes are only too real and may encourage obsessive concerns about what and how much is eaten. The careless comments of both peers and adults, made with reference to 'plumpness' or 'filling out', are frequently commented on as reasons for embarking on a rigid food restriction regime.

Concerns about weight may also prompt initiation of smoking as, for a minority of people, nicotine has an appetite suppressant effect. The common belief in the likelihood of weight gain following smoking cessation may also fuel this idea. In reality, some people may gain weight in the short term from smoking cessation, and this needs to be recognised as an issue in any smoking cessation programme designed for young people.

Recent research in America suggests that, among both girls and boys aged between 9-14 years, contemplation of smoking is positively associated with weight concerns. It is important, therefore, that school health programmes address healthy methods of weight maintenance and dispel the notion of tobacco use as an effective or desirable method.

How do children and young people diet?

Many young people falsely equate dieting with healthy eating. Some popular magazines aimed at the health and fashion markets reinforce this. Girls in particular have a high awareness of foods deemed to be 'healthier' choices in the sense of having lower fat content. Indeed, girls in Scotland eat fruit, raw vegetables, salads and cooked vegetables more frequently than do boys (Inchley *et al.*, 2001).

At one level, this is clearly good news in a country with a history of severe heart problems, but in phases of active growth, particularly around puberty, children also need adequate supplies of fat and starchy foods (see Chapter 1.1: *Food for growth*, Factsheet 2: *Dietary targets and activity guidelines for young people in Scotland*, and Factsheet 3: *Energy balance and nutrient requirements*).

In terms of meal patterns, there is an increasing tendency for girls to eliminate breakfast eating, with over half of Scottish 13 and 15 year-olds not eating this meal every day (Todd *et al.*, 2000). This understandably fuels concern for the alertness of children during lessons at school.

What are the effects of dieting?

A number of psychological effects stem from dieting. Many were identified some years ago in an American study of the effects over a period of months of reducing by 50% the energy intake of a group of volunteer soldiers. The researchers found the soldiers developed a preoccupation with food, which became their principal topic of conversation. They reported difficulties in concentrating and experienced mood changes such as depression and apathy. Once food restrictions were removed, they reported a loss of control over their eating behaviour, sometimes leading to binge eating (Keys, 1950).

Laboratory studies of eating show that if groups of dieters and non-dieters are given either low- or high-kilocalorie drinks and then asked to taste other foods, the dieters will eat more following a high-kilocalorie drink while the non-dieters will eat less. It is paradoxical research findings such as this that have contributed to the view that dieting leads to overeating rather than vice versa (Herman and Polivy, 1980).

Inhibiting all desire to eat in such a conscious fashion means that if the restraint is broken in any way, for example at a party with friends or after surreptitiously eating a chocolate bar, dieters tend to throw caution to the wind and over-indulge. The dieting encourages the notion that high-fat, high-kilocalorie foods such as cakes and chocolate are even more attractive treats, and introduces the concept of guilt when the dieter indulges him or herself. Far from providing dieters with control over their eating, dieting seems to make food even more central in their lives.

Box 1. Why diets don't work (Jade, 2000)

Weight is lost successfully through small changes in eating patterns instigated over long periods of time. 'Diets' tend to focus on major changes over shorter periods. Some temporary success may be achieved, mainly due to fluid loss in the early stages, but the dieter's fundamental eating and physical activity behaviours are unlikely to change permanently.

Diets don't work because:

- **Diets are hard to do.** Most diets require a significant change in a person's normal eating habits over an extended period of time.
- **Diets make people feel hungry and deprived.** Research shows that diets make people very hungry and create powerful cravings for the very foods that dieters try to stay away from, such as sugars and fats.
- **Dieters lapse.** A diet only works for as long as people are on it; most people get bored with rigid eating plans and go 'off the rails' from time to time.
- **Diets fail to address the emotional aspect of overeating.** People very often eat to help deal with emotional problems such as stress, rather than because of hunger. Dieting doesn't solve the problem of 'emotional' eating.
- **Dieters usually fail to change their core habits.** People who lose weight successfully and keep it off tend to have made permanent changes to their eating and physical activity levels and those of their families.

Finally, dieting frequently leads to even more dieting. It is now well-established that most of the people who lose weight in dieting will regain most of the pounds they have lost, leading to further attempts at weight loss. This is known as weight cycling or, more commonly, 'yo-yo' dieting.

The evidence for this came initially from an animal study where rats were exposed to different foods to make them lose weight and then allowed to regain their weight. The pattern was repeated several times and researchers found that in each weight gain/weight loss cycle, the rats took longer to shed the extra weight and were much quicker to put it back on when their normal food supply was restored. The phenomenon of yo-yo dieting has also been recognised as a problem for humans.

Prolonged dieting means that weight becomes easier to regain and more difficult to shed. This is a physiologically complex process involving a number of factors, including changes in metabolic rate and the ratio of lean to fat body tissue. In humans, this kind of weight cycling seems to result in loss of muscle tissue, but gain of fat deposits.

Getting a balance...

Modern life in a country like Scotland conspires to make weight regulation difficult for individuals. People are able to purchase a huge variety of highly palatable foods which are energy-dense (that is, high-kilocalorie), but substantially less energy is expended in daily life than was the case for previous generations. At the same time, images of thinness, which are associated with beauty, popularity, happiness and success, are ubiquitous.

It is important that consistent patterns of eating are established at an early age. Food and eating are natural and enjoyable parts of life, and when combined with regular physical activity, ensure an appropriate energy balance is maintained.

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Websites

www.bbc.co.uk/health/diettrials

For information on current popular diets and how they work.

www.healthyliving.gov.uk

The national website to promote Scotland's healthyliving programme. It is designed to explain healthy eating and physical activity, and how small changes can lead to big benefits by providing resources, advice and support on healthy eating and physical activity.

www.nutrition.org.uk

British Nutrition Foundation website.

Chapter 2.4

Eating disorders

Key points

- Anorexia nervosa and bulimia nervosa are the most common forms of eating disorder.
- Eating disorders arise as the result of low self-esteem and unhappiness.
- Many more young people are affected by eating disorders than the statistics suggest.
- Young people with eating disorders may be very unreliable historians with respect to their eating patterns, and commonly deny having a 'problem'.
- In schools, students who suddenly suffer substantial weight loss may be in the early stages of an eating disorder.
- The management and treatment of these conditions is often a very long and difficult process, especially for anorexia.

Anorexia nervosa and bulimia nervosa are the two conditions most commonly considered eating disorders, and it is important to recognise them as genuine psychiatric conditions. Some sources include gross obesity and compulsive eating within the spectrum of eating disorders. For the purposes of this resource, obesity and overweight are covered in a separate chapter; this chapter focuses on anorexia nervosa and bulimia nervosa.

Most secondary schools will have one or more young person living with an eating disorder at any given time, but many more young people may not exhibit obvious signs of the disorder (termed 'sub-clinical'), so the actual numbers affected may be greater.

Eating disorders

Eating disorders are characterised by disturbed and exaggerated behaviours and attitudes towards food, eating and body shape (McPhail, 1997). The title is something of a misnomer, as eating disorders are not really about eating. Rather, they develop as the result of abnormal perception of body weight, low self-esteem and unhappiness. Individuals may find that the only way they can express their difficult feelings is through food.

Eating disorders tend to arise at times of transition in life, when people have to adjust and change to new circumstances. Puberty is one such transition, and the time of leaving school another — these are recognised as the two times when eating disorders are most likely to develop, although they can develop at any age in response to significant life events.

People who come from families in which one or more member has an eating disorder are more likely to develop one. There also seem to be associations between the development of eating disorders and family characteristics such as:

- members avoiding family conflict
- imbalanced parental involvement, with one parent being over-involved with the family while the other is more passive
- members finding difficulty in breaking the family 'rules' (McPhail, 1997).

The prevalence of eating disorders is difficult to determine; recent figures for anorexia and bulimia are cited below. Of the two, bulimia is more common, and eating disorders of all description occur nine times more often in females than in males.

A particular cause for concern is young people who are not diagnosed as anorectic or bulimic because their symptoms do not appear sufficiently excessive. They may reduce their food intake and take measures to purge themselves of ingested food, but not frequently. Or they may binge on food, but not sufficiently to raise concerns. These young people might not meet the exact criteria to warrant a diagnosis, but are nevertheless at risk of developing difficulties in relation to eating at some point. They may have poor self-esteem and negative body image (see Section 3: *Image and Reality*), which lead to the kind of comments reported by a teenage girl in Gordon and Grant's book *How We Feel* (1997), based on work in Glasgow:

'Sometimes I hate myself and sometimes I don't. I hate myself today because I think I'm fat and ugly.'

Anorexia nervosa

The technical meaning of anorexia is 'loss of appetite', yet this is not the fundamental problem in the condition. Instead, sufferers severely restrict their eating.

Anorexia was first recognised as a medical condition in the late 19th century, although descriptions of women with characteristic symptoms existed long before that. The essential features of anorexia are:

- weight loss or, in children, a lack of weight gain leading to a body weight at least 15% below the normal or expected for a child of that age and height
- an abnormal and extreme fear of being fat — anorectic people are terrified of becoming fat
- severe self-restriction on how much is eaten, and avoidance of foods perceived as 'fattening'
- delayed or arrested pubertal development.

Most people with anorexia achieve weight control through extreme dietary restriction. They may have rigid or obsessional behaviour around food, such as cutting it into tiny pieces and becoming obsessive about what others are eating. They often feel anxiety towards eating, fearing that if they start to eat they might overeat and gain weight. Up to half may use laxatives after eating to prevent calories being absorbed, or may induce vomiting. Prolonged laxative misuse can cause long-term bowel problems, and recurrent vomiting can lead to severe damage to teeth and chronic oesophagitis — an inflammation of the gullet — through contact with acidic stomach contents. Reduced bone density, eventually leading to osteoporosis, and increased incidence of fractures are consequences of the malnutrition associated with anorexia.

Exercise can be used to manage difficult emotions and obtain a sense of being in control, but people with anorexia (and bulimia) may exercise vigorously and to extremes as part of their effort to keep weight down.

Many of the symptoms of anorexia stem from the consequences of starvation, including problems with concentration and thinking. Recent research suggests that mild impairments of concentration and cognitive efficiency are present in anyone who is dieting.

Other physiological changes in anorexia include poor circulation in the extremities of the limbs experienced as cold feet and hands, and constipation due to the extremely restricted diet. As extremes of malnourishment are reached, there will be hair loss and weakness due to muscle wastage and bone weakening. Crucially, however, the majority of physical problems caused by anorexia can be reversed.

The common perception of people with anorexia is that they have an exaggerated desire to be slim and beautiful, but the picture is more complicated than that. Anorexia develops through people's need to deal with problems that may be out of their control — family or other relationships, for instance. People with anorexia tend to have high expectations of themselves, and keeping weight under tabs may be the only area of their life where they feel able to take control; tragically, the condition usually ends up controlling them. Some people remain chronically anorexic, with the illness lasting throughout their life. Around 6% of people with anorexia die due to the condition (McPhail, 1997).

The exact prevalence of anorexia is difficult to gauge, but Scottish figures (Scottish Office, 1997) suggest that:

- around 1,200 women aged 15-24 years in Scotland will be affected by symptoms of anorexia nervosa
- up to 10% of all those suffering from an eating disorder are male.

While anorexia is most common in the 15-24 age range, it is now recognised that it can have an onset in early childhood preceding puberty, where the defining characteristic would be a failure to gain weight with age.

Although eating disorders tend to be considered a problem for young women, some 10% of adult sufferers are male, suggesting that the pressures to be thin may be beginning to affect boys as well as girls. There is an increased likelihood of anorexia within certain male-dominated athletic occupations in which there is a requirement to keep weight below a defined level, such as being a jockey. Young people in training for ballet, gymnastics and other athletic pursuits may be more vulnerable to eating disorders.

Bulimia nervosa

The related condition of bulimia was first described as recently as 1979 and formally accepted as a distinct illness 10 years later. Scottish figures suggest that it is more common than anorexia, with around 4,700 women aged 15-24 in Scotland being affected by bulimic symptoms (Scottish Office, 1997).

Not all sufferers have the same symptoms, but common features are:

- 'binge' eating — rapid consumption of a large amount of food
- an obsession with food or feeling out of control around food
- self-induced vomiting, use of laxatives or diuretics, strict dieting, or vigorous physical activity to prevent weight gain
- over-concern with, or distorted view of, body shape and weight.

People suffering from bulimia, unlike those with anorexia, often have a body weight within the normal range, but secretly indulge in frequent episodes of binge eating. Very large amounts of foods high in calories, fats and carbohydrates can be eaten in a short period of time, with the person unable to control his or her behaviour. He or she will experience a build up of tension in between binges, which is released once the binge starts. This episode will be followed by feelings of guilt and depression; a cycle of binge eating, self-induced purging, dieting and vigorous exercise can then emerge as the person desperately tries to control body weight.

The episodes of bingeing and purging may cycle regularly. A fear of fatness, which is also characteristic of anorexia, will be present. Because weight is kept within normal limits, menstruation will not cease, but periods may be irregular.

The repeated bouts of bingeing and self-induced vomiting result in the acid from the stomach contents removing the protective enamel coat of the teeth and may also damage the oesophagus or gullet. Repeated episodes of vomiting over a long period of time will result in potassium depletion in the blood leading to irregular heart rate, and there may be permanent kidney damage. Laxative abuse can result in persistent stomach-aches and in damage to the bowel muscles, leading to constipation.

Other physical complications include:

- puffiness around the face caused by swollen salivary glands
- menstrual disturbances
- swollen stomach
- dehydration
- hoarse voice, sore throat and bad breath
- tiredness and lethargy
- metabolic disturbances.

The age of onset for bulimia is a little older than for anorexia, starting at around 15 years and peaking in the late teens and early twenties. Although recognised as separate conditions, many characteristics of the two illnesses are shared. Feelings of worthlessness, low self-esteem, and an overwhelming sense of being unable to cope predominate. Acts of self-harm can result, including cutting (usually to parts of the body that are not visible) and attempted suicide. Around 30% of people with bulimia have had all of the symptoms of anorexia at some point in their lives.

People with anorexia tend to be frightened about sexuality and will avoid sexual relationships, whereas individuals with bulimia are more likely to seek relationships and to be sexually active.

Young people with eating disorders may be very unreliable historians with respect to their eating patterns, and commonly deny having a 'problem'. Conversations with young people about their eating habits therefore need to be conducted carefully and delicately.

Causes

Despite huge interest and much research, there is no agreement on the cause of these disorders. Some argue a case for a biological predisposition, based on the identification of close family members with eating disorders and the increased incidence found in identical twins.

Risk factors associated with anorexia include high parental education and income (although this association may be changing), the presence of early feeding problems, and an overprotective family environment. For bulimia, there is more likely to be a history of weight concerns, childhood obesity, family dieting and parental discord.

The observation that eating disorders are now found in parts of the world where they were not previously recorded may support a socio-cultural explanation. Western ideals of attractiveness and changed expectations of the social role of women are liable to be strong influencing factors.

Dieting can act as a trigger in young people with risk factors for developing eating disorders. There is some evidence that cases of anorexia are increasing over time (Eagles *et al.*, 1995).

Management and treatment

The management and treatment of these conditions is often a very long and difficult process, especially for anorexia.

Initially, in the case of anorexia, efforts are aimed at ensuring some recovery and maintenance of weight in life-threatening circumstances. This is followed by a lengthy period of psychotherapy and counselling, with the emphasis on restoring self-esteem. With bulimia, treatment designed to look at the underlying thought processes and beliefs about eating and body image can be particularly effective.

In schools, students who suddenly suffer substantial weight loss may be in the early stages of an eating disorder and it is important to ensure they know where they can get help. This is especially important with early-onset anorexia, which may occur in children aged 8-12 years, as case studies suggest that treatment at an early stage of the illness is more likely to be effective. While actual incidence in schools is likely to be quite low, considerable numbers of young people may be in 'sub-clinical' stages of the disorders at any one time.

The school may find it useful to examine their policies on changing facilities, where students will be most self-conscious about exposing their bodies in front of their peers. A school policy on bullying and name-calling may be as important to students with bulimia as it is for students with obesity; many individuals with bulimia who have a history of being overweight comment on the teasing and nicknames they suffered at school.

The impact of some health education in the classroom, especially activities focusing on a discussion of body weights or which involve weighing pupils in class, has the potential to be harmful. Care needs to be taken in dealing with issues around weight control and eating behaviours.

Child protection issues are also a consideration, and teachers should be advised to familiarise themselves with their local child protection policies (obtainable from local authority education departments).

Some doctors feel that eating disorders have acquired positive status for young girls, with some 'trying out' what it feels like to starve, to binge and to vomit. The increased public awareness of the conditions following media speculation about film stars, members of the royal family and others with a high public profile might also have served to glamorise the disorders in the eyes of this highly susceptible group of adolescents.

Prevention

Eating disorders cause long-term distress to the sufferer and his or her family and affect every aspect of the person's life. As is acknowledged above, eating disorders are difficult to treat, so attempts at prevention are well worthwhile.

Eating disorders are closely associated with self-esteem and ideas of body shape, which are explored more deeply in Section 3: *Image and Reality*. Fundamentally altering the values of young people about their body shape and the role of food in their lives, and helping them to develop healthy attitudes towards their own bodies and those of others **before** the onset of an eating disorder, is the key step in prevention. Some means of promoting self-esteem and positive body image are discussed in Chapters 3.1: *Self-esteem* and 3.2: *Body image*; the related topic of *The role of the media* is the focus of Chapter 3.3.

The socio-cultural backdrop to anorexia and bulimia highlights the problems education initiatives and preventative strategies may face. But with appropriate help from parents, teachers and mental health professionals, the vast majority of young people affected by eating disorders will recover to lead normal, healthy lives.



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Websites

www.antibullying.net

A network set up by the Scottish Executive so that teachers, parents and young people can share ideas about how bullying should be tackled. It is freely open to all.

www.edauk.com

The Eating Disorder Association website.

www.nationaleatingdisorders.org

The American National Eating Disorders Association website.

www.scotland.gov.uk/about/ED/CnF/00017834/childprotection.aspx

The section of the Scottish Executive website dedicated to child protection.

Section 3: Image and reality

Section plan

Chapter	Related factsheets	Related pre-designed training sessions	Related training activities
3.1: Self-esteem		Healthy eating through a Health Promoting School	<ul style="list-style-type: none"> 10. What factors affect healthy eating? 12. How can schools promote mental and emotional health? 13. Listing talents, skills and qualities 14. Understanding skill development 19. Life in the balance 30. What it means to be overweight 40. Self-esteem and the media
3.2: Body image	9: Breastfeeding	Adjusting to puberty	<ul style="list-style-type: none"> 26. Messages about bodies 27. Body image – Mind's eye 28. Barbie and Action Man 29. Body image scenarios 38. Body image — Magazines 39. Body image and media stars 40. Self-esteem and the media
3.3: The role of the media	8: The media		<ul style="list-style-type: none"> 28. Barbie and Action Man 35. Persuade me 36. Media pressures 37. Advertisements 38. Body image — Magazines 39. Body image and media stars 40. Self-esteem and the media 43. Diet fads and fiction

Chapter 3.1

Self-esteem

Key points

- Self-esteem is a composite concept, rather than a single entity.
- A sense of security and trust in the world and in other people is one of the most essential building blocks for self-esteem from infancy onwards.
- School is one of the most important environments for influencing self-esteem in young people and children.
- Using sensitive and positive approaches within the classroom and in the general life of the school, it is possible for teachers to promote students' self-esteem.



The beliefs that an individual holds about him or herself define the person's self-concept. People who believe that life's choices are governed by fate or shaped by the actions of others will be less likely to draw on their own resources to cope with difficult situations. If people believe that they are in control of their lives, however, they are more likely to feel able to cope and have the capacity to respond in a way that can protect and promote their health. These beliefs about oneself and the degree of control one has (locus of control) are thought to be very important in determining an individual's health-related behaviours.

Self-esteem relates to the extent to which an individual *values* the features or attributes which make up the self-concept. In a general way, they could be seen as our attitudes to ourselves, and the sum of these attitudes defines self-esteem.

Defining self-esteem

Rosenberg (1965) has demonstrated the contribution of a sense of personal worth, appearance and social competence to self-esteem. Coopersmith (1967) stressed the need for a feeling of competence and power, and others have pointed out the importance of interpretation of events in an individual's view of him or herself. Drawing these various views together, Robson (1989) defines self-esteem as:

'The sense of contentment and self acceptance that results from a person's appraisal of his/her own worth, significance, attractiveness, competence, and ability to satisfy his/her aspirations.'

Robson developed a questionnaire to measure self-esteem, which included the following components:

- sense of significance
- worthiness
- appearance and social acceptability

- competence
- resilience and determination
- control over personal destiny
- value of existence.

Clearly, Robson believes that self-esteem is a composite concept, rather than a single entity.

Developing self-esteem

Environmental and social experiences, including the responses of 'significant others' such as parents, carers and peers, play an important role in setting the foundations for the development of self-concept and self-esteem. Children will gain perceptions on how they are valued, how 'good' they are, and how well they are liked from the way people respond to them.

It is generally agreed that a sense of security and trust in the world and in other people is one of the most essential building blocks for self-esteem from infancy onwards. When infants begin to develop attachments with their carers, when their smiles or cries are readily received with love and acceptance, they begin to learn to trust those who care for them.

Coopersmith (1967) outlined the family conditions that help to develop self-esteem, and identified three important elements common to children with high self-esteem:

- They experienced respect, concern and acceptance, and were accepted for their weaknesses and limitations as well as their strengths and capacities.
- There were clearly defined rules, standards and expectations and, as a result, children felt secure in their environments — they knew what to expect and what to do in order to succeed.
- The families displayed a high degree of democracy — the children's ideas and opinions were valued.

There are specific personality traits, such as 'self-reliance' or 'hardiness', that help to build and promote self-esteem, but research to date identifies learned experiences and the nature of important interpersonal relationships as being central to the development of self-esteem.

The Scottish Executive's National Programme for Improving Mental Health and Well-being (Scottish Executive, 2003) recognises the importance of schools in developing and supporting young people. The programme encourages and supports work that aims to promote greater understanding and awareness of mental, emotional and social health and mental illness among young people and those working with them.

Self-esteem and schools

As teachers know, school is one of the most important environments for influencing self-esteem in young people and children. Early intervention in adolescent mental health problems is essential to try to stop deterioration of mental health, alleviate distress and minimise the impact of mental health disorders on young people's education and social development (BMA, 2003).

In a study carried out by Gordon and Grant (1997), about a third of adolescents cited '*doing well at school*' as something that made them '*feel good about [themselves]*'; this was the largest single influence mentioned.

The Confidence to Learn Project (Wetton and McCoy, 1998) established by the Health Education Board for Scotland included a research strategy called *Feeling Good to Learn*. This set out to explore children's views of the things in their classrooms that made them feel good to learn, comfortable with what was being asked of them, and able to do their very best work.

Children were first asked to draw themselves in their classroom situations on a day when they were feeling good to learn, and to include in their drawings all the things that made them feel good in this context. The second stage was to draw themselves in a day when they were feeling not so good to learn, not able to do their best work and to say what made them feel so.

In the analysis, it was clear from what emerged and from some very specific and illuminating written statements that positive relationships and the things that enhanced self-esteem and emotional well-being came uppermost:

- lack of pressure
- feeling valued
- not being afraid to make mistakes
- being listened to
- contributing to decisions
- having interesting stuff to learn
- having interesting ways to learn
- having a say.

There was little mention of classroom facilities having an impact on learning. Motivation was seen to come from classroom ethos, relationships and relevant teaching and learning approaches that started with the children and respected what they knew. Teachers who have carried out this research have found it a valuable starting point for reflecting with the children on effective classroom practices that motivate learning and facilitate change.

Schools also have a significant influence on the self-esteem of teachers. Feeling that their work and their contribution to the life of the school are valued has an important positive effect on how teachers function. Primary teachers who participated in a week-long personal development course demonstrated significant

improvement in their self-esteem by the end of the week (Monaghan *et al.*, 1997). This was a product of the teachers having time to participate in new and reflective experiences, and feeling they were valued as individuals and professionals. As members of the school community, it is vital that teachers feel valued in their professional role. This is important at an individual level, but it is also central to the teacher's effectiveness throughout the school.

Implications for a Health Promoting School approach

According to Wetton and Cansell (1993), people learn best when they feel able to cope with their learning. Feeling positive, they claim, is the best condition for learning to take place, and good self-esteem is at the heart of feeling positive.

Shared learning (King and Occleston, 1998) is a process that can contribute to the education of children, young people and adults. It allows children and young people to be equal partners in setting the agenda. Building from this is the familiar concept of *circle time*, which offers a whole school approach to enhancing self-esteem and positive behaviour and relationships within the school (Mosley, 1996). Circle time also considers in a democratic fashion a range of issues affecting the school community. The central aim is to build people's self-esteem through encouraging them to participate in the process, valuing their contributions and encouraging respectful consideration of others.

It should be fully acknowledged that an individual's level of self-esteem is not a fixed entity, but fluctuates due to the influence of a wide range of factors and experiences. In the life of the school, teachers will be sensitive to the fact that self-esteem can be reduced more easily for some young people than for others. This has complications for both the classroom teacher and management within the school. For example, at a very practical level, name-calling, verbal bullying or exclusion for any reason can have profound effects on young people's self-esteem. But there are also other issues that have an effect (Box 1).

Box 1. Self-esteem (Wetton and McCoy, 1998)

The approach adopted in *Confidence to Learn* (Wetton and McCoy, 1998) is based on classroom-focused action research strategies in primary schools in Scotland. This approach effectively demonstrates to the children that their knowledge and beliefs are valued.

The second research strategy in *Confidence to Learn* gives insights into what makes children feel good to learn, and what makes them feel not so good, through their statements about the drawings they make.

Responses from children from P1 upwards show that name-calling is only part of the problem. Much stronger negative influences on self-esteem are:

- critical attitudes from teachers
- fear of getting work wrong
- other children's disruptive behaviour preventing them from completing work
- unrealistic expectations from teachers
- being 'singled out' for criticism in class
- missing break times.

The factors that have a positive bearing on their self-esteem in relation to school-work are:

- getting positive reinforcement for their efforts
- receiving constructive criticism
- finding school work interesting and relevant
- having success in their work
- not being afraid to ask if they don't understand
- receiving (earned) praise from the teacher, both verbal and in the form of an artefact (such as a badge).

Some young people may have a degree of resilience to factors that can undermine self-esteem (such as those listed above), but it is very important that school policy and practice starts from where children and young people are in terms of their beliefs and attitudes and protects them from behaviours that could damage their confidence and self-esteem during their time at school.

Using sensitive and positive approaches within the classroom and in the general life of the school, it is possible for teachers to promote students' self-esteem. This will be especially true if there is a good partnership with parents and carers, which in turn requires schools to be proactive with parents, explaining that the school sees the development of the young people's self-esteem as being crucial to the development of their confidence to learn.



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www.antibullying.net

A network set up by the Scottish Executive so that teachers, parents and young people can share ideas about how bullying should be tackled. It is freely open to all.

www.circle-time.co.uk

A promotional website on quality circle time.

www.healthpromotingschools.co.uk

The Scottish Health Promoting Schools Unit national portal on HPS.

www.mentalhealth.org.uk

A national website on mental health run by the Mental Health Foundation.

www.youngminds.org.uk

YoungMinds is the national charity committed to improving the mental health of all babies, children and young people.

Chapter 3.2

Body image

Key points

- Body image is a complex concept influenced by many psychological, emotional and social factors.
- Research over recent years has shown that children and young people have developed increasingly negative (unrealistic) body images.
- Young people's sense of body image is not fixed, but fluctuates due to the influence of a wide range of factors, self-esteem in particular.
- Negative body image can lead to the development of unnecessary and potentially harmful behaviours such as dieting or eating disorders, particularly in adolescence.
- Schools can inadvertently contribute to negative perceptions of body image through seemingly benign policies and interventions.
- Children and young people with negative body image may be uncomfortable about using communal changing facilities, dressing in sports kit and participating in active sports.
- The media provide particular examples of role expectations and images of beauty which may influence young people's perceptions of acceptable body image.

Body image refers to the way we experience our bodies and how that affects the way we feel about ourselves. It is therefore inextricably linked with our self-esteem; someone with a negative view of how he or she looks is also likely to have low self-esteem.

Research over recent years has shown that children and young people have increasingly negative body images. The British Medical Association's report, *Eating Disorders, Body Image and the Media* (BMA, 2000), states:

'the media are a significant and pervasive influence in modern society, and provide information about gender roles, fashion and acceptable body image which may be particularly influential on those young children and adolescents who are heavily exposed to its content.'

The significance of the media in portrayal of body images and development of self-esteem is set out in Chapter 3.3: *The role of the media*.

What is body image?

Body image has been defined as:

'The picture an individual has of his or her body, what it looks like in the mirror, and what he or she thinks it looks like to others.'
(Health Canada, 1997).

We should recognise that body image isn't just about the overall look and shape of the body. It also refers to consistency of the hair, colour and texture of the skin, and shape and size of the nose and eyes, for instance.

People with a positive body image have a perception of their body shape which makes them feel at ease with their physical appearance. People with negative body image, however, may feel awkward or uncomfortable about aspects of their bodies, or may hold distorted and inaccurate perceptions of their body shape. They may feel self-conscious and perhaps ashamed of their bodies.

Body image and self-esteem play a significant role in the generation of the broader notion of *self-image* or *self-concept*, which relates to how people perceive and evaluate their characteristics, physical attributes and 'worth'. As Chapter 3.1: *Self-esteem* showed, a young person's level of self-esteem is not fixed, but fluctuates due to the influence of a wide range of factors and experiences; perceptions of body image fluctuate in a similar way.

Reductions in self-esteem can lead to, and be reinforced by, negative body image. This in turn may lead to the development of unnecessary and potentially harmful dieting or even eating disorders, particularly in adolescence, as the young person strives to change his or her body shape in an attempt to bolster body image and, consequently, self-esteem. In a study of 594 school girls in the UK, it was found that girls with low self-esteem at the age of 11-12 years were at significantly higher risk of developing severe signs of eating disorders and other psychological problems at age 15-16 (Button *et al.*, 1996).

The *Confidence to Learn* project (Wetton and McCoy, 1998) included a research strategy called *A Picture of Health*, which involved a sample of 22,600 4-11 year-olds across the UK. Children in the research strategy are asked to draw a picture of a healthy person. During recent years, an unexpected trend has been observed in the children's drawings of women. Children have always used certain conventions for drawing women, moving through the head as body, to the triangular figure with legs attached to the skirt, to the traditional figure with the indented waist.

In recent years, the female figure has increasingly been drawn as very tall, straight, very thin and shapeless. At first, this phenomenon was noticed in the drawings done by girls in the 10-11 years age group. More recently, it has become apparent down the age range and is now appearing regularly in the drawings of seven-year-old girls.

A similar but less dramatic change has appeared in the drawings boys make of healthy males. There is great emphasis on a muscular upper body and descriptive phrases such as 'six pack' are increasingly used. This phenomenon is coming down the age range quite rapidly.

Many adolescents have a critical view of their appearance and this is particularly the case among girls. The 2002 HBSC Survey in Scotland highlights this issue. Among 11, 13 and 15 year-olds, 60% of boys felt their body size was 'about right', compared with only 44% of girls. Between age 11 and 15, the proportion of boys who considered their body size to be 'about right' remained constant, but among girls, the proportion decreased from over half to less than two-fifths. By age 15, more than half of girls reported that they were 'too fat' (Currie and Todd, 2003).

These trends have reinforced concerns within and beyond schools that these pictures of 'health' represent an impossible ideal. Some children will attempt to reach the ideal through diet, exercise and other means. Many will recognise the impossible gap between the ideal and what they can achieve, and this may affect their motivation as well as self-esteem and mental well-being.

Factors that affect body image

Body image is a complicated concept influenced by many psychological, emotional and social factors. Two sets of criteria, one internal, the other external, nevertheless seem crucial:

- The young person's appraisal of his or her own body, and how he or she feels it must appear to others.
- How the young person compares and rates his or her body against the bodies of others, particularly peers.

The young person's relationships will have a significant impact on both criteria, and on how his or her body image develops. Of particular importance are relationships with:

- parents and families
- friends and peers
- school
- the media.

The media play a key role in influencing young people's body image and what is perceived as being a 'good' body shape, and this is discussed in detail in Chapter 3.3: *The role of the media*; this chapter therefore concentrates on the first three relationships.

Parents and families

Comments made by parents and family members can have a huge impact on a young person's body image. Negative comments or teasing about children's eating patterns can be hurtful and can cause them to develop unhealthy relationships with food. Negative comments about weight, especially for overweight children, may lead to unhealthy dieting at an early age and self-consciousness about the body (Small, 2001).

How parents talk about their own bodies and those of other people is also an important factor in how the child's body image will develop.

Constant criticism or derogatory comments about their own or others' weight, for instance, is liable to be 'picked up' by children, who may then make the assumption that worrying about weight is 'normal'. Children hearing these kinds of messages may begin to feel that they, too, are overweight. When they compare their own bodies with those their parents are describing as 'desirable', they feel they are not measuring up (Small, 2001).

Friends and peers

Young people commonly compare and rate themselves against their peers across a whole range of criteria, with physical appearance being prominent. Friends play a key part in establishing body image, especially among adolescent girls (Small, 2001). Davis (1999) reports that adolescent girls engage in 'fat talk', complaining about and finding fault with their bodies. Hearing friends speak in this way about their bodies can create the idea in a young girl that she, too, is overweight and unattractive, or should be similarly self-critical, leading to the development of a negative body image and a consequent cycle of unhealthy eating and dieting.

School

The school can inadvertently encourage negative body image notions through seemingly benign policies and interventions. The school uniform, for instance, might be felt by some young people to be emphasising their 'worst' body features. If there is no school uniform, some children from less well-off backgrounds may feel disadvantaged by not being able to purchase the latest 'designer' clothes, in stark contrast to their better-off friends.

Dress code in general raises a number of difficult issues for schools and students, including the economic implications of imposing a code and the subjugation of people's will to comply with the code (girls wanting to wear trousers instead of the code-prescribed skirt, for example). All of which makes the notion of wide consultation on dress code so important.

There may be little encouragement for some young children to attain the kinds of achievements that would bolster their self-esteem and body image. Those who are most concerned by their body image might be reluctant to use communal changing facilities, for instance, and will miss out on the opportunity to enjoy and benefit from organised physical activity and sports (see opposite).

Some young people might believe that the individuals depicted in posters on noticeboards, advertisements and other visual images posted around the school have bodies quite unlike their own, and consequently feel their body shape is not the 'right' one.

And while the school may have set policies on dealing with bullying, some young people who are bullied because of their body shape or physical appearance might feel too embarrassed and ashamed to report their problems unless sensitive efforts are made by the school to encourage them to come forward.

Body image and sport participation

The rituals of taking part in sport include the acquisition of the 'right' equipment, wearing the 'right' kit and looking a certain way. That 'certain way' usually means having a lean, toned, athletic body.

Children and young people whose bodies do not measure up to the ideal — or who believe that they don't — may be uncomfortable about using communal changing facilities, dressing in sports kit and participating in active sports. Ashworth (1997) describes the dilemma of one girl in her book, *Fat*:

'...the problem with most forms of exercise is that you have to take your clothes off. I like swimming but I hate having to walk across to the pool and everyone seeing my flabby bits...'

If teachers supervising physical activity sessions make the assumption that larger children, or those who are very thin or have a disability, are less skilled physically and are embarrassed to be seen in gym clothing, the situation will be compounded. This may lead to the teachers underestimating the abilities of the children, limiting their opportunities for involvement in physical activity. Negative experiences in physical activity sessions at school can breed an ongoing dislike for physical activity throughout life, and can worsen the child's body image.

Evidence suggests that girls and young women take part in sport significantly less than boys, and the connection with and preoccupation about body image cannot be discounted as being a contributory factor in this gender difference. Young men are also under pressure to acquire the 'ideal body' by developing their muscles and emulating the 'macho' image of sports stars and film actors. Evidence from studies of men with eating disorders also suggests that perceived body image measured against a societal 'norm' is a crucial factor in the onset of the illness.

Breastfeeding and body image

Negative perceptions of breastfeeding stem in part from breasts being perceived primarily as sexual objects by the majority of men and women, which does not sit comfortably in many people's minds with the physiological role of breasts in infant feeding (Frazier and Rodriguez-Garcia, 1995). Young people going through puberty and developing sexual characteristics for the first time are particularly prone to this view. Negative perceptions of breastfeeding among young people are reflected in a survey showing that only 54% of adolescents in Scotland would want their own children to be breastfed (Carter *et al.*, 2001) (see Factsheet 9: *Breastfeeding*).

Strategies for improving body image

Body image and self-esteem can be considered synonymous in terms of their importance in influencing how young people feel about themselves. The most effective way of improving body image, therefore, will be to boost self-esteem, and vice versa. The strategies to improve self-esteem set out in Chapter 3.1, such as *shared learning* and *circle time*, should be used for this purpose, informed by research with the children which reveals what makes them feel good to learn, using strategies set out in *Confidence to Learn* (Wetton and McCoy, 1998).

But that is not all that can be done. Ikeda and Naworski (1992) built on the earlier work of Bean (1992) to develop the idea of four conditions necessary to maintain a high level of self-esteem, and related them to body image. They are:

- A sense of **connectiveness**: this enables young people to feel strong links to the people and places around them, and to feel secure with them. Encouraging respect and support for fellow students and teachers in the school may help them to feel 'connected' to their environment and peers. If they are not happy with their body image, their sense of connectiveness may deteriorate.
- A sense of **uniqueness**: this is threatened when the young person feels his or her body doesn't 'fit' expectations (either his or her own or others), meaning his or her 'uniqueness' is perceived in a negative, rather than positive, way. Teachers can help re-establish the positive sense of uniqueness by emphasising and praising the young person's qualities and reinforcing how important they are to the individual and those around him or her.

- A sense of **power**: young people with a sense of power feel they have some control over their lives. Teachers can encourage them to make decisions and take responsibility for their actions, while offering guidance on making choices and developing healthy behaviours. This is particularly appropriate in relation to personal and social development and the health education curriculum, where decision-making and taking responsibility are encouraged across all the health-related topics and issues.
- A sense of **role models**: role models represent the standards and values young people need to help them make sense of the world and to develop their own sense of responsibility. Some young people, such as those who are overweight or disabled, may find it difficult to identify appropriate role models, so they should have access to resources which present people of all abilities, cultures, sizes, and gender. Teachers have the potential to influence young people's values and behaviours in a positive way and to help young people to identify positive role models. There is evidence that if young people respect their teacher, this has a powerful effect in encouraging their learning.

Implications for a whole-school approach

What kind of messages about body image are transmitted, consciously or unconsciously, in schools? Teachers should be encouraged to consider some of these questions:

- Is there a school uniform or dress code? If so, does the design take account of a range of body shapes and sizes? Does the same apply to sports kit?
- Is there a wide range of sports and leisure activities on offer for pupils?

- What keeps the 'dieting culture' alive in your school? For instance, does a member of staff run a slimming club? Is there a lunchtime discussion group where issues such as 'why dieting doesn't work' can be tackled? Are school premises used by weight control organisations to run dieting clubs?
- What kind of foods and drinks are on offer in the dining room and cafeteria?
- What are the changing facilities like? Do they offer privacy? Are the showers communal or individual?
- What visual images are on display around the school? Does the imagery reflect the diversity of the school community?
- Is size related bullying specifically mentioned in the school behaviour policy?

There is a need to consider how these issues can be addressed through:

- classroom consultation research strategies, such as those set out in *Confidence to Learn* (Wetton and McCoy, 1998)
- the taught curriculum
- supporting pupils and their families
- supporting school staff
- involving the school health service
- setting up support networks with health professionals, local authority advisory staff and others who are preparing pupils for the real world.

'Teaching with equity'

In Western culture, being slim and physically attractive is perceived by many young people not only as being 'desirable', but also as being 'good'. Consequently, some young people who perceive themselves to be neither slim nor attractive might perceive themselves to be 'undesirable' and 'bad'. This kind of belief, arising from negative body image, can have devastating effects on the young person's self-esteem and, ultimately, his or her health, social functioning and academic prowess.

Small (2001) advocates the idea of 'teaching with equity' to try to overcome some of the problems faced by young people with negative body image and poor self-esteem. By this, she does not mean treating all young people the same way. Rather, she suggests teaching in a way that 'encompasses and acknowledges the individual needs and abilities of all students', and which guarantees fair and unbiased treatment for all young people.

As Small (2001) suggests, classrooms are not always 'egalitarian' environments, and young people who are (or perceive themselves to be) the victims of inequitable treatment can suffer dramatic effects on their self-esteem. Teachers who show awareness of these factors, and who focus on improving academic self-esteem and confidence in students by promoting the individual qualities and abilities of all individual young people, are likely to see improvements in many aspects of self-esteem, including improved body image (Small, 2001).

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Chapter 3.3

The role of the media

Key points

- Children and young people's attitudes to food may be increasingly shaped by ideas of 'fat' and 'thin', images largely derived from the media.
- The effects of the media are subtle and cumulative and take effect over a long period of time.
- The contrast between the high-fat foods commonly advertised on children's TV and media depictions of 'ideal' thin body images may lead to confusion among children and an ambiguous relationship with food later in life.
- Developing skills of media literacy in children will help to counteract some of the negative effects of the media.

For many young people, particularly girls, body image, food and self-esteem are closely interrelated.

It has been argued that people in Western cultures tend to be discontented about their bodies, particularly young women. While eating disorders (Chapter 2.4: *Eating disorders*) may be extreme examples of this discontent, large numbers of young people are unhappy with their body and have a distorted relationship with food.

Children's attitudes to food may be increasingly shaped by ideas of 'fat' and 'thin', images largely derived from the media. This chapter will focus on the connections between images of 'thinness' in the media and its influence on young people's attitude to food and body image. Responses to media messages of thinness are often influenced by gender and ethnicity, and these differences have to be considered when looking at the effect of the media on young people.

The importance of the media

The media's influence on people's lives is often taken for granted. Very few people get through a whole day without watching TV, reading a magazine or newspaper, surfing the internet, or listening to the radio.

Watching TV is the most popular home-based activity in the UK. People spend on average 25 hours a week watching TV, with women watching more than men. By 1995, 99% of UK households owned a TV set. A recent study of adult women showed sedentary behaviors, especially TV watching, were associated with a significantly elevated risk of obesity and type 2 diabetes, with greater TV viewing linked to increased risk (JAMA, 2003).

In Scotland, figures for 2002 show roughly 30% of children of different ages watch TV in their free time for four hours or more during a weekday (Box 1). There are even more children watching TV for four or more hours on the weekends (Currie *et al.*, 2004).

Box 1. Watching TV four hours or more per day, by gender, Scotland 1998 (Todd *et al.*, 2000)

Age	Boys (%)	Girls (%)
11	29.4	26.7
13	29.7	28.3
15	27.2	25.8

Children are often sophisticated viewers of TV and do not believe everything they watch or, everything they read in magazines. But it is likely that younger children’s ability to evaluate material is less well developed than that of adults, particularly where they are able to watch or read material on their own without any interaction with adults.

Information obtained from TV and magazines may influence young people’s ideas of body image, attractiveness and their role in society. Discussing the media in a classroom situation and challenging young people to explore the issues provides an important arena for them to develop critical awareness of media messages.

Effects of the media on behaviour

Quite what effects the media has on behaviour has been the subject of much debate, with many different views expressed. Early media research suggested that people were directly influenced and would copy behaviour from the TV or be ‘brainwashed’ into accepting opinions conveyed in newspapers. Current research, however, shows that audiences tend to select and filter information, rejecting those messages that conflict with their existing views. Young children make sense of information they don’t understand by adjusting it to fit something they do understand.

Media influence cannot be measured by looking for straightforward evidence of cause and effect. For example, it is simplistic to say a young person will look at a photograph of a thin model and become anorectic. The effects are more subtle and cumulative and take effect over a long period of time in the context of a society that constantly reinforces messages about body image, beauty and gender roles.

A young woman in Scotland is likely to grow up in a culture where beauty and fashion are considered central components of her identity and where she learns to associate success with thinness. A young man may grow up in a culture where ideas of masculine physical strength influence body image or prevent him from expressing his emotions. While the media can boost self-esteem by providing young men and women with examples of a variety of body shapes, roles and routes to achievement, it often tends to portray a limited number of body shapes and messages linking external appearance with success. This is potentially damaging to the self-esteem of young people (BMA, 2000).

Disordered eating and young people

As Chapter 2.2: *Overweight and obesity* explains, there is a significant problem of increasing levels of obesity in the UK. If current trends continue, more than 25% of British adults will be obese by the year 2010.

But there has not been a similar increase in the number of kilocalories people eat — in fact, at population level, there is some evidence which suggests that there has been a decline since the 1970s. Chapter 1.2: *Physical activity* shows that other factors, such as an increasingly sedentary lifestyle and a decline in physical activity, are likely causes of obesity. Yet society seems to be obsessed with dieting as indicated by the huge sales of popular books on this subject.

There has also been a rise in the numbers of people suffering from anorexia and bulimia nervosa. There is a much larger population of people who might not have a diagnosed eating disorder, but who nevertheless have a problematic relationship with food. They may binge or diet and feel unhappy about their current body shape, size and appearance.

Higher levels of dieting are found around the time of puberty, when physiological demands would generally require an increased kilocalorie intake for normal development.

The contrast between the high-fat foods commonly advertised on children's TV and media depictions of 'ideal' thin body images may lead to confusion and an ambiguous relationship with food later in life. Research in the USA and UK has shown that food advertisements comprise around 60% of all commercials broadcast during children's viewing time. The foods tend to be 'snacks' with high fat, sugar and salt content.

Research has also shown that children who watch lots of TV are more likely to have poorer eating habits.

One study, for instance, looked at the impact of prolonged exposure to Western TV shows on Fijian adolescent girls. Western TV had only been introduced to the local population shortly before the study commenced. Researchers found that the girls who had most exposure to the programmes were the ones most likely to show indicators of disordered eating, and to express interest in dieting to make their bodies look like the women they saw on TV. The researchers concluded that TV had a negative impact on disordered eating attitudes and behaviours in a population that was relatively 'media-naïve' (Becker *et al.*, 2002).

The result of all this is that by age 14, young people can have adopted poor eating habits and unhealthy attitudes towards their body shape. Clearly, young people need to be educated about nutritional requirements and the dangers of 'running on empty'. There is a risk that they may feel 'outside' an acceptable social norm, causing them to start unsupervised dieting that may retard normal growth or, in at risk cases, may lead to an eating disorder. The well-documented rebound effect of dieting may also increase the risk of obesity in the longer term and distort a young person's relationship with food, to the extent that eating might come to be viewed as a negative activity rather than one that is pleasurable and life-sustaining.

Men, body image and eating disorders

Although it is mainly women who suffer from the pressure to be thin, men are also presented with unobtainable images of perfection in the media that may damage their self-esteem or alter their body image.

Ten per cent of eating disorder sufferers are men. However, rather than being under pressure to be thin, many men feel they need to develop larger and stronger muscles in a bid to reach the 'ideal' body proportions. This may discourage them from restricting their food intake — only 25% of men diet at some point in their lives compared to 95% of women. Young boys are more likely to take steroids or over-exercise to achieve the muscular body shape associated with masculinity.

Insecurity about appearance may also manifest itself in other forms, such as overcompensating for painful feelings with arrogance and overconfidence, or bullying others.

The media's influence on attitudes towards body image, food and self-esteem

Media imagery may be particularly important in changing the way the body is perceived and evaluated. The media contributes to the socially represented 'ideal' body by providing examples of 'attractive' women — models, actresses and pop stars — which provide a point of comparison against which women measure themselves.

In recent years, the socially represented 'ideal' body has become increasingly thin — much thinner than the average body shape of the population — putting pressure on women to view their bodies as fatter and heavier. The presentation of computer-generated images such as 'Lara Croft' and toys like 'Barbie' as representative of an 'ideal' for the adult female body shape, for example, is one that will contrast with a young woman's experience of her own body at puberty, which is likely to seem 'fat' and disproportionate in comparison. It is perhaps significant that many of the models used in fashion and teen magazines have a pre-pubertal appearance.

In studies conducted with adolescent girls, media and fashion trends are often found to exert stronger pressure to be thin than parents and peers. Women's magazines, in particular, commonly promote weight loss or shape change with direct links being made to being fit and healthy. They contain 10 times as many advertisements and articles promoting weight loss as do men's magazines. Although magazines aimed at younger girls tend not to promote weight loss, they may provide a gateway to reading those aimed at older age groups. Increasing access to the internet may also encourage young girls to obtain information about beauty, fashion and diet from sources that are aimed at older age groups. It is therefore important that the skill of evaluation of media messages is developed at an early age as part of the school's ongoing personal, social and health education programmes.

Body image and popular culture

Overweight people tend to be portrayed in the media as figures of ridicule, and successful female celebrities find that their weight loss or weight gain can become the focus of media attention and speculation. Successful larger women are famous for their comic roles, but there are far fewer larger women presenters or actresses in glamorous roles on TV.

Research has consistently found that most female characters on TV or other parts of the media are thinner than average women. It has been estimated that models and actresses in the 1990s had 10%-15% body fat — the average body fat for a healthy woman is considered to be 22-26%. Although men may be under increasing pressure to 'look good', male TV presenters, actors, and newsreaders do not appear to be under as much pressure to conform to a narrow range of acceptable body sizes.

Research with young children has shown that they are quick to assimilate these cultural attitudes and assign negative characteristics to 'fat' figures and positive personal qualities to 'thin' figures. Children tend to identify fat figures as lazy, of low intelligence and having fewer friends (see Chapter 2.2: *Overweight and obesity*). Such cultural prejudices can lead to the teasing and social exclusion of overweight children.

Classroom discussion could consider some of the ways that young women are presented in the media, including positive examples. This should be part of the ongoing health education programme and could also be well supported though other parts of the curriculum.

Positive examples can also be found in the Black and Asian communities. Current research indicates that fewer Black and Asian women suffer from eating disorders than white women in Western society. Wider social support networks, offering alternative ways to bolster self-esteem, may offer protection against media images of thinness.

How can schools help?

Schools can consider ways of helping young people to decode and resist media messages that associate thinness with beauty and health, and provide information on health and nutrition. Positive associations with food could be encouraged by policy initiatives such as school breakfast clubs. Teachers can also help boost self-esteem by allaying fears about body image (particularly at puberty) and attempting to promote positive self and body image.

In media literacy programmes, teachers may find that their knowledge of current celebrities and trends in popular culture lag behind those of their pupils, and it is important that dialogue is established as part of a two-way learning process. It is important not to be dismissive about the media, as many young people take it very seriously as a source of entertainment and information. Look for positive media examples on issues related to food, body image and disordered eating.

Research in the US has indicated that prevention efforts are best targeted at elementary school pupils (equivalent of Scotland's primary schools). There is a better chance that the authority of parents and teachers can outweigh the influence of peers at that age. The following strategies have been suggested:

- Research into children's perceptions using illuminative strategies such as asking them to draw pictures of their ideas ('draw and write' techniques) (Wetton and McCoy, 1998).

- Tapping into the children's perceptions of body image, 'fatness' and 'thinness' as a starting point for challenging perceptions and misconceptions.
- Teaching acceptance of a wider range of body shapes.
- Providing children with information about the facts of development to allay anxieties about puberty.
- Developing skills of media literacy in children will help to counteract some of the negative effects of the media. The curriculum can look at issues such as:
 - the selection and construction of media content
 - the way advertising and marketing is aimed at our emotions
 - the way that media content is aimed at particular audiences
 - the use of narrative techniques to create particular versions of reality.

Teachers can also devise alternative ways to boost self-esteem within other areas of the school by, for example, promoting and offering a wide range of opportunities for participating in physical activity. Activity can be an important component of developing self-esteem and provides an alternative focus to dieting for women wanting to maintain a healthy weight. The following measures may help to encourage participation of all young people:

- Find out children's and young people's views on staying healthy.
- Stress the importance of fun and fitness.
- Provide opportunities for children to be successful at levels they can achieve, rather than by predetermined criteria.
- Find ways of dividing the children into groups and teams unrelated to personal qualities and skills.

- Use game-type activities to get children into teams and groups.
- Encourage teams to work together to achieve progress.

For further information on the impact of the media, see Factsheet 8: *The media*.

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A media literacy website with a section for kids, part of an initiative funded by private sponsors and supported by the UK government.

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Book 1: Evidence and Overview

Editing team

Courtney Cooke, Candace Currie, Cathy Higginson, Jo Inchley, Alex Mathieson, Monica Merson and Ian Young.

Chapters contributors

Mary Allison, Neville Belton, Marcia Darvell, Lesley De Meza, Cathy Higginson, Emma Hogg, Monica Merson, Liz Swindon, Joanna Todd, Noreen Wetton, Jo Williams, Peter Wright, Ian Young.

Factsheets contributors

Julie Armstrong, Ruth Campbell, Candace Currie, Cathy Higginson, Jo Inchley, Chris Kelnar, Alex Mathieson, Jennifer Trueland, Ian Young.

Book 2: Training materials

Editing team

Courtney Cooke, Candace Currie, Gay Gray, Jo Inchley, Alex Mathieson, Monica Merson and Ian Young.

Contributors

Courtney Cooke, Gay Gray, Anne Howie, Pat Reid, Monica Merson and Noreen Wetton.

Pre-testing of training materials

Sarah Cavanagh, Courtney Cooke, Kevin Denvir, Rachael Roberts, Monica Merson, Lusia Walker, Evelyn Wilson and Heather Young.

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