This product may be of interest to stakeholders, policy officials, commissioners and members of the public to gain a comprehensive picture of society at regional and national level and understand the public health challenges faced by health and social care providers.

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## 6 Diet

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Appendix A: Key sources

Appendix B: Technical notes

Appendix C: Government policy, targets and outcome indicators

Appendix D: Further information
Executive Summary
This statistical report presents a range of information on obesity, physical activity and diet, drawn together from a variety of sources for England.

Main findings

Obesity

- The proportion of adults with a normal Body Mass Index (BMI) decreased between 1993 and 2012 from 41.0% to 32.1% among men and from 49.5% to 40.6% among women.

- There was a marked increase in the proportion of adults that were obese between 1993 and 2012 from 13.2% to 24.4% among men and from 16.4% to 25.1% among women.

- The proportion of adults that were overweight including obese increased between 1993 and 2012 from 57.6% to 66.6% among men and from 48.6% to 57.2% among women.

- The proportion of adults with a raised waist circumference increased from 20% to 34% among men and from 26% to 45% among women between 1993 and 2012.

- In Reception class in 2012/13, the proportion of obese children (9.3%) was lower than in 2011/12 (9.5%) and also lower than in 2006/07 (9.9%) (when data was first published).

- In Year 6 in 2012/13, the proportion of obese children (18.9%) was lower than in 2011/12 (19.2%) but higher than in 2006/07 (17.5%).

Physical activity
In 2012:

- 67% of men and 55% of women aged 16 and over met the new recommendations for aerobic activity. 26% of women and 19% of men were classed as inactive.

- 46% of men and 37% of women reported walking of at least moderate intensity for 10 minutes or more on at least one day in the last four weeks.

- 52% of men and 45% of women had taken part in sports/exercise at least once during the past four weeks.

Diet

- While overall purchases of fruit and vegetables reduced between 2009 and 2012, consumers spent 8.3% more on fresh and processed vegetables and 11.7% more on fresh and processed fruit.

- Total expenditure on household food and non-alcoholic drink rose by 4.3% in 2012 from the previous year and was 8.9% higher than in 2009. There have been significant upward trends in household expenditure on total fats and oils, butter, sugar and preserves, fruit and fruit juice, soft drinks and beverages.
Health outcomes

- In 2012-13, there were 10,957 Finished Admission Episodes (FAEs) in NHS hospitals with a primary diagnosis of obesity among people of all ages. This is 6.6% less admissions than in 2011-12 (11,736), although this is almost nine times higher than 2002-03 (1,275).

- In 2012-13 there were 8,007 female admissions and 2,950 male admissions with a primary diagnosis of obesity, and this difference between males and females has been consistent since 2006-07 where there were 2,807 admissions in women and 1,047 in men.

- Admissions with a primary diagnosis of obesity fell in each age group except for those aged under 16 (556 in 2012-13 from 495 in 2011-12, a rise of 12.3 per cent), and those aged 65 and over (594 in 2012-13 from 562 in 2011-12, a rise of 5.7 per cent).

- There were 8,024 recorded Finished Consultant Episodes (FCEs) with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery in 2012-13. This is 8.8% less admissions than in 2011-12 (8,794).

- Females continue to account for the majority of FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery; in 2012/13 there were 1,944 such recorded FCEs for males and 6,080 for females.

- North East Strategic Health Authority (SHA) had the highest number of FCEs per 100,000 of the population (39). The SHAs with the lowest rates were the East of England SHA and South Central SHA, both with 6 FCEs per 100,000 of the population.

- Drug items prescribed for treating obesity fell by 56.3 per cent in 2012 (392,000) from 2011 (898,000).

- North West SHA had the greatest number of prescription items dispensed per head of population (970 items per 100,000) followed by Yorkshire and the Humber SHA (920 items per 100,000). South Central SHA had the lowest items dispensed per head of population (400 items per 100,000).

---

1 The data presented in this report are for inpatients only and therefore does not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. In particular, practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Inconsistencies in the use of this code may have contributed to the decrease seen this year and the increases seen from 2009/10.
1 Introduction

This annual statistical report presents a range of information on obesity, physical activity and diet, drawn together from a variety of previously published sources. It also presents new analyses not previously published before which mainly consist of data from the Health and Social Care Information Centre’s (HSCIC) Hospital Episode Statistics (HES) databank as well as data from the Prescribing Unit at the HSCIC.

Topics covered in this report include:

- Trends in obesity and being overweight among different groups of the population
- Physical fitness levels and sedentary behaviour
- Trends in purchases and expenditure on food and drink, including fruit and vegetable consumption.
- Health outcomes related to obesity including hospital admissions and drugs used for the treatment of obesity.

It has not always been possible to update the information for 2012/13. Where this is the case, the latest data available is presented from earlier publications. The data in this publication relate to England unless otherwise specified. Where figures for England are not available, figures for Great Britain or the United Kingdom have been provided. Where relevant, links to the Scottish Health Survey, Welsh Health Survey and the report, Health at a Glance: Europe have been provided.

Chapter 2 in this report presents the obesity prevalence rates and trends among adults. The relationship between obesity and various factors such as sex, demographics and lifestyle habits are also explored. Chapter 3 focuses on obesity prevalence rates and trends for children, and again, explores the relationship between obesity and various factors. Chapter 4 on Physical activity among adults and Chapter 5 on Physical activity among children cover information on self-reported activity and accelerometry. Physical activity levels, according to physical activity guidelines, and types of physical activity are considered. These chapters also cover information on adults’ and children’s knowledge and attitudes towards exercise and physical activity. Chapter 6 on Diet covers purchases and consumption of food and drink and related intake of energy and nutrients. Also covered are adults’ and children’s consumption and knowledge of the recommended number of portions of fruit and vegetables a day plus attitudes towards a healthy diet. Chapter 7 on Health Outcomes focuses on outcomes related to being overweight or obese, in particular blood pressure and long standing illness. The risks of diseases linked to obesity are discussed in this chapter, as well as information on hospital episodes with a primary or secondary diagnosis of obesity, ‘bariatric surgery’ and prescriptions for the treatment of obesity.

The main datasets presented in Chapter 7 cover a time series of information over the last ten years so it is important to pull all this into context with the relevant government policies and strategies in place at the time (see Appendix C).

Throughout the report, references to sources for further information are provided at the end of each chapter. The report also contains four appendices: Appendix A describes the key sources used in more detail; Appendix B provides further details on measurements, classifications and definitions used in the various sources; Appendix C covers government policy, targets and outcome indicators related to obesity, physical activity or diet; Appendix D gives editorial notes regarding the conventions used in presenting information; and further information regarding the topics discussed within this report.
United Kingdom Statistics Authority

This publication is a National Statistic. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. It is a statutory requirement that National Statistics should observe the Code of Practice for Official Statistics. The United Kingdom Statistics Authority (UKSA) assesses all National Statistics for compliance with the Code of Practice.

During 2010, the Statistics on Obesity, Physical Activity and Diet: England report underwent assessment by UKSA. Following assessment, this publication was designated to continue as a National Statistic. Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Most of the sources referred to in this publication are National Statistics. Some of the statistics referred to in this publication are not National Statistics and are included here to provide a fuller picture; some of these are Official Statistics, whilst others are neither National Statistics nor Official Statistics. Those which are Official Statistics should still conform to the Code of Practice for Official Statistics, although this is not a statutory requirement. Those that are neither National Statistics nor Official Statistics may not conform to the Code of Practice for Official Statistics.
2 Obesity among adults

2.1 Introduction

The main source of data on the prevalence of overweight and obesity is the Health Survey for England (HSE). The HSE is an annual survey designed to monitor the health of the population of England. The report is written by NatCen Social Research (previously the National Centre for Social Research) and published by the Health and Social Care Information Centre (HSCIC). Most of the information presented in this chapter is taken from the recently published HSE 2012.¹

This chapter focuses on the prevalence of overweight and obesity in adults, presented by Body Mass Index (BMI) and also by waist circumference. Trends in the prevalence of overweight or obesity are presented and relationships between various economic and lifestyle variables and obesity are discussed. Regional, national and international comparisons have been provided as well as the Quality and Outcomes Framework (QOF) obesity prevalence rates. Participation by practices in the QOF is voluntary, though participation rates are very high.

The chapter includes a focus on future predictions of adult obesity, which refers to other research reports.

2.1.1 Measurement of overweight and obesity

Overweight and obesity are terms that refer to an excess of body fat and they usually relate to increased weight-for-height. The most common method of measuring obesity is the Body Mass Index (BMI). BMI is calculated by dividing a person’s weight measurement (in kilograms) by the square of their height (in metres).

BMI is the best way we have to measure the prevalence of obesity at the population level. No specialised equipment is needed and therefore it is easy to measure accurately and consistently across large populations. BMI is also widely used around the world, not only in England, which enables comparisons between countries, regions and population sub-groups. Height and weight data have been collected in each year of the HSE series, and waist circumference in most years. Height and weight data have been used to calculate BMI; waist circumference has been used to assess central obesity in adults.

In adults, a BMI of 25kg/m² to 29.9kg/m² means that person is considered to be overweight, and a BMI of 30kg/m² or above means that person is considered to be obese.

The calculation of BMI is a widely accepted method used to define overweight and obesity. Guidance published by the National Institute for Health and Clinical Excellence (NICE)² postulates that within the management of overweight and obesity in adults, BMI should be used to classify the degree of obesity and to determine the health risks. However, this needs to be interpreted with caution as BMI is not a direct measure of obesity. NICE recommends the use of BMI in conjunction with waist circumference as the method of measuring overweight and obesity and determining health risks, specifically, the guidance currently states that assessment of health risks associated with overweight and obesity should be based on both BMI and waist circumference for those with a BMI of less than 35 kg/m². Hence the focus on using BMI with waist circumference in order to define overweight and obesity in adults.
2.1.2 Measurement of Body Mass Index

BMI is defined as weight in kilograms divided by the square of the height in metres (kg/m$^2$). Where the prevalence of obesity is referred to in this chapter it is referring to those who are obese or morbidly obese (i.e. with a BMI of 30kg/m$^2$ or over) unless otherwise stated.

**Figure 2.1 BMI ranges used to define BMI status**

<table>
<thead>
<tr>
<th>Definition</th>
<th>BMI range (kg/m$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Under 18.5</td>
</tr>
<tr>
<td>Normal</td>
<td>18.5 to less than 25</td>
</tr>
<tr>
<td>Overweight</td>
<td>25 to less than 30</td>
</tr>
<tr>
<td>Obese</td>
<td>30 to less than 40</td>
</tr>
<tr>
<td>Obese I</td>
<td>30 to less than 35</td>
</tr>
<tr>
<td>Obese II</td>
<td>35 to less than 40</td>
</tr>
<tr>
<td>Morbidly obese</td>
<td>40 and over</td>
</tr>
<tr>
<td>Overweight including obese</td>
<td>25 and over</td>
</tr>
<tr>
<td>Obese including morbidly obese</td>
<td>30 and over</td>
</tr>
</tbody>
</table>

2.1.3 Waist circumference

Although BMI allows for differences in height, it does not distinguish between mass due to body fat and mass due to muscular physique, or for the distribution of fat. Therefore, waist circumference is also a widely recognised measure used to identify those with a health risk from being overweight. A raised waist circumference is defined as greater than 102cm in men and greater than 88cm in women.

2.1.4 NICE risk categories

NICE guidelines on prevention, identification, assessment and management of overweight and obesity highlight their impact on risk factors for developing long-term health problems. It states that the risk of these health problems should be identified using both BMI and waist circumference for those with a BMI less than 35kg/m$^2$. For adults with a BMI of 35kg/m$^2$ or more, risks are assumed to be very high with any waist circumference (Figure 2.2).

**Figure 2.2 NICE risk categories**

<table>
<thead>
<tr>
<th>BMI classification</th>
<th>Waist circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Normal weight (18.5 to less than 25kg/m$^2$)</td>
<td>No increased risk</td>
</tr>
<tr>
<td>Overweight (25 to less than 30kg/m$^2$)</td>
<td>No increased risk</td>
</tr>
<tr>
<td>Obesity I (30 to less than 35kg/m$^2$)</td>
<td>Increased risk</td>
</tr>
<tr>
<td>Obesity II (35 to less than 40kg/m$^2$)</td>
<td>Very high risk</td>
</tr>
<tr>
<td>Obesity III (40kg/m$^2$ or more)</td>
<td>Very high risk</td>
</tr>
</tbody>
</table>
2.2 Overweight and obesity prevalence

2.2.1 Body Mass Index

Chapter 10 of the HSE 2012 report provides information on overweight and obesity as well as anthropometric measures (height, weight, waist and hip circumference). In particular, Table 10.3 on page 21 shows BMI prevalence among adults by age and gender for 2012.

The key findings show that in 2012, just under a quarter of men (24%) and a quarter of women (25%) were obese, and 42% of men and 32% of women were overweight. In comparison 32% of men and 41% of women had a BMI in the normal range.

Overall, mean BMI in men was 27.3kg/m² and in women was 27.0kg/m² and as with the prevalence of overweight including obesity, was higher in older age groups. Prevalence of overweight including obese varied by age, being lowest in the 16–24 age group, and higher in the older age groups among both men and women. Figure 10C on page 9 of Chapter 10 of the HSE 2012 report shows prevalence of obesity by age and gender for 2012.

2.2.2 Waist circumference

Table 10.8 on page 25 of Chapter 10 of the HSE 2012 report shows the distribution of mean waist circumference and prevalence of raised waist circumference by age and gender for 2012.

In 2012, women were significantly more likely than men to have a raised waist circumference (45% and 34% respectively). Again both mean waist circumference and the prevalence of a raised waist circumference were generally higher in older age groups.

2.2.3 Health risk associated with BMI and waist circumference

Table 10.11 on pages 27 and 28 of Chapter 10 of the HSE 2012 shows the increased health risks associated with high and very high waist circumference, when combined with BMI to classify the risks (see Figure 2.2 for definition of high and very high waist circumference).

Using combined categories of BMI and waist circumference to assess overall health risk: 20% of men were at increased risk, 12% at high risk and 22% at very high risk. The equivalent proportions for women were: 13%, 18% and 24%.

2.3 Trends in overweight and obesity

2.3.1 Body Mass Index

Table 4 from the HSE 2012 Adult Trend Tables shows that in England the proportion of adults with a normal BMI decreased between 1993 and 2012, from 41.0% to 32.1% among men and from 49.5% to 40.6% among women. For both men and women, the proportions that were overweight were stable over the same period (approximately 40% for men and 30% for women). There was however a marked increase in the proportion that were obese, a proportion that has gradually increased over the period from 13.2% in 1993 to 24.4% in 2012 for men and from 16.4% to 25.1% for women (see Figure 2.3). The proportions that were
overweight including obese increased from 57.6% to 66.6% in men and from 48.6% to 57.2% in women between 1993 and 2012.

**Figure 2.3: Obesity prevalence of adults (16+) 1993 to 2012**

This increase is also shown in Figure 10H on page 14 of Chapter 10 of the HSE 2012 report (based on a 3 year moving average).

### 2.3.2 Waist circumference

Table 5 from the HSE 2012 Adult Trend Tables shows that between 1993 and 2012, the proportion of adults with a raised waist circumference also increased, from 23% to 39% (from 20% to 34% among men and from 26% to 45% among women).

### 2.4 Obesity and demographic characteristics

The HSE 2012 uses equivalised household income (a measure of household income that takes account of the number of people in the household – see Appendix B of this report for more details) to help identify patterns in obesity and raised waist circumference.

Table 10.5 on page 23 of Chapter 10 of the HSE 2012 report shows that there were very little differences in mean BMI by equivalised household income for men; in contrast for women, those in the lower income quintiles had a higher mean BMI than women in the higher quintiles. For women, the proportions who were obese were higher in the lowest income quintiles (ranging from 24%-26%) and lower in the highest quintiles (ranging from 13%-17%). The relationship between BMI and income for men was less clear.

Table 10.10 on page 26 of Chapter 10 of the HSE 2012 report shows that the proportion of women with a raised waist circumference was also lowest in the highest income quintile (37%) and highest in the two lowest income quintiles (52% - 53%). There wasn’t as obvious
a relationship between waist circumference and equivalised household income for men but still the proportion of men with a raised waist circumference was also lowest in the highest income quintile (31%) and highest in the lowest income quintile (36%).

### 2.5 Obesity and lifestyle habits

Previous years’ HSE reports have included more detailed exploration of the lifestyle factors associated with obesity measures. The HSE 2007 report\(^4\) included a regression analysis of the risk factors for those classified as ‘most at risk’ according to the NICE categories using BMI and waist circumference criteria; the HSE 2006 report\(^5\) included a regression analysis exploring the risk factors associated with a raised waist circumference; and the HSE 2003 report\(^6\) included a regression analysis of risk factors associated with overweight and obesity.

The HSE 2007 report used logistic regression (see Section 3.3.7 on pages 44 to 46 of HSE 2007 and Appendix B of this report for more details) to identify the risk factors associated with being in the ‘most at risk’ categories (high or very high risk). For both men and women, being ‘most at risk’ was positively associated with: age; being an ex-cigarette smoker; self-perceptions of not eating healthily; not being physically active; and hypertension. Income was also associated with being ‘most at risk’, with a positive association for men and a negative association for women. Additionally, among women only, moderate alcohol consumption was negatively associated with being ‘most at risk.’

### 2.6 Obesity and physical activity

Table 2B on page 11 of the HSE 2012\(^1\) report shows the proportion of the population aged 19 and over who meet the physical activity guidelines for participation in at least moderate intensity activity. It shows that 66% of men and 56% of women meet the guidelines. These results were also published early in the HSE 2012, early report.\(^7\)

The HSE 2008\(^9\) report had a special focus on physical activity and Figure 2C and Table 2.5 on pages 31 and 47 of the HSE 2008 show self-reported activity levels by BMI category. Both men and women who were overweight (BMI 25 kg/m\(^2\) to less than 30 kg/m\(^2\)) or obese (BMI 30 kg/m\(^2\) or more) were less likely to meet the recommendations compared with men and women who were not overweight or obese (BMI less than 25 kg/m\(^2\)). Forty-six per cent of men who were not overweight or obese met the recommendations, compared with 41% of overweight men and 32% of obese men. A similar pattern emerged for women, with 36% of women who were not overweight or obese meeting recommendations, compared with 31% of overweight men and 19% of obese women. Given these findings, it is not surprising that obese men and women had the highest rates of low activity (36% and 46% respectively).

Table 3.6 on page 84 of the HSE 2008 report shows the average number of minutes per day in sedentary time and all moderate to vigorous physical activity (MVPA) by BMI category based on accelerometry data (an objective measure of physical activity), and Figure 3C on page 69 shows the data for MVPA time. Those who were not overweight or obese spent fewer minutes on average in sedentary time (591 minutes for men, 577 minutes for women) than those who were obese (612 minutes for men, 585 minutes for women). Similarly, those not overweight or obese spent more MVPA minutes than those who were overweight or obese.

Further information on adult physical activity linked to obesity can be found in Chapter 4 of this report.
2.7 Geographical patterns in obesity

2.7.1 Obesity and waist circumference by Strategic Health Authority

Table 10.4 on page 22 of Chapter 10 of the HSE 2012 report shows that among the different Strategic Health Authorities (SHAs) in England, no significant statistical differences were observed in men or women in mean BMI or prevalence of overweight and obesity. Table 10.9 on page 25 of Chapter 10 of the HSE 2012 report also shows there was no significant variation in the distribution of mean waist circumference or raised waist circumference by SHA.

2.7.2 Obesity by Local Authority

Newly published data by Public Health England (PHE) are now available for prevalence of excess weight (overweight including obesity, BMI $\geq 25$ kg/m$^2$) in adults (aged 16 and over) at local authority level. These data are an indicator in the Public Health Outcomes Framework (PHOF) Health Improvement domain. PHE also produced a set of supporting indicators for adult underweight, healthy weight, overweight, and obesity prevalence.

2.7.3 Quality and Outcomes Framework

The Quality and Outcomes Framework (QOF) for 2012/13$^{10}$ includes an indicator which rewards GP practices for maintaining an obesity register of patients (aged 16 and over) with a BMI greater than or equal to 30 kg/m$^2$, recorded in the previous 15 months. The recording of BMI for the register takes place in the practice as part of routine care. The underlying data includes the number of patients on the obesity register and the number of obese patients registered as a proportion of the practice list size. See Appendix A for more information on QOF.

In England in 2012/13, it was calculated that the prevalence rate based on GP obesity registers was 10.7%; much lower than the 24.7% for adults reported in HSE 2012. This could be due to a number of reasons. Not all patients will be measured and there may be some obese people who have not recently visited their GP. While perhaps not able to demonstrate the complete extent of obesity prevalence, QOF can be a useful indicator of the number of people whose health is being monitored due to their obesity. To be included in the QOF obesity register a patient must be aged 16 or over and have a record of a BMI of 30 kg/m$^2$ or higher in the previous 15 months. This requirement results in the prevalence of obesity in QOF being much lower than the prevalence found in the Health Survey for England and other surveys.

The Quality and Outcomes Framework (QOF) prevalence data tables for 2012/13$^{10}$ show a breakdown of obesity at a regional level. Prevalence rates based on the QOF ranged from 12.0% in North of England to 9.2% in London commissioning region in 2012/13. Figure 2.4 shows the obesity prevalence rates from QOF for each region in England in 2012/13. There is clearly a north-south divide with northern England having higher obesity prevalence rates than southern England.
### 2.7.4 National and international comparisons

Scotland and Wales carry out their own health surveys. Adult BMI information can be found in Section 7 and Tables 7.1 to 7.2 of the *Scottish Health Survey 2012*[^11]. The Scottish Government also published an *Obesity Topic Report*[^12] alongside the Scottish Health Survey 2010 which investigates into the most appropriate measure of adult obesity using Scottish Health Survey data, and also investigates into the significant behavioural, socio-demographic and economic factors associated with adult obesity using data from the 2008, 2009 and 2010 surveys.

Adult BMI information for Wales can be found in Section 4.8 on pages 60 and 61 and Table 4.12 of the *Welsh Health Survey 2012*[^13].

In Scotland, 27.1% of adults were classified as obese, and 64.3% of adults were classified as being overweight or obese in 2012. In Wales, 23.0% of adults were classified as obese, and 58.5% of adults were classified as being overweight or obese. This compares with 24.7% of adults being obese in England and 61.9% of adults being overweight or obese. Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

The Organisation for Economic Co-operation and Development (OECD) in 2013 published *Health at a Glance: 2013*[^14] which includes data on overweight and obese populations across different countries worldwide. Based on latest available health surveys, Section 2.7 on page 58 of the report, states that more than half (52.6%) of the adult population in the European Union reported that they were overweight or obese. This compares to just two years ago when half (50.3%) of the adult population in the OECD reported that they were overweight or obese. The least obese countries were India (2.1%), Indonesia (2.4%) and China (2.9%) and the most obese countries were the US (36.5%), Mexico (32.4%) and New Zealand (28.4%).

The Organisation for Economic Co-operation and Development (OECD) in 2012 published *Health at a Glance: Europe 2012*[^15] which includes data on overweight and obese populations across different countries in Europe. Based on latest available health surveys, Section 2.7 on page 62 of the report, states that more than half (52%) of the adult population in the European Union reported that they were overweight or obese. The obesity rate has doubled over the last twenty years in many European countries and stands at between 7.9% in Romania and 10.3% in Italy to 26.1% in the UK and 28.5% in Hungary. The prevalence of overweight and obesity among adults exceeds 50% in 18 of 27 EU member states.

### Figure 2.4: Obesity prevalence rates quoted by QOF, by Region – 2012/13

<table>
<thead>
<tr>
<th>Region</th>
<th>Obesity prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTH OF ENGLAND COMMISSIONING REGION</td>
<td>12.0%</td>
</tr>
<tr>
<td>MIDLANDS AND EAST OF ENGLAND COMMISSIONING REGION</td>
<td>11.2%</td>
</tr>
<tr>
<td>LONDON COMMISSIONING REGION</td>
<td>9.2%</td>
</tr>
<tr>
<td>SOUTH OF ENGLAND COMMISSIONING REGION</td>
<td>9.7%</td>
</tr>
</tbody>
</table>
2.8 The future

There are various research reports and journal articles available that use HSE data to predict future obesity trends in adults. The report by Foresight at The Government Office for Science produced the *Tackling Obesities: Future Choices* report\(^{16}\) which provides a long-term vision of how we can deliver a sustainable response to obesity in the UK over the next 40 years. HSE data from 1994 to 2004 were used as a basis of modelling obesity prevalence up to 2050.

In 2007, the Foresight report estimated that by 2025, 47% of men and 36% of women (aged between 21 and 60) will be obese. By 2050, it is estimated that 60% of males and 50% of females could be obese. More recent modelling suggests that by 2030, 41% to 48% of men and 35% to 43% of women could be obese if trends continue.\(^{17}\) In a few years we will be able to compare against these modeled estimates. At the moment, the HSE 2012 data shows that the current rate for obesity is 24% for men and 25% for women.
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Chapter 3: Obesity among children

3.1 Introduction

This chapter presents key information about the prevalence of overweight and obesity in children aged 2 to 15 living in England, using data from the Health Survey for England (HSE) 2012\(^1\). The HSE is an annual survey and has provided information about the health of children since 1995. Information is presented showing relationships between obesity and income, parental Body Mass Index (BMI) and children’s physical activity levels, and also providing regional comparisons. Information on children’s attitudes to physical activity and obesity are also included.

This chapter also presents 2012/13 data from the National Child Measurement Programme for England (NCMP)\(^2\). The NCMP provides the most comprehensive data on overweight and obesity among children aged between 4 and 5 years (Reception) and 10 and 11 years (Year 6); in 2012/13 over one million children were measured. The findings of the NCMP are used to inform local planning and delivery of services for children and gather population-level surveillance data to allow analysis of trends in weight.

Data on National and International comparisons are taken from the Scottish Health Survey 2012\(^3\), Welsh Health Survey 2012\(^4\), and the Health at a Glance: Europe 2013\(^5\) report published by the Organisation for Economic Co-operation and Development (OECD).

The final part of this chapter focuses on future predictions of childhood obesity and refers to other research reports.

3.1.1 Measurement of overweight and obesity in children

As with adults, the HSE collects height and weight measurements to calculate BMI for each child. BMI (adjusted for age and gender) is recommended as a practical estimate of overweight and obesity in children. The measurement of overweight and obesity among children needs to take account of the different growth patterns among boys and girls at each age, therefore a universal categorisation cannot be used to define childhood obesity as is the case with adults. Each sex and age group needs its own level of classification for overweight and obesity. The data presented in this chapter uses the British 1990 growth reference (UK90) to describe childhood overweight and obesity. This uses a BMI threshold for each age above which a child is considered overweight or obese. The classification estimates were produced by calculating the percentage of boys and girls who were over the 85\(^{th}\) (overweight) or 95\(^{th}\) (obese) BMI percentiles based on the 1990 UK reference population.

3.2 Trends in overweight and obesity

The key findings from the HSE 2012 are:

- The prevalence of obesity has increased since 1995, when 11% of boys and 12% of girls aged 2-15 were obese. There was a steady increase up to around 2004 and 2005, where obesity peaked at 18% to 19% among both boys and girls. Levels have been slightly lower than this peak in the last few years, with little change, with 17% of boys and 16% of girls obese in 2011. The levels in 2012, at 14% for both boys and girls, were lower than in 2011 though not statistically significant.
- There were differences in trends according to age. Among both boys and girls, there was a similar pattern of increase for those aged 2-10 and 11-15 up to the peak around...
2004/2005; since then the proportion who were obese in the 11-15 age group has remained at a broadly similar level (with some fluctuation) among both sexes. Among those aged 2-10 the proportion who were obese has decreased significantly from 17% of both boys and girls in 2005 to 11% of boys and 10% of girls in 2012.

Further information is available in Table 4 of the HSE 2012 Child Trend Tables.

The key findings from the National Child Measurement Programme (NCMP) for England, 2012/13 school year are:

- In Reception the proportion of obese children (9.3%) was lower than in 2011/12 (9.5%) and also lower than in 2006/07 (9.9%).
- In Year 6 the proportion of obese children (18.9%) was lower than in 2011/12 (19.2%) but higher than in 2006/07 (17.5%). This is the first time since the NCMP collection began in 2006/07 that the prevalence of overweight including obese has reduced for Year 6 children. Further years’ data will be required to see if this is the start of a decline.
- As in previous years, a strong positive relationship existed between deprivation and obesity prevalence for children in each school year with obesity prevalence being significantly higher in deprived areas.
- Obesity prevalence was significantly higher in urban areas than rural areas for each age group, as was the case in previous years.


Chapter 11 of the HSE 2012 report includes a comparison of NCMP and HSE data, outlining the differences between results and methods of collection.

### 3.3 Relationship between obesity and income

Figure 11B on page 6 of Chapter 11 of the HSE 2012 report shows that among children aged 2-15, there was significant variation in the proportion who were obese according to equivalised household income. Boys in the lowest quintile were most likely to be obese (19%), whereas obesity was most prevalent among girls in the lowest three income quintiles (15% to 17%). Boys and girls in the highest income quintile were least likely to be obese (8% and 7% respectively). There was no similar variation for mean BMI.

### 3.4 Obesity and physical activity in children

Table 3.5, Chapter 3 of the HSE 2012 shows summary activity levels in children aged 5-15, by BMI category. There was no significant variation in the proportions meeting current recommendations by BMI category, either among boys or girls, or among the 5-10, 11-15 and 5-15 age groups.

### 3.5 Regional, national and international comparisons for children

The NCMP report provides figures for the following regions: Strategic Health Authority (SHA), Primary Care Trust (PCT) and Local Authority.
The key findings for 2012/13 are:

- Obesity prevalence varied by Strategic Health Authority (SHA). South East Coast SHA, South Central SHA and East of England SHA had the lowest obesity prevalence in Reception (7.9%, 8.0% and 8.1% respectively) and South East Coast SHA, South Central SHA and South West SHA had the lowest obesity prevalence in Year 6 (15.8%, 16.1% and 16.6% respectively). London SHA reported the highest obesity prevalence for both years (10.8% for Reception and 22.4% for Year 6).
- SHAs with high obesity prevalence in Reception tended to also have high prevalence in Year 6.
- Obesity prevalence varied by Primary Care Trust (PCT). For Reception this ranged from 5.8% in Surrey PCT to 14.6% in Redcar and Cleveland. In Year 6 the range was from 12.7%, also in Surrey PCT, to 27.3% in Newham PCT.


National information for Scotland and Wales can be found from their own health surveys. Child Obesity information for Scotland can be found in Chapter 7, Section 7.5 of the Scottish Health Survey 2012.

The key findings are:

- Obesity prevalence of children aged 2 to 15 rose from 14.3% to 16.6% between 1998 and 2008 but has remained stable since then (16.8% in 2012).
- The prevalence of overweight including obese of 2 to 15 year olds rose from 29.1% in 1998 to 32.8% in 2008 but, since then, has fluctuated with no clear pattern (30.6% in 2012).

Child obesity information for Wales can be found in Section 6.7 of the Welsh Health Survey 2012.

The key findings are:

- Around a fifth (19%) of children aged 2 to 15 were classified as obese.
- Around a third (34%) of children aged 2 to 15 were classified as overweight including obese,
- There was little difference between the levels of those classified as overweight or obese in boys and girls.

Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

In 2013, the Organisation for Economic Co-operation and Development (OECD) published Health at a Glance 2013: OECD Indicators which includes data on overweight and obese populations across OECD countries.

The key findings are:

- Self-reported overweight (including obesity) rates among the 15-year-olds are about 18% for boys and 11% for girls on average in OECD countries.
- More than 20% of boys are defined as overweight in Greece, Italy, Slovenia, the United States and Canada based on self-reported data, and more than 20% of girls in the United States.
- Rates of excess weight based on self-reports have increased slightly over the past decade in most OECD countries. Average of overweight rates (including obesity) across OECD countries increased between 2001-02 and 2009-10 from 13% to 15% in 15-year-olds.
Further information is available in Section 2.2 of Health at a Glance 2013: OECD Indicators.

3.6 The future

There are various research reports and journal articles available that use HSE data to predict future obesity trends in children. The report by Foresight at the Government Office for Science, *Tackling Obesities: Future Choices* includes some predictions for the future prevalence of obesity among young people under the age of 20. This report uses the International Obesity Task Force (IOTF) definition of obesity. More information on the IOTF can be found in Appendix B. The report’s predictions suggest a growth in the prevalence of obesity among people under 20 to 14% by 2025 based on HSE 2004 data. However, these figures should be viewed with caution due to the widening confidence intervals on the extrapolation and the HSE report this is based on now being 10 years old.

Another research report published in the British Medical Journal Group in 2009, *Time trends in childhood and adolescent obesity in England from 1995 to 2007 and projections of prevalence to 2015* reveals that the 2015 projected obesity prevalence is 10.1% in boys and 8.9% in girls, and 8.0% in male and 9.7% in female adolescents. Predicted prevalence in manual social classes is higher than in non-manual classes. The report concludes that if the trends in young obesity continue, the percentage and numbers of young obese people in England will increase noticeably by 2015 and the existing obesity gap between manual and non-manual classes will widen further.

The HSE 2012 child trend tables show that the rate of obesity in children aged 2 to 15 is 14.0% for boys and 13.5% for girls. The 2012/13 NCMP report shows obesity rates in Year 6 (pupils aged 10-11 years) to be 20.4% for boys and 17.4% for girls.

In a few years it will be possible to compare these figures against the modeled estimates. The definitions of obesity used are contained within the publication. These do differ, which will need to be taken into considered when attempting any comparisons.
References


4 Physical activity among adults

4.1 Background

The health benefits of a physically active lifestyle are well documented and there is a large amount of evidence to suggest that regular activity is related to reduced incidence of many chronic conditions. Physical activity contributes to a wide range of health benefits and regular physical activity can improve health outcomes irrespective of whether individuals achieve weight loss.

Revised physical activity recommendations for adults are that they should achieve a total of at least 150 minutes over a week of at least moderate activity, in bouts of at least 10 minutes duration\(^1\). Moderate activity can be achieved through brisk walking, cycling, gardening and housework, as well as various sports and exercise. Alternately 75 minutes of vigorous intensity activity across the week such as running, football or swimming. All adults should also aim to improve muscle strength on at least two days a week and minimise sedentary activities (see Appendix B for further details).

The main source of data used to monitor adults’ physical activity is the *Health Survey for England (HSE)*. The HSE reports on adults’ physical activity in the four weeks prior to interview by examining overall self-reported participation in activities and by describing frequency of participation and type of activity. The HSE is used as the primary source to measure progress towards achieving physical activity guidelines. The most recent HSE that included questions about physical activity and fitness was 2012\(^2\) when physical activity and fitness was the main focus of the report. In addition to self-reported physical activity, objective measures of physical activity were collected for the HSE in 2008\(^3\). Independent measures of physical activity were recorded in the week following the interview. Physical activity was recorded using accelerometry. Accelerometers measure the duration, intensity and frequency of physical activity for each minute they are worn by the participant, allowing an objective and accurate estimation of activity to be recorded. Fitness levels were also measured using a step test. The HSE in 2007\(^4\) included questions about people’s perceptions and attitudes towards physical activity. This is the most up to date source of information on perceptions and attitudes towards physical activity.

The *Taking Part Survey*\(^5\) (TPS) is a national survey of private households in England which began in mid-July 2005. It is a comprehensive study on how people enjoy their leisure time. Results from the survey include estimates on the prevalence of participation in active sport and reasons given for engagement and non-engagement in sporting activities. From quarter 4 2012/13 the responsibility for reporting Official Statistics on sport participation was moved to Sport England. Sport participation data are reported on by Sport England in the *Active People Survey* – see below.

The *National Travel Survey*\(^6\) (NTS) provides information on personal travel in Great Britain, published by the Department for Transport, and is used in this chapter to look at the frequency of trips made by bicycle and on foot. The *National Travel Survey (NTS) 2010*\(^7\) also asked respondents how often they took walks of 20 minutes or more without stopping, for any reason.

The *Active People Survey*, published by Sport England, provides information on participation in sport and recreation. It provides the measurements for National Indicator 8 (NI8) – adult participation in sport and active recreation, as well as providing measurements for the cultural indicators NI9 and NI11. This is an annual survey, first undertaken in 2005/06 and the latest survey presents data for 2012/13\(^8\).
Part of the Sport England Sport Strategy 2012-17 is the 2012-17 Youth and Community Strategy for England which focuses on people aged 14 plus playing regular sport and on developing opportunities to those who want to progress in a chosen sport. Over £1 billion will be invested over 5 years.

### 4.2 Meeting physical activity guidelines

The latest information on whether physical activity guidelines are being met is derived by summarising different types of activity into a frequency-duration scale. It takes into account the time spent participating in physical activities and the number of active days in the last week.

In the HSE, the summary levels are divided into four categories:

- **Meets recommendations**: a minimum of 150 minutes of moderate intensity physical activity (MPA) per week in bouts of 10 minutes or more or 75 minutes of vigorous intensity physical activity (VPA) per week or an equivalent combination of the two.
- **Some activity**: 60-149 minutes/week of MPA, 30-74 minutes/week of VPA, or an equivalent combination of these.
- **Low activity**: 30-59 minutes/week of MPA, 15-29 minutes/week of VPA, or an equivalent combination of these.
- **Inactive**: less than 30 minutes/week of MPA, less than 15 minutes/week of VPA, or an equivalent combination of these.

#### 4.2.1 Self-reported physical activity

Self-reported physical activity in adults aged 16 and over is presented in Chapter 2, Section 2.3 of the HSE 2012.

Key findings from the chapter are:

- In 2012, 67% of men and 55% of women aged 16 and over met the recommendations for aerobic activity. 26% of women and 19% of men were classed as inactive.
- For both sexes the proportion meeting the aerobic activity guidelines generally decreased with age.
- The proportion of participants meeting the current UK guidelines for aerobic activity increased as equivalised household income increased. 76% of men and 63% of women in the highest income quintile met the new guidelines, falling to 55% of men and 47% of women in the lowest quintile.
- There was a clear association between meeting the guidelines for aerobic activity and body mass index (BMI) category. 75% of men who were not overweight or obese met the guidelines, compared with 71% of overweight men and 59% of obese men. The equivalent figures for women were 64%, 58% and 48%, respectively.

Further information is available in Chapter 2, Section 2.3 of the HSE 2012.

The Active People Survey (APS) measures sport participation amongst adults (aged 16+). The main measure is based on the percentage of adults playing at least 30 minutes of sport at moderate intensity at least once a week. The APS includes additional information on participation in sports by age, gender, ethnicity, socio-economic classification and region. It also presents information on the types of sports people participate in and how participation levels have changed since the start of this survey.
A key finding from the latest APS (April 2012 to April 2013) is that 15.3 million adults (35.2%) played sport at least once a week. This represents a 1.4 million increase on 2005/06 (APS1). Further information is available in the Active People Survey, 2012/13 (APS7).

4.2.2 Objective measures physical activity

Objective measures of physical activity in adults aged 16 and over are given in the HSE 2008. Accelerometers were used to independently measure physical activity over the seven day period following the completion of the self-reported physical activity questionnaire. The accelerometers record information on the frequency, intensity and duration of physical activity in one minute epochs. The HSE 2008 is the most up to date source of information on objective measures of physical activity and has therefore been included in this publication.

Some key findings are:

- Based on the results of the accelerometer study, 6% of men and 4% of women achieved the government’s recommended physical activity level.
- Men and women aged 16 to 34 were most likely to reach the recommended physical activity level (11% and 8% respectively), the proportion of both men and women meeting the recommendations fell in the older age groups.
- On average men spent 31 minutes in moderate or vigorous activity (MVPA) in total per day and women an average of 24 minutes. However, most of this was sporadic activity, and only about a third of this was accrued in bouts of 10 minutes or longer which count towards the government recommendations.

Full details are available in Chapter 3 of the HSE 2008. Included within this chapter is information on the activity patterns for adults on weekdays and weekend days, analyses by BMI (page 68 and Table 3.6), gender and age; as well as a comparison between the self-reported physical activity and the objective measures (pages 70 to 71 and Tables 3.10 to 3.12).

4.3 Physical fitness

Low levels of cardiovascular fitness are associated with increased risk of many health conditions. The HSE 2008 is the most up to date source of information on cardiovascular fitness. Chapter 4: Physical fitness in adults, on pages 89 to 116 of the HSE 2008, presents information on cardiovascular fitness in adults aged 16 to 74 collected using a step test and monitoring participants’ heart rate during and after the test. This test measured the maximal oxygen uptake (VO2max). Oxygen uptake increases rapidly on starting exercise; maximal oxygen uptake is achieved when the amount of oxygen uptake into the cells does not increase, despite a further increase in intensity of exercise. Full details of the step test, the measures of physical fitness and the definitions used in this section can be found in Chapter 4: Physical fitness in adults, on pages 91 to 95 of the HSE 2008.

Physical fitness has been measured only once before on a nationally-representative sample in England. In 1990, the Allied Dunbar National Fitness Survey (ADNFS)9, tested participants’ fitness on a treadmill, by measuring VO2max. The information in the HSE 2008 was analysed to allow comparisons to be made between the HSE 2008 and the ADNFS and this involved converting the results of the step test from the HSE to indicate the percentage of adults who could sustain walking at 3 miles per hour (mph) on the flat and on 5% incline.
The key findings from this chapter are:

- Men had higher cardiovascular fitness levels than women, with an average level of VO$_2$max of 36.3 ml O$_2$/min/kg for men and 32.0 ml O$_2$/min/kg for women. In both sexes, the mean VO$_2$max decreased with age.

- Cardiovascular fitness was lower on average among those who were obese (32.3 ml O$_2$/min/kg among men and 28.1 ml O$_2$/min/kg among women) than among those who were neither overweight nor obese (38.8 ml O$_2$/min/kg and 33.9 ml O$_2$/min/kg respectively).

- Virtually all participants were deemed able to walk at 3 mph on the flat but 84% of men and 97% of women would require moderate exertion for this activity. Thirty two per cent of men and 60% of women were not fit enough to sustain walking at 3 mph up a 5% incline. Lack of fitness increased with age.

- Physical fitness was related to self-reported physical activity. Average VO$_2$max decreased, and the proportion classified as unfit increased, as self-reported physical activity level decreased.

Full details of the physical fitness in adults in 2008 can be found in the Chapter 4: Physical fitness in adults, of the HSE 2008. Details of physical fitness in adults in 1990 can be found in the ADNFS report.

The key findings are:

- Seven out of 10 men and 8 out of 10 women fell below their age appropriate activity level.

- One in 6 people reported having done no activities for 20 minutes or more at a moderate or vigorous level in the previous four weeks.

### 4.4 Participation in different activities

#### 4.4.1 Occupational activity

Adults aged 16 to 74 who had worked (paid or voluntary) in the last four weeks were asked about their moderate intensity physical activity during work, as part of the HSE 2012. Respondents were asked about time spent sitting or standing, walking around, climbing stairs or ladders and lifting, carrying or moving heavy loads.

Some of the key findings are:

- Men averaged significantly more time than women sitting down or standing up (median 6.0 and 5.0 hours per day worked, respectively) but spent similar amounts of time walking around whilst at work (0.8 and 0.5 median hours per day worked, respectively).

- The majority of men and women did not spend any time climbing stairs or ladders (57% of men, 65% of women), or lifting, carrying or moving heavy loads (53% and 69% respectively).

- A slightly greater proportion of men than women considered themselves to be very or fairly physically active at work (61% and 57% respectively); the difference between the sexes was more marked in those aged 16-34 than in older groups.

Further information is available in Chapter 2, Section 2.4.3 of the HSE 2012.
4.4.2 Non-occupational activity

Participation in different activities, outside of work, was collected for all adults aged over 16, as part of the HSE 2012. Physical activities were grouped into four main categories: walking, heavy housework, heavy manual/gardening/DIY and sports and exercise (all for bouts of ten minutes or more).

Some key findings are:

- 46% of men and 37% of women reported walking of at least moderate intensity for 10 minutes or more on at least one day in the last four weeks.
- 59% of women and 48% of men had participated in heavy housework in the past four weeks.
- Participation in heavy manual/gardening/DIY was the least common activity for both sexes: 26% of men and 11% of women participated in this activity in the past four weeks.
- 52% of men and 45% of women had taken part in sports/exercise at least once during the past four weeks.
- 83% of men and 80% of women participated in at least one type of non-occupational physical activity. On average, men participated in activity on 14.7 days in the last four weeks, compared with 12.9 days in women.

Further information is available in Chapter 2, Section 2.4.1 of the HSE 2012.

The National Travel Survey (NTS) reports on the frequency of travel by different modes of transport including walking and cycling.

Some of the key findings from NTS 2012 are:

- In 2012, the average number of walking trips was 212 trips per person per year compared with 292 trips in 1995/97, a decrease of 27% and the lowest trip rate over this time period.
- Cycling is most prevalent among men (23 trips person per year compared with 9 trips by women). However, cycling only makes up 2% and 1% respectively of their total trips.
- Women make more bus trips on average (69 trips per person per year compared with 53 trips by men).

Further information is available in Chapter 3 of the National Travel Survey: 2012.

The National Travel Survey (NTS) 2010 asked respondents how often they took walks of 20 minutes or more without stopping, for any reason. This was not asked in the latest National Travel Survey. The NTS also asked respondents about cycling, access to bicycles, and frequency and length of cycle journeys.

Some of the key findings from this report are:

- In 2010, 41% of respondents (aged 2+) said they made walks of 20 minutes or more at least 3 times a week and a further 23% said they did so at least once or twice a week.
- Twenty per cent of respondents reported that they took walks of at least 20 minutes “less than once a year or never”.
- In 2010, 15% of respondents said they rode a bicycle at least once a week and a further 10% said they did so at least once a month whilst 66% said they use a bicycle less than once a year or never.

The Active People Survey (APS) monitors participation in 32 sports in England and tracks changes in the recorded levels of participation over time. In this survey participation is
defined as the number of adults (aged 16 and over) who have taken part in the sport at moderate intensity for 30 minutes or more at least once in the last week.

In 2012/13, the most common sports that people had participated in were swimming (2,892,200 participants), athletics (1,958,000 participants) and football (1,939,700 participants).

Further information is available in the *Active People Survey, 2012/13 (APS7).*

**4.5 Geographical patterns in physical activity**

**4.5.1 Physical activity levels by Strategic Health Authority**

The *HSE 2012* contains information on self-reported physical activity by regions defined as the former Government Office Regions.

Among men, the (age-standardised) proportions meeting the current aerobic guidelines were highest in the South West and South East (72% in both), and lowest in the North West (59%). There was a similar pattern among women, with highest levels in the South East, East of England and the South West (61%, 60% and 58%), and lowest levels in the North East and North West (48% in both).

Further information is available in *Chapter 2, Table 2.2* of the *HSE 2012.*

**4.5.2 Sport and active recreation by Local Authority**

Within the *Active People Survey 2012/13*, information is collected on sport participation by regions, counties and districts.

*Figure 4.1* shows the proportion of adults who participated in 30 minutes moderate intensity sport at least once a week, in each local authority.

Detailed results of activity levels by regions, counties and districts are available in the *Active People Survey, 2012/13 (APS7).*
Figure 4.1: Adult participation in sport 2012/13

The sports participation indicator measures the number of people aged 16 and over participating in at least 30 minutes of sport at moderate intensity at least once a week. It does not include recreational walking or infrequent recreational cycling but does include cycling if done at least once a week at moderate intensity and for at least 30 minutes. It also includes more intense/strenuous walking activities such as power walking, hill trekking, cliff walking and gorge walking.

Data sources: ONS Boundary Files 2011, Sport England’s Active People Survey 7 (October 2012-October 2013) © Crown copyright. All rights reserved (100044406) (2014).
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### 4.5.3 Physical activity levels in Scotland and Wales

*The Scottish Health Survey 2012* contains information on the self-reported physical activity levels of adults in Scotland.

The key findings are:

- In Scotland, in 2012, 62% of adults (aged 16 and over) were active at the recommended level, whereas 21% had very low activity levels.
- Men were more likely than women to meet the guideline (67% versus 58%).
- In contrast, the proportions of men and women with very low activity levels were much more closely aligned (19% and 23%, respectively).

Further information is available in Chapter 6 of the *Scottish Health Survey 2012*.

*The Welsh Health Survey 2012* contains information on the self-reported physical activity levels of adults in Wales.

The key findings are:

- 29% of adults reported doing at least 30 minutes of at least moderate intensity physical activity, on five or more days a week.
- Overall, a higher proportion of men (36%) than women (23%) were physically active on 5 or more days a week.
- The proportion of people who were physically active on 5 or more days a week decreased with age, particularly for men.
- Some adults (13%) reported that they had done no exercise or physical activity in the past week, and a further 21% had done no more than light activity.

Further information is available in Chapter 4, Section 4.7 of the *Welsh Health Survey 2012*.

### 4.6 Sedentary time

Sedentary time is at least as important as moderate intensity physical activity as a disease risk factor. Sedentary behaviour is not merely the absence of physical activity; rather it is a class of behaviours that involve low levels of energy expenditure. Sedentary behaviours are associated with increased risk of obesity and cardiovascular disease independently of moderate to vigorous activity levels.

Based upon five of the conditions specifically linked to inactivity (coronary heart disease, stroke, diabetes, colorectal cancer and breast cancer), it has been estimated that the direct cost of physical inactivity to the NHS across the UK is £1.06 billion which excludes the costs of other diseases and health problems, such as osteoporosis and falls, which affect many older people and is therefore considered a conservative estimate.

Chapters 2 of the HSE 2012 asked adults about the amount of time they spent in sedentary pursuits including time spent watching television, other screen time, reading and other sedentary activities.

Some key findings are:

- Men were more likely than women to average six or more hours of total sedentary time on both weekdays (31% and 29% respectively) and weekend days (40% and 35% respectively).
Over half of men and women spent four or more hours in sedentary time per weekday and weekend day, regardless of their BMI category.

Among women, the proportion averaging more than four hours of sedentary time on both weekdays and weekend days increased as BMI category increased.

Among men, sedentary time per weekday was significantly higher in participants who were obese.

Further information is available in Chapter 2, Section 2.5 of the HSE 2012.

### 4.7 Knowledge and attitudes towards physical activity

The most up to date source of information on perceptions and attitudes towards physical activity is the HSE 2007.

Some key findings are:

- Around a quarter of adults (27% of men and 29% of women) thought they knew the current recommendations for physical activity in 2007. Fewer than 1 in 10 adults specified a level equivalent to the minimum target for physical activity.

- A high proportion of both men and women aged 16 to 64 perceived themselves to be either very or fairly physically active compared with other people their own age (75% of men and 67% of women).

- In 2007, women were slightly more likely than men to want to be more physically active than at present (69% and 66% respectively).

- Men and women were found to have different barriers to doing more activity. Men were most likely to cite work commitments as a barrier to increasing their physical activity (45%), while lack of leisure time was the barrier most cited by women (37%).

Further information can be found in Chapter 4: Adult physical activity: knowledge and attitudes, of the HSE 2007. This includes differences in attitudes and perception by gender and age (Tables 4.1 to 4.5, 4.8, 4.9, 4.12, 4.13 and 4.16), SHA (Tables 4.6, 4.10 and 4.14) and equivalised household income (Tables 4.7, 4.11 and 4.15).
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5.1 Introduction

The main source of data used in this chapter is the Health Survey for England (HSE). The HSE gathers information on the physical activity levels of children aged 2 to 15. The HSE 2012 gathered information on self-reported participation in physical activities excluding the time spent at school. The HSE 2012 is the most up to date source of information on self-reported physical activity and has therefore been included in this publication.

Other sources of data used in this chapter include the Taking Part Survey (TPS), PE and Sport Survey and the National Travel Survey. The TPS collects data about engagement and non-engagement in culture, leisure and sport, showing how people enjoy their leisure time. The PE and Sport Survey collects information about levels of school sport in schools taking part in the School Sport Partnership Programme in England, while the National Travel Survey is designed to provide a databank of personal travel information for Great Britain.

Data on National and International comparisons are taken from the Scottish Health Survey and the Welsh Health Survey and Health at a Glance 2013: OECD Indicators a report published by the Organisation for Economic Co-operation and Development (OECD) in 2013.

This chapter provides an overview of the published data on physical activity in children and links to other data sources.

5.2 Meeting physical activity guidelines

In 2011 new guidelines on the amount of activity recommended for health were published by the Chief Medical Officers of the four UK countries. For the first time, guidelines were published for children under five. Even for those unable to walk, physical activity should be encouraged from birth onwards. Those able to walk unaided are recommended to be active for at least 180 minutes (3 hours) per day, spread throughout the day. As with the previous guidelines, it was recommended that children aged 5 to 15 should be at least moderately active for at least 60 minutes every day. It was also recommended that vigorous intensity activity, including muscle- and bone-strengthening activities, should be undertaken at least three days each week by children aged 5 to 15.

In the HSE 2012, the summary activity levels for children and young people are divided into three levels:

- Meets recommendations.
- Some activity.
- Low activity.

Full details of how these levels are defined are given in the HSE 2012 in tables 3A and 3B.

5.2.1 Self-reported physical activity

Self-reported physical activity data in children aged 2 to 15 are given in Chapter 3 of the HSE 2012.

A similar proportion of boys and girls aged 2-4 (9% and 10% respectively) were classified as meeting the current guidelines for children under 5 of at least three hours of physical activity per day.
A higher proportion of boys than girls aged 5-15 (21% and 16% respectively) were classified as meeting current guidelines for children and young people of at least one hour of moderately intensive physical activity per day. Among both sexes, the proportion meeting guidelines was lower in older children. The proportion of boys meeting guidelines decreased from 24% in those aged 5-7 to 14% aged 13-15. Among girls the decrease was from 23% to 8% respectively.

Section 3.3 of the HSE 2012 gives more detailed information on children’s self-reported activity levels including activity levels by region, household income, body mass index category (BMI) and in relation to parental physical activity.

The Taking Part Survey collects data on participation in culture, leisure and sport and covers children aged 5-15 years.

Amongst all children (5-15 year olds) the rate of those who had taken part in any sport in the 4 weeks before being interviewed decreased from 2008/09 (91%) to 2012/13 (88%).

Full details are presented in Chapter 2 of the Taking Part 2012/13 Annual Child Report.

### 5.2.2 Objective measures of physical activity

The HSE 2008 collected objective measures of physical activity through using accelerometer data for children aged 4 to 15. Accelerometers measure the movement in one or more planes and can be used to measure physical activity. The HSE 2008 is the most up to date source of information on objective measures of physical activity and has therefore been included in this publication.

Full details of the objective measures of physical activity in children aged 4 to 15 along with the methods of collection are given in Chapter 6: Accelerometry in children, pages 159 to 180 of the HSE 2008. Accelerometers were used to independently measure physical activity over a 7 day period by recording frequency, intensity and duration of physical activity in one minute epochs.

Based on the results of the accelerometer study, more boys than girls were classified as meeting the government’s recommendations for physical activity (33% and 21% respectively). These objective findings are similar to those of the self-report study. However, the accelerometers showed that there was considerable variation by age. For boys aged 4 to 10, 51% met the government recommendations but only 7% of boys aged 11 to 15 had met these recommendations. For girls the pattern was similar, although fewer met the recommendations in either age group. Among girls aged 4 to 10, 34% had met the recommended target, whereas in this study none of the girls aged 11 to 15 had done so.

Chapter 6: Accelerometry in children, of the HSE 2008 includes information on the activity patterns of children and young people for weekdays and weekend days (Section 6.4.2, page 164 and Table 6.3), analyses by BMI category (Table 6.6), equivalised household income (Tables 6.4 and 6.8) and Spearhead PCT status (Section 6.5, page 166 and Tables 6.10 and 6.11). This chapter also contains further comparisons of the results observed in the self-reported and objective measures of activity.
5.3 Types of physical activity

5.3.1 Travel to / from school

Travelling to and from school is been recognised as an opportunity for children to achieve part of their recommended daily physical activity. The HSE 2012 included questions on how children travel to and from school, playgroup or nursery.

- Around two thirds of both boys and girls aged 2-15 walked to or from school on at least one occasion in the last week (64% and 67% respectively).
- More boys than girls aged 2-15 (6% and 1% respectively) cycled to or from school on at least one day in the last week.

Further details are provided in Chapter 3, Section 3.4.1 of the HSE 2012.

The National Travel Survey: 2012 presents information on travel to and from school for children aged 5 to 16. This includes data on the percentage of children walking or cycling to and from school for the years 1995/1997 to 2012 (Table NTS0613).

Figures for 2012 suggest that 42% of 5-16 year olds' main method of getting to and from school is walking, while the main method for 35% of this age group is being driven to school in a car / van. Just 2% used a bike to travel to school as their main mode of transport.

5.3.2 Other types of physical activity

The HSE 2012 provides self-reported data on child participation in formal sports (including any organised team sports such as football, rugby, cricket, and netball, as well as running or athletics, all types of swimming, gymnastics, weight training, aerobics and tennis) and informal activities (including cycling (excluding to/from school), dancing, skating, trampolining, hopscotch, active play, skipping rope, and housework and gardening). Walking (excluding walking to or from school) is presented as part of the informal group of activities. It has been analysed separately as an activity of policy interest. The walks included are of any duration.

- Overall, 93% of boys and 92% of girls had participated in any type of physical activity in the last week.
- Boys were more likely than girls to have participated in formal sports (48% and 38% respectively) on at least one occasion in the last week.
- Participation in walking (52% of boys and 54% of girls) and informal activity (85% among both sexes) were similar.

Further details are provided in Chapter 3, Section 3.4.2 of the HSE 2012.

The Taking Part Survey 2012/13 includes information on the sports that children participated in.

- The latest data show that in the four weeks prior to being interviewed, 81% of 5-10 year olds took part in sport outside of school and 95% of 11-15 year olds took part in sport in or outside of school. These results have remained stable since 2008/09.
- Amongst all children (5-15 year olds) the rate of those who had taken part in any sport in the 4 weeks before being interviewed decreased from 2008/09 (91%) to 2012/13 (88%).
- In the week prior to being interviewed, 67% of 5-10 year olds took part in sport outside of school and 89% of 11-15 year olds took part in sport either in or outside of school.
• This represents a significant decrease since 2008/09 for 5-10 year olds from 75%, but no significant change for 11-15 year olds.

• 83% of 5-15 year old children reported they had participated in some form of competitive sport in the last 12 months. 79% had taken part in competitive sport in school, whilst 37% had taken part outside of school. There have been no significant changes recorded in these figures since 2011/12, which was the first full year this question was asked.

Further details are presented in Chapter 2 of the Taking Part 2012/13 Annual Child Report. The National Travel Survey: 2012 reports on the mode of travel by age and gender. Children (aged 16 and under) made 55% of their trips as car passengers, with most of the rest on foot (32%).

Further details are presented in Chapter 6 of the National Travel Survey: 2012.

5.4 Participation in Physical Education and school sport

The PE and Sport Survey 2009 to 2010 (which followed on from the ‘School sports survey’), aimed to collect information about the levels of participation in physical education (PE) and school sport in schools taking part in the School Sport Partnership Programme in England. In total 21,436 schools and further education (FE) colleges took part in the survey between May and July 2010. This Survey measured the take-up of 3 hours of high-quality PE and out-of-hours school sport in a typical week. This release was last published in September 2010 and is currently discontinued.

5.4.1 Participation in PE and school sport

The key findings from the survey show that in 2009/10, 55% of pupils in years 1-13 of participating schools took part in at least 3 hours of high quality PE and out-of-hours school sport in a typical week.

Among the three types of schools that were surveyed (primary, secondary and special), 64% of pupils in primary schools, 46% of pupils in secondary schools and 64% of pupils in special schools reported participating in at least three hours of high quality PE and out-of-hours school sport in a typical week.

5.4.2 Time spent on PE and school sport

The PE and Sport Survey covers physical activity participated in as part of the curriculum and activities that take place outside of school hours, for example school sports clubs.

The key findings show that overall; pupils in years 1 to 13 in the schools surveyed spent an average of 117 minutes in a typical week in 2009/10 on curriculum PE. The long term trend shows an increase in the average number of minutes pupils take part in PE each week. In 2004/05 the average number of minutes for Years 1 – 11 was 107, compared to 123 in 2009/10. For the first time data was collected by gender and showed that slightly more boys (80%) took part in at least 120 minutes of curriculum PE compared to girls (78%). In Years 1 – 6 there is no difference between the sexes, but on entry to secondary school a difference emerges. At Year 7 this difference is only two percentage points (89% of girls participate in at least two hours of curriculum PE, compared to 91% of boys), rising gradually to reach a four or five percentage point differential in Years 10, 11, 12 and 13.
The *PE and Sport Survey 2009/10* includes full details of the amount of time children in partnership schools spend in PE and out of hours school sport (Chapter 3, pages 9 to 22) including gender patterns (Figure 15 page 22), the types of sports children participate in (Chapter 5, pages 32 to 34), participation in intra- and inter-school competitive activities (Chapter 4, pages 23 to 31) and links to other clubs and organisations (Chapter 6, pages 35 to 36).

### 5.5 Parental participation

The *HSE 2012* collected information on parental activity levels which allow analysis of children’s physical activity levels in relation to parental physical activity. Parental physical activity was classified into three categories, as with children’s, though the definitions were different (see Chapter 3, Section 3.3.6 for definitions).

The key findings show that:

- Overall, 18% of boys aged 5-15 met the physical activity guidelines for children and young people if their father met the MVPA guideline for adults; this compared with 29% of boys with fathers not meeting the guideline.
- Among girls of the same age, the activity level of parents made relatively little difference to the proportion meeting recommendations.

Further details are provided in Chapter 3, Section 3.3.6 of the *HSE 2012*.

### 5.6 Sedentary behaviour

Sedentary time is at least as important as moderate physical activity as a disease factor. Sedentary behaviour is not merely the absence of physical activity; rather it is a class of behaviours that involve low levels of energy expenditure.

The *HSE 2012* asked children about the amount of time spent in sedentary pursuits including time spent watching television, other screen time, reading and other sedentary pursuits.

The key findings show:

- Average total sedentary time (excluding time at school) was similar for boys and girls on weekdays (3.3 hours and 3.2 hours respectively) and weekend days (4.2 hours and 4.0 hours respectively).
- The average time per day spent watching TV on weekdays increased steadily with age in boys (from 1.5 hours for those aged 2-4 to 1.8 hours for those aged 13-15); however, the increase among the same ages was steeper in girls (1.5 to 2.2 hours). Conversely, on weekend days, the increase with age in other sedentary time was steepest for boys (from 1.4 hours for those aged 2-4 to 2.9 hours for those aged 13-15, compared with 1.4 to 2.4 hours in girls).
- For both boys and girls, the average number of hours spent watching TV on both weekdays and weekend days increased as equivalised household income decreased.
- Among children aged 2-10, the mean number of sedentary hours on a typical weekday decreased from 3.0 hours for both sexes in 2008 to 2.9 hours for boys and 2.8 hours for girls in 2012. Among boys aged 11-15, mean sedentary time on weekend days increased from 4.8 hours in 2008 to 5.0 hours in 2012; for girls of similar age, mean sedentary time decreased from 4.8 to 4.5 hours.

Further details are provided in Chapter 3, Section 3.3.6 of the *HSE 2012*. 
5.7 Attitudes and perceptions to physical activity

In the HSE 2007\textsuperscript{10} (which remains the most up to date source) children aged 11 to 15 were asked about their knowledge and attitudes to physical activity. Information was collected on children’s knowledge of how much physical activity they should do related to recommended physical activity targets, perception of their own physical activity levels and their desire to do more physical activity.

The key findings from HSE 2007 showed that:

- When asked how much physical activity children should do, only one in 10 children aged 11 to 15 suggested that it should be 60 minutes or more each day and a further 8% of boys and 3% of girls overestimated the minimum recommendations.

- Most children perceive themselves as being either very or fairly physically active compared with children their own age (90% of boys and 84% of girls respectively).

- Girls were more likely than boys to want to do more physical activity (74% and 61% respectively). When asked about activities they would like to do more of in the future, boys most frequently mentioned ball sports (39%), riding a bike and swimming (both 35%), whereas girls were most likely to mention swimming (47%).

Full details on the behaviour, knowledge and attitudes towards physical activity are provided in Chapter 9: Children’s physical activity, behaviour, knowledge and attitudes, pages 251 to 278 of the HSE 2007.

5.8 National and International Comparisons

National information for Scotland and Wales can be found from their own health surveys. Child physical activity information for Scotland can be found in Chapter 6 of the Scottish Health Survey 2012. This reports that:

- In 2012, 70% of children aged 2-15 were active for at least 60 minutes a day (including school-based activity) with boys significantly more likely than girls to meet the guideline (73% versus 68%). The proportion of children meeting the physical activity guideline has not changed significantly since 2008 (71%).

- Eight in ten children aged 5-7 met the physical activity guideline, at age 13-15 55% did. The drop in the proportion meeting the guideline was most pronounced between the ages of 11-12 (68%) and 13-15 (55%), particularly for girls, for whom there was a 21 percentage point drop in participation levels between these age groups (from 66% to 45%).

- Children’s participation in sports and exercise increased between 1998 and 2009 (from 69% to 73%) before declining to 66% in 2012.

Child physical activity information for Wales can be found in Section 6.6 on page 97 and Table 6.3 on page 102 of the Welsh Health Survey 2011.

Key facts from this section show that:

- Around a third of children were reported as undertaking physical activity for at least an hour on every day of the previous week, more common amongst boys than girls.

- 51% of children were reported as undertaking physical activity for at least an hour on five or more days of the previous week, including 34% who did so every day.

- A higher proportion of boys than girls were reported to undertake these levels of physical activity.
Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

In 2013 the Organisation for Economic Co-operation and Development (OECD) published *Health at a Glance 2013: OECD Indicators* which includes data on physical activity among children based on latest available health surveys.

- In OECD countries, fewer than one in four children report that they undertake moderate-to-vigorous exercise regularly.
- At age 11, Austria, Ireland, Spain, and Finland stand out as strong performers with over 30% of children reporting exercising for at least 60 minutes per day over the past week.
- At age 15, children in the United States are the most active, followed by Ireland, Czech Republic, the Slovak Republic and Canada.
- Children in Denmark, France, Italy, and Switzerland were least likely to report exercising regularly.
- Italy ranks at the bottom end of the spectrum for both boys and girls, and at both ages.
- A consistently higher proportion of boys than girls reported undertaking physical activity, whether moderate or vigorous, across all countries and all age groups.

Further details are provided in Section 2.4 on page 54 and Figure 2.4.1 and 2.4.2 on page 55 of *Health at a Glance 2013: OECD Indicators*.
References

   http://www.hscic.gov.uk/catalogue/PUB13218


   http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey/Publications


   http://www.oecd.org/health/health-systems/health-at-a-glance.htm

8. Guidance from the Chief Medical Office (CMO) on how much physical activity people should be doing, along with supporting documents 

   http://www.hscic.gov.uk/pubs/hse08physicalactivity

    www.hscic.gov.uk/pubs/hse07healthylifestyles
6 Diet

6.1 Introduction

Poor diet and nutrition are recognised as major contributory risk factors for ill health and premature death. This chapter describes information available about purchases and consumption of food and drink among both adults and children. Most of this information comes from three major national surveys:

- Living Costs and Food Survey (LCF)
- National Diet and Nutrition Survey (NDNS)
- Health Survey for England (HSE)

The LCF collects information on the type and quantity of food and drink purchased in households. It was previously known as the Expenditure and Food Survey (EFS), which was renamed in 2008, when it became a module of the Integrated Household Survey (IHS).

Findings from the survey are published annually in the Family Food report, by the Department for Environment, Food and Rural Affairs (DEFRA), with Family Food 2012\(^1\) being the most recent edition. The LCF is conducted throughout the year (January to December) across the whole of the UK.

The NDNS\(^2\) published results from years 1, 2 and 3 combined, of a new rolling programme (2008/09 - 2010/11) of a continuous cross-sectional survey of food consumption, nutrient intakes and nutritional status of people aged 18 months and older living in private households in the UK.

The NDNS involves an interview, a four-day dietary diary and collection of blood and urine samples. The results are used to develop policy and monitor progress towards public health objectives on diet and nutrition, such as the Responsibility Deal Food Network pledges on trans-fat and salt intakes. The data are also used to compare consumption with UK dietary recommendations on healthy, balanced diets and nutrient intakes.

In its previous form, NDNS comprised a series of cross-sectional surveys, each focusing on a different age group. The last survey in this series collected data on consumption for 19 to 64 year olds in Great Britain in 2000/2001, based on a seven-day diary.\(^3\) The last NDNS for those aged 4 to 18 years was carried out in 1997.\(^4\) An NDNS of people aged 65 years and over was carried out in 1994/95\(^5\) and one of young children aged 1½ to 4½ years in 1992/93.\(^6\)

The report of years 1, 2 and 3 combined of the new NDNS rolling programme (2008/09 - 2010/11)\(^2\) focuses on food consumption and nutrient intakes for adults aged 19 to 64 years and those aged 65 years and over. This is also presented for children aged 18 months to 3 years, 4 to 10 years and 11 to 18 years. Intakes are compared with government recommendations. Details of UK nutrient recommendations can be found in Appendix C.

Data on fruit and vegetable consumption among both adults and children are taken from the HSE, as this source is used to monitor the Government's “5-a-day”\(^7\) target, encouraging people to eat at least five portions of fruit and vegetables a day. More detailed HSE data
presented in this chapter are taken from the *HSE 2007*, *HSE 2008* and *HSE 2009* as this is when such data were last reported.

Data on National and International comparisons are taken from the *Scottish Health Survey* and *Welsh Health Survey* and *Health at a Glance* a report published by the Organisation for Economic Co-operation and Development (OECD) in 2013.

6.2 Adults’ diet

6.2.1 Trends in purchases and expenditure on food and drink

Estimates of expenditure and quantities of food and drink purchased and brought into the household have been collected since the mid 1970s by the *National Food Survey* (1974 to 2000), the *Expenditure and Food Survey* (EFS) (2001/02 to 2007) and subsequently the *LCF* (since 2008).

*Family Food 2012* presents trends in UK purchases and expenditure on food and drink, based on the *LCF*. Table 1.2 on page 5 of this report shows quantities of household purchases of food and drink in the UK between 2009 and 2012. Table 1.3 on page 7 shows expenditure on food and drink over the same period. Chapter 5 on pages 47 to 64 presents some analysis on how the rises in food prices in 2010 have affected spending patterns.

Some key findings were:

- Household purchases of fresh and processed vegetables (excluding potatoes) have shown no clear trend since 2009, but have generally been declining since 2005, with a 6.1% fall from 1,156g to 1,086g average weekly consumption per person. This has mainly been due to a decrease in purchases of fresh vegetables, which account for roughly 70% of all vegetable purchases. Purchases of processed vegetables are stable and unchanged from 2009.

- Household purchases of fruit show a similar profile to vegetables. Although there is no statistically significant trend since 2009, purchases have been falling since 2006 and are 16% down from that peak, at 1,107g per person per week on average. Fresh fruit accounts for two thirds of all fruit purchases.

- While overall purchases of fruit and vegetables reduced between 2009 and 2012, consumers spent 8.3% more on fresh and processed vegetables and 11.7% more on fresh and processed fruit.

- The average weekly expenditure on all household food and drinks in 2012 was £29.29 per person, an increase of 4.6% on 2011. Total expenditure on household food and non-alcoholic drink rose by 4.3% in 2012 to £25.98 and was 8.9% higher than in 2009. There have been significant upward trends in household expenditure on total fats and oils, butter, sugar and preserves, fruit and fruit juice, soft drinks and beverages.

*Family Food 2012* also presents some regional analysis of food purchases using a 3 year average. Table 3.4 on page 29 shows purchases of selected food groups by Government Office Region.

Some findings were:

- Household purchases of vegetables (excluding potatoes) were highest in the South West and lowest in the North West (1,201 and 980 grams per person per week respectively).
Household purchases of fruit were highest in East and lowest in the North East (1,265 and 937 grams per person per week respectively).

### 6.2.2 Consumption of food and drink by age and gender

Results from years 1, 2 and 3 combined (2008/09 - 2010/11) of the rolling NDNS programme confirm those published in the previous report for Years 1 and 2 combined (2008/09 - 2009/10).^{14}

Chapter 5 on Dietary intakes from the Headline results of the NDNS Years 1, 2 and 3 (combined) of the Rolling Programme (2008/2009 - 2010/2011) show the key findings for food consumption and nutrient intake based on four-day diaries kept by over 3,000 adults and children in the UK between February 2008 and April 2011. Table 5.3 shows vegetable, fruit, meat and fish consumption (including from composite dishes).

The main findings from the report show that:

- Adults aged 19 to 64 years on average consumed 4.1 portions of fruit and vegetables per day (including the contribution from composite dishes) and older adults (i.e. those aged 65 years and over) 4.4 portions. 31% of adults and 37% of older adults met the “5-a-day” recommendation.
- Mean consumption of oily fish was well below the recommended one portion (140g) per week in all age groups. For example, mean consumption in adults aged 19 to 64 years was equivalent to 54g per week.
- Mean energy intakes for adults were 1,882 kcal/day for those aged 19 to 64 years (2,151 kcal/day for men and 1,614 kcal/day for women) and 1,690 kcal/day for adults aged 65 years and over (1,934 kcal/day for men and 1,501 kcal/day for women).
- Mean saturated fat intakes for all age groups exceeded the recommended level of no more than 11% of food energy. The mean saturated fat intake for adults aged 19 to 64 years was 12.7% of food energy.
- Mean intakes of trans fatty acids provided 0.7-0.8% of food energy for all age groups, which was within the recommendation of no more than 2% food energy.
- Mean intakes of non-milk extrinsic sugars (NMES) exceeded the recommendation of no more than 11% of food energy for all age groups.
- 58% of adults aged 19 to 64 years and 52% of adults aged 65 years and over consumed alcohol during the four-day recording period. Adults aged 19 to 64 years who consumed alcohol during the four-day recording period obtained 9% of energy intake from alcohol; older adult consumers obtained 7%.

### 6.2.3 Purchases of food and drink by income

The eatwell plate forms the basis of the Government’s healthy eating advice to the general population. It makes healthy eating easier to understand by giving a visual representation of the types and proportions of foods that should be eaten to make a well-balanced, healthy diet. This includes snacks as well as meals. The eatwell plate is intended as a guide to the overall balance of the diet over a day or a week rather than for any specific meal.

Food and drink purchases for household supplies were grouped approximately into the five eatwell plate groups. Based on these groupings, Chart 5.4 on page 55 of Family Food 2012 shows the average UK diet for all households and low income households (equivalised income decile 1) compared to the eatwell plate categories.
Looking at balance of diet:

- Neither low income households or all households are close to the eatwell plate.
- Both low income households and all households have a relatively similar diet when compared to the eatwell plate.
- The main difference between low income households and all households is in fruit and vegetable purchases where low income households buy less.

### 6.2.4 Fruit and vegetable consumption

The *HSE Adult trend tables*\(^{15}\) were updated in 2011 for fruit and vegetable consumption. Fruit and vegetable consumption is measured in portions per day for HSE, based on consumption in the day before the interview. Portions are expressed in everyday units such as whole or half fruit and tablespoons or bowls, to make it easier for participants to recall their consumption accurately.

Some key findings in 2011 were:

- 24% of men and 29% of women consumed the recommended five or more portions of fruit and vegetables daily in 2011 (27% of adults).
- Women continued to be more likely than men to consume five or more portions of fruit and vegetables a day in 2011. Consumption varied with age among both sexes, being lowest among those aged 16-24 (15% of men and 20% of women this age ate five or more portions) and higher among the older age groups (30% of men and 36% of women in 55-64 age group).

More detailed data on consumption of fruit and vegetables was last reported in Chapter 8 on pages 137 to 144 of the *HSE 2009* report.\(^{10}\) *Tables 8.1 and 8.2* (pages 146 and 147) show daily consumption and types of fruit and vegetables consumed by age and sex, *Tables 8.3 and 8.4* (pages 148 and 149) show these data age standardised by equivalised household income and *Tables 8.5 and 8.6* (pages 150) show the same information by Spearhead status and sex.

Some key findings in 2009 were:

- Higher consumption was also associated with higher income, and vice versa: 32% of men and 37% of women in the highest income quintile had consumed five or more portions, but only 18% of men and 19% of women in the lowest quintile had done so.
- The proportion of adults eating five or more portions of fruit and vegetables per day was higher among adults in non-Spearhead Primary Care Trusts (PCTs) (27% of men and 31% of women) than in Spearhead PCTs (20% of men and 23% of women).

Scotland and Wales carry out their own health surveys. Fruit and vegetable consumption can be found in Section 5.3 of the *Scottish Health Survey 2012*\(^{11}\) on pages 132 to 134 for adults and on pages 134 to 136 for children. Similarly, fruit and vegetable consumption can be found in Section 4.6 on page 58 of the *Welsh Health Survey 2012* for adults and in Section 6.5 on page 96 for children.\(^{12}\)

In 2012, the percentage of adults consuming the recommended five or more portions of fruit and vegetables daily was 20% in Scotland and 33% in Wales. This compares with 27% for England in 2011 (Health Survey for England 2012 data is not available as fruit and vegetable consumption is only collected in alternate years).
The Organisation for Economic Co-operation and Development (OECD) in 2013 published *Health at a Glance 2013, OECD Indicators* which includes data on fruit and vegetable consumption among adults. Section 2.8 on page 60 and Figures 2.8.1 and 2.8.2 on page 61 shows the percentage of adults who eat fruit or vegetables on a daily basis. Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

The percentage of adults consuming fruit daily varied from 20% in men in Finland, to more than 90% in Australia. Across the 24 countries providing data, an average 57% of men and 69% of women reported to eat fruit daily. Daily vegetable consumption ranged from around 30% in men in Germany to nearly 100% in Korea, with Australia and New Zealand at about the same levels, but counting potatoes as vegetables. The average across 28 OECD countries was 64% for men and 73% for women.

### 6.2.5 Knowledge and attitudes

Chapter 5 on pages 107 to 147 of the *HSE 2007* report (this is the most up-to-date source) asked respondents about their knowledge of and attitudes towards diet and healthy eating. Tables 5.7 and 5.8 (pages 133 and 134) present data on knowledge of fruit and vegetable guidelines, Tables 5.10 and 5.11 (pages 136 and 137) show data on perceptions of diet, Tables 5.12 to 5.16 (pages 138 to 143) on attitudes to healthy eating and Table 5.17 (page 144) on barriers to improving diet.

Some key findings were:

- A higher proportion of women (78%) than men (62%) correctly stated that five portions of fruit and vegetables should be consumed per day.
- The majority of participants believed their own diet to be ‘quite’ healthy (71% for men and 72% for women). Women were more likely to consider that they had a ‘very’ healthy diet compared with men (19% and 16% respectively) and less likely to report their diet as being ‘not very healthy/very unhealthy’ (8% of women and 12% of men).
- The majority of men and women agreed with the statements ‘Healthy foods are enjoyable’ (66% of men and 80% of women) and ‘I really care about what I eat’ (64% of men and 74% women). Few agreed that ‘Healthy eating is just another fad’ (10% of men and 8% of women).

### 6.2.6 Energy and nutrients from food and drink

Trends in energy and nutrient intake are available from Chapter 2 of *Family Food 2012*.

Key findings are:

- Based on food and drink purchases, total energy intake per person was 4.1% lower in 2012 than in 2009. This is a statistically significant downward trend over this four year period that confirms the longer term downward trend already apparent since the mid-1960s. Total energy intake was an average of 2209 kcal per person per day in 2012.
- Energy intake from eating out was 12.5% lower in 2012 than in 2009. Average energy intake from eating out was 219 kcal per person per day in 2012 accounting for 10% of total energy intake.
- The total intake of sodium (excluding table salt) continues to fall, with levels in 2012 3.7% lower than in 2009, a statistically significant downwards trend. Eating out accounted for 10.5% of sodium intake. Sodium intake from eating out fell 11% in 2012 compared to
2009. Major contributors to the sodium content of household food purchases in 2012 include: 'non-carcase meat and meat products', bread and 'other food'.

- Following three years when it was unchanged, fibre intake in 2012 fell to an average of 14.4 grams per person per day, a 4.9% fall from 2009.

*Family Food 2012* also presents some country and regional analysis of energy intake, using data covering the combined years 2010-2012. Table 3.2 on pages 25-26 shows energy and nutrient intakes by UK country and Table 3.6 on pages 31-32 shows the same information by Government Office Region.

Some findings were:

- Total energy intake was lowest in England (2,241 kcal per day) compared to Wales, Scotland, and Northern Ireland which had similar intakes (2,265 2,273 and 2,392 kcal per day respectively).
- Total energy intake was highest in the South West (2,352 kcal per day) and lowest in London (2,167 kcal per day).
- North West had the highest percentage of energy from total fat at 38.8% and West Midlands the lowest at 37.5%.

### 6.3 Children’s diet

#### 6.3.1 Consumption of food and drink

The new *NDNS* Rolling Programme covers children as well as adults. The report of years 1, 2 and 3 combined (2008/09 - 2010/11) focuses on food consumption and nutrient intakes for children aged 18 months to 3 years, 4 to 10 years and 11 to 18 years.

Some key findings include:

- Mean consumption of fruit and vegetables for children aged 11 to 18 years was 3.0 portions per day for boys and 2.8 portions per day for girls. 11% of boys and 8% of girls in this age group met the “5-a-day” recommendation.
- Mean daily intakes for total energy were 1,137 kcal for children aged 1.5 to 3 years, 1,555 kcal for children aged 4 to 10 years and 1,791 kcal for children aged 11 to 18 years.
- Mean intakes of saturated fatty acids for all age groups exceeded the recommended level of no more than 11% of food energy and provided 13.3% food energy for children aged 4 to 10 years and 12.6% for children aged 11 to 18 years.
- Mean intakes of non-milk extrinsic sugars exceeded the recommendation of no more than 11% of food energy in all age groups most notably for children aged 11 to 18 years where mean intakes provided 15.3% food energy.

#### 6.3.2 Fruit and vegetable consumption

The latest *HSE 2012 Child Trend Tables* (Table 7) shows that between 2010 and 2011, the percentage of 5 to 15 year old boys consuming 5 or more portions of fruit and vegetables decreased from 19% to 16%. For 5 to 15 year old girls the corresponding percentages showed no change between this period with the percentage remaining at 20%. Overall, the mean number of portions consumed was 3.0 portions for boys and 3.3 portions for girls in 2011.
Further detailed information on the consumption of fruit and vegetables among children aged 5 to 15 years are given in chapter 14 on pages 333 to 348 of volume 1 of the HSE 2008. Tables 14.1 to 14.3 (pages 342 to 345) show daily consumption and types of fruit and vegetables consumed by age and sex, Table 14.4 (page 346) shows daily consumption by Strategic Health Authority (SHA) and Table 14.5 (page 347) by equivalised household income.

Some key findings in 2008 were:

- Fresh fruit was the most commonly eaten item. More girls than boys reported eating fresh fruit the previous day (72% of girls and 68% of boys). The consumption of fresh fruit was related to age, with younger children consuming more fresh fruit than older children.
- A higher proportion of boys and girls living in the South Central SHA consumed five or more portions of fruit and vegetables per day than children in other regions (25% of boys compared with 15%-23% in other regions and 33% of girls compared with 13%-24% in other regions).
- Boys and girls living in households in the highest income quintile were the most likely to meet the ‘5 a day’ recommendations (27% of boys and 30% of girls). There was little variation among those in the lower quintiles (from 16% to 19% of boys and 17% to 20% of girls).

Health at a Glance: Europe 2013 includes data on fruit and vegetable consumption among children for 2009/10. Again details of the methodologies used by each country are contained within the publications and will need to be considered when attempting comparisons.

Section 2.3 on page 50 and Figures 2.3.1 and 2.3.2 on page 51 shows the percentage of 15 year olds who eat fruit or vegetables on a daily basis. Overall, boys in Canada, Denmark and Portugal, and girls in Denmark, Norway and Canada had the highest rates of daily fruit consumption, while consumption was relatively low in Poland, Sweden, Estonia, and Finland, with rates of around one in four for girls and one in five, or even less, for boys.

Girls in Belgium most commonly ate vegetables daily (60%), followed by Denmark, France, Canada and Switzerland (45-50%). Belgium also led the way for boys (46%), with close to 40% in France, Canada and Ireland. Vegetable consumption in the UK was 40% for girls and 34% for boys.

Chapter 10 on pages 279 to 308 of the HSE 2007 report (this remains the most up-to-date source) asked children aged between 11 and 15 about their knowledge of and attitudes towards diet and healthy eating. Tables 10.6 and 10.7 (page 300) show data on knowledge of fruit and vegetable consumption, Table 10.8 (page 301) on perception of diet, Tables 10.9 to 10.13 (pages 302 to 306) on attitudes to healthy eating and Tables 10.14 and 10.15 (page 307) on factors affecting improvement in diet.

Some key findings in 2007 were:

- Around two in three boys and three in four girls accurately reported that five portions of fruit and vegetables should be consumed each day. However, only 22% of boys and 21% of girls could correctly identify what a portion was.
- More than four in five children regarded their diet as healthy with most saying it was ‘quite healthy’ (70% of boys and 72% of girls) rather than ‘very healthy’ (13% of both boys and girls). Only 1% thought that their diet was ‘very unhealthy’.
- The majority of children aged 11-15 agreed that ‘Healthy foods are enjoyable’ (72% of girls and 64% of boys). There was a more even spread of agreement, disagreement and neutral views about the statement ‘The tastiest foods are the ones that are bad for you’.
References


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7 Health outcomes

7.1 Introduction

The association between obesity and increased risk of many serious diseases and mortality is well documented and has led to the National Institute for Health and Clinical Excellence (NICE) developing guidelines on identifying and treating obesity.¹ This chapter focuses on the health outcomes related to being overweight and obese.

Information from the National Audit Office² (NAO) and a House of Commons Select Committee report,³ is used to establish the broad risk of death and disease associated with obesity. The Health Survey for England 2012 (HSE 2012)⁴ is used to analyse the relationships between Body Mass Index (BMI) and waist circumference and the prevalence of selected diseases in the population.

Data on finished admission episodes and finished consultant episodes related to a diagnosis of obesity are presented using the Hospital Episode Statistics (HES) databank⁵ produced by the Health and Social Care Information Centre (HSCIC).

In addition information on prescription drugs used for the treatment of obesity from the Prescribing Unit at the HSCIC⁶, including data on the number of items prescribed and the net ingredient cost of drugs used in the treatment of obesity are also included. European regulators suspended the marketing authorisation for the weight loss drug Sibutramine in early 2010 amid concerns about a raised risk of heart attacks and strokes. This follows the withdrawal of the marketing authorisation for the less prescribed obesity drug Rimonabant in 2009 for similar reasons.

7.2 Relative risks of diseases and death

Obesity is a major public health problem due to its association with serious chronic diseases such as type 2 diabetes, hypertension (high blood pressure), and hyperlipidaemia (high levels of fats in the blood that can lead to narrowing and blockages of blood vessels), which are major risk factors for cardiovascular disease and cardiovascular related mortality. Obesity is also associated with cancer, disability, reduced quality of life, and can lead to premature death.

Figure 7.1 shows the extent to which obesity increases the risks of developing a number of diseases relative to the non-obese population. For example, it is estimated that an obese woman is almost 13 times more likely to develop type 2 diabetes than a woman who is not obese. These relative risks are based on a comprehensive review of international literature carried out by the NAO to provide the best estimates that could be applied to England (see Appendix A for more details). The basis of the estimates varies due to differences in the methodologies of the studies selected, but the table gives a broad indication of the strength of association between obesity and each of the diseases.
The NAO estimated that in 1998 over 30,000 deaths in England were attributable to obesity\(^2\), approximately 6\% of all deaths in that year. Around 9,000 of these were premature deaths (i.e. occurred before state retirement age). In 2004, research by a House of Commons Select Committee, estimated that 34,100 deaths were attributable to obesity\(^3\). This equates to 6.8\% of all deaths in England.

### 7.3 Relationships between obesity prevalence and selected diseases

Guidance published by the National Institute for Health and Clinical Excellence (NICE) recommends the use of waist circumference in conjunction with BMI for assessing the health risks associated with being overweight or obese. A raised waist circumference is defined as greater than 102cm in men and greater than 88cm in women.

This section looks at the relationship between having an increased BMI and selected diseases and also considers the effect of having a raised waist circumference, using data from HSE 2012. For further information please see Appendix B. In this section, where obese men and women or obesity is referred to it includes morbidly obese.

#### 7.3.1 Blood pressure

Table 1 from the HSE 2012 Adult Trend Tables\(^7\) shows the latest trend information on blood pressure levels by age and gender for 2003-2012.

Within this section, the latest information on blood pressure by BMI and waist circumference have been updated using HSE 2012.

Among adults aged 16 and over, the prevalence of high blood pressure (whether controlled with medication or not) was found to be affected by both increased BMI and raised waist circumference.
Table 10.13 of the HSE 2012 shows that overweight men and women more likely to have high blood pressure than those in the normal weight group (30% compared to 21% in the normal weight group for men and 24% compared to 18% in the normal weight group for women), while obese men and women were most likely to have high blood pressure (43% and 38% respectively). This is also shown in Figure 7.2.

Figure 7.2 High blood pressure by Body Mass Index (BMI) and gender, 2012

Table 10.14 of the HSE 2012 shows that men with a raised waist circumference were more likely to have high blood pressure than those with a waist circumference of 102cm or less (43% compared with 24%). The pattern was similar for women; 32% of those with a raised waist circumference had high blood pressure, compared with 19% of those with a waist circumference of 88cm or less.

7.3.2 Longstanding illness

Table 11 from the HSE 2012 Adult Trend Tables shows the latest trend information on general health, longstanding illness and acute sickness by gender for 1993-2012.

Table 10.17 of the HSE 2012 shows that, in 2012, the prevalence of limiting longstanding illness (whereby a longstanding illness limits the respondents’ activity in some way) was higher among obese men and women (21% and 33% respectively) than those in the normal weight group (15% and 17% respectively). Men and women who were obese were also more likely to report a non-limiting longstanding illness than men and women in the normal weight group. This is also shown in Figure 7.3.
Table 10.18 of the HSE 2012 shows that both men and women with a raised waist circumference were more likely to report having a limiting longstanding illness than those without a raised waist circumference (22% compared with 17% for men and 29% compared with 18% for women).

Table 10.19 of the HSE 2012 shows that neither men nor women who were either overweight or obese score differently on the GHQ12 questionnaire (designed to measure self-assessed general health, acute sickness leading to reduction in recent activity and psychosocial wellbeing) than those men and women in the normal weight group.

No recent data has been collected that discusses cardiovascular disease, diabetes and general health and their relationships with BMI and waist circumference but data using HSE 2006\(^8\) can be found in Chapter 7 of *Statistics on obesity, physical activity and diet: England, 2009\(^10\).*

### 7.4 Hospital Episode Statistics

Data on Finished Admission Episodes (FAEs) and Finished Consultant Episodes (FCEs) are available from the *Hospital Episode Statistics (HES) databank* from the Health and Social Care Information Centre. This section presents recorded FAEs in England where there was a primary or secondary diagnosis of obesity and recorded FCEs in England where there was a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery. These data are based on the tenth revision of the International Classification of Diseases (ICD-10)\(^{11}\). The FCE data for bariatric surgery are based on the Office for Population, Censuses and Surveys: Classification of Intervention and Procedures, 4\(^{th}\) Revision (OPCS-4) codes\(^{12}\). The most recent data available are for the financial year 2012/13.

*The data presented in this report are for inpatients only, so does not reflect all hospital activity. This should be considered when interpreting the data as practice.*
may vary over time and between regions. In particular, practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Inconsistencies in the use of this code may have contributed to the decrease seen this year and the increases seen from 2009/10. See Appendix A for further detail on HES.

HES data is available from 1989-90 onwards. During this time there have been on-going improvements in data quality and coverage, which particularly affect earlier data years. As well as this, there have been a number of changes to the classifications used within HES records. Changes in NHS practice also need to be borne in mind when analysing time series. This may be particularly relevant for admissions with a primary or secondary diagnosis where some of the increases may be attributable to changes in recording practice.

7.4.1 Finished admission episodes with a diagnosis of obesity

A Finished Admission Episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. It should be noted that admissions do not represent the number of inpatients, as a person may have more than one admission within the year. In this chapter an FAE is referred to as a ‘hospital admission’.

Table 7.1 shows that in 2012/13 there were 10,957 hospital admissions with a primary diagnosis of obesity among people of all ages. This is 6.6% less admissions than in 2011/12 (11,736), although this is almost nine times as high as 2002/03 (1,275).

Over the period 2002/03 to 2012/13, in almost every year, more than twice as many females were admitted to hospital than males, with a primary diagnosis of obesity (Figure 7.4). In 2012/13 there was 8,007 female admissions and 2,950 male admissions, and this difference between males and females has been consistent since 2006/07 where there were 2,807 obesity admissions in women and 1,047 in men.

Figure 7.4 Finished Admission Episodes with a primary diagnosis of obesity, by gender, 2002/03 to 2012/13

Source: Hospital Episode Statistics, (HES) Health and Social Care Information Centre
Admissions with a primary diagnosis of obesity fell in each age group except for those aged under 16 (556 in 2012-13 from 495 in 2011-12, a rise of 12.3 per cent), and those aged 65 and over (594 in 2012-13 from 562 in 2011-12, a rise of 5.7 per cent) (Table 7.2, Figure 7.5).

Among Strategic Health Authorities (SHAs) in 2012/13, around a quarter of admissions with a primary diagnosis of obesity occurred in London SHA (2,760), with the next highest number in the North East SHA (1,885). North East SHA had the highest rate of admissions per 100,000 of the population (73) and South Central SHA had the lowest (9). As with the national data, more females were admitted to hospital with a primary diagnosis of obesity than males in each of the SHAs. Note that admission figures cannot be used to compare prevalence of obesity between areas as people may travel for treatment and treatment may be concentrated in some areas. Also SHAs may adopt different treatment practices (Table 7.3).

In 2012/13, there were 292,404 admissions with a mention of obesity (i.e. a primary or a secondary diagnosis). These data show that obesity is far more likely to be recorded as a secondary than a primary diagnosis. Females are more likely than males to be admitted to hospital with either a primary or secondary diagnosis of obesity with 192,795 female admissions with a mention of obesity compared to 99,579 male admissions (but this gap between genders is not to the same extent as for primary diagnoses only) (Table 7.4, Figure 7.6).
Table 7.5 shows that in 2012/13, adults aged 55 to 64 had the highest number of recorded hospital admissions with either a primary or secondary diagnosis of obesity (55,676), followed by those aged 45 to 54 years (51,364) and 65 to 74 years (50,262). This pattern differs from that for admissions with a primary diagnosis only, where it was shown that the highest number of admissions occurred in those aged 45 to 54.

The North West SHA had the largest number of admissions with either a primary or secondary diagnosis of obesity (41,358) and West Midlands SHA had the highest admission rate (720 per 100,000 population). North East SHA reported the least number of admissions (17,409) and South East Coast reported the lowest admission rate (398 per 100,000 of the population). The consistency of reporting diagnoses may vary by SHA and needs to be considered when interpreting these data (Table 7.6).

### 7.4.2 Bariatric surgery

The term ‘bariatric surgery’ is used to define a group of procedures that can be performed to facilitate weight loss, although these procedures can also be performed for other conditions. It includes stomach stapling, gastric bypasses and sleeve gastrectomy, performed on the stomach and/or intestines to limit the amount of food an individual can consume. Such surgery is used in the treatment of obesity for people with a BMI above 40, or for those with a BMI between 35 and 40 who have health problems such as type 2 diabetes or heart disease.

Table 7.7 shows the number of recorded Finished Consultant Episodes (FCEs) where there was a primary diagnosis of obesity and the main or secondary procedure was recorded as one of codes used to define bariatric surgery for the purpose of this report (see Appendix B for a full list of these procedure codes). An FCE is defined as a period of admitted patient care under one consultant within one healthcare provider. The figures do not represent the
number of patients as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year. The figures do not show outpatient activity.

Surgical procedures are recorded using the Office of Population, Censuses and Surveys: Classification of Interventions and Procedures, 4th Revision (OPCS-4) codes. Operative procedure codes were revised from 2006/07. 2012/13, 2011/12 and 2010/11 data uses OPCS 4.6 codes, 2009/10 data uses OPCS 4.5 codes, 2008/09 and 2007/08 data uses OPCS 4.4 codes, 2006/07 data uses OPCS 4.3 codes, data prior to 2006/07 uses OPCS 4.2 codes.

This year, changes have also been made to give a standard definition of “bariatric surgery” using the same methodology as Healthcare Resource Groups (HRGs). The new HRGs were created in 2011/12 Reference Costs collection as a result of work between the National Casemix Office at the Health and Social Care Information Centre, the British Obesity and Metabolic Surgery Society (BOMSS) and the Chapter F Digestive System Expert Working Group (EWG).

This definitional change has a minimal effect on the previous years’ data; between 20 and 30 cases a year from 2009/10 onwards when OPCS 4.5 and 4.6 codes were used, following on from the introduction of a specific code for maintenance of gastric band in OPCS-4.5 in 2009/10.

Data prior to 2006/07 based on the old coding system and the old definition cannot be compared with results based on the revised systems from 2006/07 onwards so data for 2006/07 to 2012/13 are presented separately from previous years. See Appendix B for further details.

Annually the ratio of these recorded FCEs between men and women remained relatively constant with around eight in ten recorded FCEs involving female patients (Table 7.7).

Using the new classifications, in 2012/13 there were 8,024 recorded FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery. Females continue to account for the majority of these; in 2012/13 there were 1,944 such recorded FCEs for males and 6,080 for females.

The data presented in this report are for inpatients only, so does not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. In particular, practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Inconsistencies in the use of this code may have contributed to the decrease seen this year and the increases seen from 2009/10.

London SHA had the highest number of recorded FCEs for bariatric surgery in 2012/13 (2,233), while South Central SHA had the lowest (240). North East SHA had the highest number of FCEs per 100,000 of the population (39). The SHAs with the lowest rates were the East of England SHA and South Central SHA, both with 6 FCEs per 100,000 of the population. (Table 7.8).
7.5 Prescribing

The most commonly prescribed drug for the treatment of obesity by GP practices, in England, was Orlistat (Xenical). Orlistat is a capsule that prevents the absorption of some fat in the intestine.

NHS Prescription services have coded Mazindol within BNF section 4.5 Drugs used in the treatment of obesity, but as prescription data has no information as to why it was prescribed it cannot be stated it was definitely used for the treatment of obesity in this instance. Consequently Mazindol has been excluded, from prescribing data for 2012. The number of data items affected is very small and does not have a major effect on the totals overall.

Drug items prescribed for treating obesity in 2012 (392,000) fell by 56 per cent from 2011 (898,000) and a decrease of 47% on 2002 (737,000).

The Net Ingredient Cost (NIC) is the basic cost of a drug, not taking into account discounts, dispensing costs, fees or prescription charges income. The total NIC for drugs for the treatment of obesity decreased from £31.2 million in 2002 to £13.3 million in 2012, reaching its peak in 2007 at £51.6 million. The NIC per item decreased from £42 in 2002 to £34 in 2012 (which showed a slight increase until 2006 where it peaked at £45) (Table 7.9).

Almost all of the total number of prescription items in 2012 for obesity drugs were for Orlistat. (Figure 7.7).

Figure 7.7 Number of prescription items for the main drugs used for the treatment of obesity dispensed in primary care, 2002 to 2012

Table 7.10 shows prescription data for treatment of obesity by Strategic Health Authority. North West SHA had the greatest number of prescription items in total (68 thousand). North West SHA had the greatest number of prescription items dispensed per head of population (970 items per 100,000) followed by Yorkshire and the Humber SHA (920 items per 100,000). South Central SHA had the lowest with 17 thousand items and also the lowest per head of population at 400 items per 100,000 population.
Figure 7.8 shows that the number of prescription items dispensed for the treatment of obesity per 100,000 of the population in each primary care trust (PCT) varies by PCT, with the lowest number of items prescribed being predominantly in the south.

Figure 7.8 Number of prescription items dispensed for treatment of obesity per 100,000 of the population, by PCT, 2012, England

Data sources: ONS Boundary Files 2011, Prescribing Analyses and Cost (PACT) from the Prescription Pricing Division of the NHS Business Services Authority (PPD of the NHS BSA).

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5. Hospital Episode Statistics (HES). Health and Social Care Information Centre, 2013. The HES data included in this bulletin are not routinely published, but are available on request. http://www.hscic.gov.uk/les

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Appendix A: Key sources

Active People Survey
Allied Dunbar National Fitness Survey
Foresight Tackling Obesities: Future Choices – Project report
Health Survey for England
Hospital Episode Statistics
Living Costs and Food Survey
Low Income Diet and Nutrition Survey
National Diet and Nutrition Survey
National Travel Survey
Organisation for Economic Co-operation and Development (OECD) Health Data 2012
Prescription Pricing Division
Quality Outcomes Framework
School Meals Research Project
School Sport Survey
PE and Sport Survey
Tackling obesity in England
Taking Part Survey

Most of the sources referred to in this publication are National Statistics. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. It is a statutory requirement that National Statistics should observe the Code of Practice for Official Statistics. The United Kingdom Statistics Authority (UKSA) assesses all National Statistics for compliance with the Code of Practice.

Some of the statistics included in this publication are not National Statistics and are included here to provide a fuller picture; some of these are Official Statistics, whilst others are neither National Statistics nor Official Statistics. Those which are Official Statistics should still conform to the Code of Practice for Official Statistics, although this is not a statutory requirement. Those that are neither National Statistics nor Official Statistics may not conform to the Code of Practice for Official Statistics. Unless otherwise stated, all sources contained within this publication are considered robust. A brief explanation and short review of the quality of each of the sets of statistics used in this publication are provided below.

Active People Survey

The Active People Survey (APS) is the largest ever survey of sport and active recreation to be undertaken in Europe. The APS, first conducted by Ipsos MORI on behalf of Sport England, started on the 15th October 2005 and was completed on 16th October 2006. The
sample was evenly divided over each month and spread across the whole year for each LA to ensure the results are not biased by variations associated with different seasons.

Due to the success of the Active People Survey 2005/06, Sport England repeated the survey and plan to run it as a continuous survey. The latest APS started in the middle of October 2012 and ran for twelve months until mid-October 2013. Headline results were published in December 2013.

The primary objective of the APS is to measure levels of participation in sport and active recreation and its contribution to improving the health of the nation. Sport and active recreation includes walking and cycling for recreation in addition to more traditional formal and informal sports. When measuring sports participation the survey were concerned with not only the type of activity but also the frequency, intensity and duration.

Data from the APS is described in Chapter 4 (Physical activity among adults).

The latest report, Active People Survey 7 (2012/13) is available at:

Since 2009, the Active People Survey provides Official Statistics under the Statistics and Regulations Act 2007.

**Allied Dunbar National Fitness Survey**

The ADNFS survey was designed to measure the activity and fitness levels of the adult population (aged 16 and over) in England. A representative sample of 6,000 adults was selected at random throughout the country. The fieldwork was carried out between February and November 1990. A total of 4,316 people completed the home interview stage - a response rate of 75%. Seventy per cent of those interviewed took part in a physical appraisal with 62% attending for tests at a specially equipped mobile laboratory and 8%, primarily the elderly and infirm, being tested on a recurred set of measurements in their homes.

Many aspects of behaviour, attitudes and beliefs were measured in the home interview. These included:

- Levels of participation in sport and active recreation, current and past, including access to facilities and barriers to participation;
- Physical activity at work, in housework, DIY and gardening and in moving about, that is walking, cycling and stair-climbing;
- Other lifestyle and health-related behaviour, including smoking, alcohol and dietary habits;
- Current health status and history of illness;
- Sports-related injuries;
- Knowledge about exercise and attitudes towards physical activity, fitness and health;
- Psychological variables including well-being, social support, stress and anxiety.

Information on the Allied Dunbar National Fitness Survey can be found in Chapter 4 (Physical activity among adults).

Allied Dunbar National Fitness Survey.
http://www.esds.ac.uk/findingData/snDescription.asp?sn=3303
Foresight Tackling Obesities: Future Choices – Project report

One of the Foresight programmes based in the Government Office for Science. The report considers how society might deliver a sustainable response to obesity in the UK over the next 40 years. One objective of the project was to analyse how future levels of obesity might change and to identify the most effective future responses. The report presents key messages and implications for the UK. These are based on an extensive analysis of a wide range of evidence, including several commissioned evidence reviews, a systems analysis of the primary determinants of obesity, scenarios of possible futures and a quantitative model of future trends in obesity and associated diseases.

To achieve this aim Foresight commissioned a model which utilises the dataset of the Health Survey for England from 1994 to 2004 and employs extrapolation and micro simulation techniques to predict the distribution of people across various BMI categories, to 2050. The report also models current and future costs of obesity and obesity related diseases to the NHS. Foresight used the 2002 Health Select Committee’s findings and uses £1 billion as the baseline for obesity attributable healthcare costs in the modeling exercise. The model used forecasted costs solely on the basis of anticipated additional morbidity arising from the increasing prevalence of obesity. Factors other than BMI, including costs of disease were fixed at current levels.

Data used from this report are presented in Chapters 2 and 3 (Obesity among adults and children).

http://www.bis.gov.uk/assets/bispartners/foresight/docs/obesity/17.pdf

Health Survey for England

The Health Survey for England (HSE) is an annual survey, monitoring the health of the population which is currently commissioned by the Health and Social Care Information Centre (HSCIC), and before April 2005 was commissioned by the Department of Health. The HSE has been designed and carried out since 1994 by the Joint Health Surveys Unit of the National Centre for Social Research (NatCen) and the Department of Epidemiology and Public Health at the Royal Free and University College Medical School (UCL). All surveys have covered the adult population aged 16 and over living in private households in England. Since 1995, the surveys have also covered children aged two to 15 living in households selected for the survey, and since 2001 infants aged under two have been included as well as older children. Trend tables are also published each year updating key trends on a number of health areas.

Each survey in the series includes core questions and measurements such as blood pressure, anthropometric measurements and analysis of saliva and urine samples, as well as modules of questions on specific issues that vary from year to year. In recent years, the core sample has also been augmented by an additional boosted sample from a specific population subgroup, such as minority ethnic groups, older people or, as in 2006, 2007 and 2008, children.

This statistical report mainly uses data from HSE 2012. When referring to chapters on physical activity and fitness (Chapters 4 and 5) however, we have referred to the 2008 HSE report as this provides the most recent data on objective measures of physical activity using
measurements recorded using accelerometers and step tests. The 2008 report also investigated associated lifestyle factors such as diet, smoking and drinking, and also assessed the immediate impact of the smoking ban in public places introduced in England in July 2007 as a secondary focus.

This report contains data and information from different HSE years. This is to provide the most current information for the general population that was available at the time of publishing. Where possible, data has been used from the HSE 2012, however there are some restrictions to this. For further details of the HSE data used please see Appendix B (Technical notes).

In 1999, the survey concentrated on the health of adults in six minority ethnic groups: Black Caribbean, Indian, Pakistani, Bangladeshi, Chinese and Irish. In 2004, the survey once again investigated the health of minority ethnic groups; the category of Black African was added to the six groups in the 1999 survey. Some information from the HSE 2004 is included in Chapter 2 (Obesity among adults).

Non-response weighting was introduced to the HSE in 2003, and has been used in all subsequent years. Both weighted and unweighted bases are given in each table. The unweighted bases show the number of participants involved. The weighted bases show the relative sizes of the various sample elements after weighting, reflecting their proportions in the English population, so that data from different columns can be combined in their correct proportions. The absolute size of the weighted bases has no particular significance, since they have been scaled to the achieved sample size.

Since 1995, children’s data each year have been weighted to adjust for the probability of selection, since a maximum of two children are selected in each household. This ensures that children from larger households are not under-represented. Since 2003, non-response weighting has also been applied in addition to selection weighting.

The Health Survey for England is a National Statistic.

Data from the HSE are used in Chapters 1, 2, 3, 4, 5, 6 and 7.

Health Survey for England – reports and trend tables:

Hospital Episode Statistics

Hospital Episode Statistics (HES) is a data warehouse containing details of all admissions to NHS hospitals in England. NHS hospital admissions in England have been recorded using the HES system since April 1987. It includes private patients treated in NHS hospitals, patients who were resident outside of England and care delivered by treatment centres (including those in the independent sector) funded by the NHS. HES also contains details of all NHS outpatient appointments in England as well as detailed records of attendances at major A&E departments, single specialty A&E departments, minor injury units and walk-in centres in England. HES data is available from 1989-90 onwards. During this time there have been on-going improvements in data quality and coverage, which particularly affect earlier data years. As well as this, there have been a number of changes to the classifications used within HES records. Changes have also been made to the organisation of the NHS. Figures have not been adjusted for shortfalls in data (i.e. the data are ungrossed).
HES data are classified using International Classification of Diseases (ICD). The ICD is the international standard diagnostic classification for all general epidemiological and many health management purposes. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and hospital records. The International Classification of Diseases, Tenth Revision (ICD-10), published by the World Health Organisation (WHO) is currently in use.

A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. Finished admission episodes are counted against the year in which the admission episode finishes. Please note that admissions do not represent the number of inpatients, as a person may have more than one admission within the year.

The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital. As well as the primary diagnosis, there are up to 19 (13 from 2002-03 to 2006-07 and 6 prior to 2002-03) secondary diagnosis fields in Hospital Episode Statistics (HES) that show other diagnoses relevant to the episode of care.

Data from HES used in the report show Finished Admission Episodes with a primary diagnosis or secondary diagnosis of obesity. Within HES, diagnoses are recorded using International Classification of Diseases (ICD) codes. From the financial year beginning April 1995 onwards these were classified using the tenth revision of ICD (ICD-10). Details of ICD-10 codes used are included in Tables 7.1 to 7.8. The primary diagnosis is defined as the main condition treated or investigated during the relevant episode of healthcare.

HES data are shown in Chapter 7 (Health outcomes).

Living Costs and Food Survey (LCF), formerly Expenditure and Food Survey (EFS)

The LCF collects information on the type and quantity of food and drink purchased in households. The LCF was previously known as the Expenditure and Food Survey (EFS). It was renamed in 2008 when it became a module of the Integrated Household Survey (IHS).

The Expenditure and Food Survey (EFS) was created in 2001 to replace the National Food Survey (NFS) and the Family Expenditure Survey (FES). The EFS provides data on spending and food purchases since the 1950s. Each household member over the age of seven kept a diary of all their expenditure and quantities of purchased food and drink over a two week period.

Historical estimates of household purchases between 1974 and 2000 have been adjusted to align with the level of estimates from the FES in 2000. Whilst estimates of household consumption from the NFS have been adjusted, a break in the series between 2000 and 2001 remains and should be borne in mind when interpreting reported changes before and after this period.

The aligned estimates are generally higher than the original ones and indicate that the scaling has partially corrected for under-reporting in the NFS. Under-reporting may be lower in the EFS because it does not focus on consumption but on expenditure across the board and is largely based on till receipts.

Reliable estimates on food and drink eaten out from the EFS start in 2001/02, less reliable estimates are available from the NFS going back to 1994.
LFC is the data source for two publications, Family Food, published by the Department for Environment, Food and Rural Affairs and Family Spending, published by the Office for National Statistics.

Chapter 6 (Diet) of this report presents data published in Family Food using the LFC. Throughout the chapter figures used prior to 2001/02 are adjusted NFS estimates. The adjustments brought the results of the NFS into line with the EFS, and tended to increase estimates of food and drink purchases. The largest adjustments were for confectionery, alcoholic drinks, beverages and sugar and preserves. Adjustments for eggs and carcase meat resulted in reduced NFS estimates. Details of the adjustments to the NFS estimates can be found in Family Food 2002/03.

In 2005/06 significant revisions were made affecting estimates from 2001/02 to 2004/05. The revisions introduce estimates of free food into both eating out and household food and quantity and nutrient content for a range of unspecified food purchases which are estimated based on averages of other food purchases recorded in the survey. Examples of free food estimates now included in the survey are meals on wheels, free welfare milk in the home, free milk, fruit and vegetables provided by schools, free meals provided by schools and employers, food purchased for business that is paid for by employer and buffet meals where items are not specified (such as Indian, Chinese, salad bar etc.).

In 2006 the survey moved from a financial year to a calendar year basis in preparation for its integration to the Integrated Household Survey in January 2008. As a consequence there is an overlap of results, data collected between January 2006 and March 2006 are included in the 2005/06 results and the 2006 results. Where the report looks at 3 year averages and 4 year trends this duplication of data has been removed.

As this survey collects information on purchases, consumption is approximated using a wastage estimate. Purchases may differ from actual food consumption for a number of reasons e.g. food may be discarded during preparation, food maybe left on the plate at the end of a meal or food may become inedible before it can be consumed and is thrown away. When average intakes are compared with reference nutrient intakes, a figure of 10% is used for wastage on all types of food and drink. Trends in energy and nutrient content of the purchases are based on a database of nutrient profiles for different types of food which are kept up to date by the Food Standards Agency.

Data from the latest Family Food and LCF can be found in Chapter 6 (Diet).

Expenditure and Food Survey.
http://discover.ukdataservice.ac.uk/series/?sn=2000028


Family Spending.

Family Food conforms fully to National Statistics Standards.

National Diet and Nutrition Survey (NDNS)

The National Diet and Nutrition Survey (NDNS) programme aims to provide a comprehensive picture of the dietary habits and nutritional status of the population of the Britain. In its original form the NDNS was a series of cross-sectional surveys covering the
whole population from age 1½ years upwards, split into four different population age groups: children aged 1½ to 4½ years (fieldwork 1992/93), young people aged 4 to 18 years (1997), adults aged 19 to 64 years (2000/01) and people 65 years and over (1994/95).

Following a review of the Food Standards Agency’s dietary survey programme in 2002/03 the NDNS has now moved to a rolling programme in which the survey will run continuously with fieldwork every year, (which started in 2008) covering a UK representative sample of both adults and children. This will strengthen the ability to track changes over time and give flexibility to respond more rapidly to changing data requirements.

In July 2012, the Department of Health published the combined results from the first three years of the National Diet and Nutrition Survey (NDNS) rolling programme (2008/09 - 2010/11). These results supersede the results from the first two years of the survey combined, published in 2011.

Data from the NDNS are essential for underpinning a wide range of the Food Standards Agency’s work to protect consumer safety and promote healthy diets. The survey provides detailed data on foods consumed by individuals and nutrient intakes with additional information on nutritional status (derived from analysis of blood samples), physical measurements and lifestyle habits such as smoking, drinking and physical activity.

The components of the survey

The survey includes various components (described below) in order to obtain the wide range of information required. Respondents may choose to participate in some components but not in others. The components of the most recent NDNS of adults aged 19-64 years are described below.

Dietary interview

Initially a face-to-face dietary interview was carried out with the household member selected to take part in the survey (the respondent), to provide information about their eating and drinking habits, their socio-demographic circumstances (e.g. age and marital status) and the socio-demographic circumstances of their household (e.g. benefit status).

Seven-day weighed intake dietary record

Respondents were also invited to complete a dietary record for seven days. This involved weighing and recording all food and drink consumed both at home and away from home, including medicines taken by mouth and drinks of water. The dietary record collected detailed information in order to look at the range of food consumption and nutrient intake within the population. Food and nutrient intake data could also be related to physical activity and various nutritional status and health measures.

Other components

These included a 24-hour urine collection (used to estimate salt intake); physical measurements (BMI, blood pressure and waist and hip circumferences); a seven-day physical activity record (to allow an investigation of the relationships between dietary intakes, body composition and physical activity levels); and a blood sample (which was analysed for a range of nutritional status indicators which reflect the levels of certain nutrients available for use in the body).

The information from the dietary record was linked to a nutrient databank and nutrient intakes were calculated from the quantities of foods consumed. No attempt has been made to adjust the nutrient intakes presented here to take account of underreporting.

Data from the NDNS can be found in Chapter 6 (Diet).

Issues associated with reporting food consumption in dietary surveys

Misreporting of food consumption in dietary surveys, generally under-reporting, is known to be a problem in dietary surveys worldwide. Under-reporting can cause biased low estimates of intake as respondents under-report their actual intake or modify their diet during the recording period. The level of under-reporting needs to be borne in mind when interpreting findings from dietary surveys, for example in comparing intakes with recommendations. Analysis of data from the NDNS adults 2000/01 indicated that energy intake could be under-reported by about 25%. It is not possible to ascertain whether under-reporting was higher in this survey than in the 1986/87 survey because there was no assessment of physical activity or energy expenditure in the earlier survey. Later studies suggest similar levels of under-reporting for other age groups except for pre-school children where levels were lower. There is evidence that under-reporting is selective – fatty, sugary and snack foods and alcohol are more likely to be under-reported than are other foods such as fruit and vegetables. However the level of under-reporting for specific macro and micronutrients is not known.

The National Diet and Nutrition Survey is an official statistic.

National Travel Survey

The National Travel Survey (NTS) is a survey on personal travel. It provides the Department for Transport with data to answer a variety of policy and transport research questions. The 2012 NTS is the latest in a series of household surveys designed to provide a databank of personal travel information for Great Britain. It is part of a continuous survey that began in July 1988, following ad hoc surveys since the mid-1960s. The survey is designed to identify long-term trends and is not suitable for monitoring short-term trends.

NTS respondents keep a travel diary of their trips within Great Britain over a seven day period. Travel details provided by respondents include trip purpose, method of travel, time of day and trip length. The households also provided personal information, such as their age, gender, working status and driving licence holding, and details of the cars available for their use. In order to minimise the burden of completing the diaries respondents include walks of under one mile on the seventh day only, but all tables in this publication include data on short walks (over 50 yards) grossed up for the full seven day period.

National Travel Survey 2012. The Department for Transport, 2013

This is a National Statistic.
Organisation for Economic Co-operation and Development
HEALTH AT A GLANCE 2013: OECD INDICATORS

Released during November 2013, this report offers the most comprehensive source of comparable statistics on health and health systems across OECD countries. It is an essential tool for health researchers and policy advisors in governments, the private sector and the academic community, to carry out comparative analyses and draw lessons from international comparisons of diverse health care systems.


http://www.oecd.org/health/health-systems/health-at-a-glance.htm

Prescription Pricing Division

Prescription statistics in this report are for calendar years. All prescription statistics in this report are based on information systems at the NHS Business Services Authority Prescription Pricing Division (NHSBSA (PPD)). The system used is the Prescription Analysis and Cost Tool (PACT). This system is based on an analysis of all prescriptions dispensed in the community, i.e. by community pharmacists and appliance contractors, dispensing doctors, and prescriptions submitted by doctors for items personally administered.

Each item written on the prescription form (FP10) is counted a single prescription item regardless of the quantity prescribed. Therefore differences in prescribing practices between GPs are not reflected in this data. The counts include items that are prescribed by GPs, nurses, pharmacists and others in England and then subsequently dispensed in the community. Therefore prescriptions that are written but not actually dispensed to the patient (or their representative) are not counted. Prescriptions written in hospitals or clinics that are dispensed in the community, prescriptions dispensed in hospitals, dental prescribing and private prescriptions are also not included.

Data from the Prescription Pricing Division can be found in Chapter 7 (Health outcomes).

Quality and Outcomes Framework

The Quality and Outcomes Framework (QOF) was introduced as part of the new General Medical Services (GMS) contract on 1 April 2004. It is a voluntary annual reward and incentive programme for all GP surgeries in England, detailing practice achievement results. The QOF contains four main components, known as domains. Each domain consists of a set of measures of achievement, known as indicators, against which practices score points according to their level of achievement.

QOF is measured by QMAS, a national IT system developed by NHS Connecting for Health (CfH). It is not a comprehensive source of data on quality of care in general practice, but it is potentially a rich and valuable source of such information, providing the limitations of the data are acknowledged. The Prescribing Support Unit (PSU), part of the Health and Social Care Information Centre, works on behalf of the Department of Health and in collaboration with CfH to obtain extracts from QMAS to support the publication of QOF information.

QMAS captures the number of patients on the clinical register for each practice. The number of patients on the clinical registers can be used to calculate measures of disease prevalence.
expressing the number of patients on each register as a percentage of the number of patients on each practice lists.

Data from the QMAS database can be found in Chapter 2 (Obesity among adults).


This is an Official Statistic

School Meals Research Project

In 2001 National Nutritional Standards were reintroduced to set out the frequency with which school caterers must provide items from the main food groups. The Department for Education (DfE) and the Food Standards Agency (FSA) commissioned a survey in 2003 to assess compliance with the standards and to measure food consumption in school among secondary school pupils. The survey was conducted in a nationally representative sample of 79 secondary schools across England providing information about catering practise and food provisions at lunchtime and information about the food selections and nutrient intake of 5,695 secondary school pupils aged 11 to 18.

This document is referred to in Chapter 6 on Diet.


School Sport Survey

The Department for Education (DfE), formerly Department for Children, Schools and Families (DCSF)) commissioned Target Nutrient Specifications (TNS), an independent research company, to conduct the fifth and final annual survey of school sport in England covering the academic year 2007/08. The survey aimed to collect information about levels of participation in physical education (PE) and school sport in partnership schools. In total, 21,631 schools within school sport partnerships took part in the survey between May 2008 and July 2008. The 2007/08 survey reported on what over 6 million school children are doing in terms of physical activity. The survey is the largest of its kind in Europe.

School sports partnerships bring primary, special and secondary schools together in a network benefiting from extra staff and funding to increase sports opportunities for pupils. At the time of the 2007/08 survey 90% of pupils in schools within the School Sport Partnership programme participated in at least two hours of high quality PE and out of hours school sport in a typical week. This compared to 86% in 2006/07, 80% in 2005/06, 62% in 2003/04 and the estimated position of 25% in 2002.


PE and Sport Survey

In 2008/09 TNS-BMRB (formerly TNS), an independent research company, was commissioned to conduct a further survey of school sport and to provide a consistent dataset to help understand further progress that has been made within partnership schools. The latest 2009/10 survey continued in its aims to collect information from all partnership schools
in the mainstream sector in England and from all Further Education (FE) colleges. Information was collected on the proportion of pupils receiving 2 hours of curriculum PE and the proportion of pupils participating in at least 3 hours of PE and school sport.

Data from the School Sport Survey can be found in Chapter 5 (Physical activity among children).

The PE and School Sport Survey 2009/10.

This is an official statistic.

Tackling obesity in England

In 2001, the National Audit Office (NAO) produced this report which among other subjects, estimated the cost of treating obesity. Costs of obesity were estimated by taking a prevalence-based, cost of illness approach based on extensive literature review and using published data. The cost of treating obesity covers the costs of GP consultations related to obesity, hospital admissions and outpatient attendances and drugs prescribed to help obese patients lose weight. The most recent published data on incidence of these events in England was multiplied by unit costs to calculate a total cost. Prescription costs for obesity were taken from Prescription Cost Analyses reports for England.

The cost of treating the consequences of obesity covered the cost of treating diseases such as coronary heart disease which can be directly attributed to obesity. The cost of treating these diseases was estimated by calculating the relevant population risk proportion. A systematic review of literature was undertaken to establish for each disease, the best data available on the proportion of that disease in the population that was attributable to obesity. This proportion was defined by the relative risk of developing the associated diseases for individuals with obesity compared to the risk for non-obese individuals.

To establish the cost of treating associated diseases in 1998, data on GP consultation rates, hospital inpatient admissions and hospital outpatient attendances were obtained. These were multiplied by unit costs to derive an estimate of the NHS treatment costs for each disease. Prescription costs were taken from Prescription Cost Analyses reports for England. These cost estimates were then applied to the data on relative risk and age and sex specific prevalence of obesity from the HSE to give an estimate of the cost of treating the consequences of obesity.

Also, the cost of treating the consequences of obesity is likely to be under-estimated. There are a number of potentially important diseases that were excluded from the analyses because of the lack of data to allow an estimate of the proportion of treatment costs that could be attributed to obesity, for example, depression, hyperlipidaemia and back pain, because no studies were identified in the review that reported the relative risk for obese individuals of developing these conditions. Other limitations of the study are the differing definition of obesity in some of the studies (although no bias was determined), the application of the international studies to the UK population and the cost to other public organisations is not covered e.g. costs to social services.

Tackling Obesity in England.
Taking Part Survey

The Taking Part Survey (TPS) collects data on many aspects of leisure, culture and sport in England, as well as an in-depth range of socio-demographic information on respondents.

The need for consistent, high quality national data on engagement with culture and sport led to Department for Culture, Media and Sport (DCMS) and three partners (Arts Council England, English Heritage and Sport England) commissioning the Taking Part survey, the first of its kind to provide data of this quality.

The DCMS’ current Public Service Agreements (PSAs) have a significant focus on increasing participation in Arts, Sport, Museums and Heritage, particularly by a range of ‘priority groups’. The TPS has now become the mechanism for monitoring progress against several of these targets.

Since mid-July 2005, BMRB Social Research (now integrated with TNS Social Research) has been conducting continuous face to face interviews with adults aged 16 or over living in private households in England.

From January 2006, children aged 11-15 were included within the survey and in 2008/09, children aged 5-15 were surveyed.

Data from the Taking Part Survey are used in Chapters 4 and 5 (Physical activity among adults and children).

Taking Part: statistical releases

https://www.gov.uk/government/collections/sat--2

This is a National Statistic.
Appendix B: Technical notes

**Overweight and obesity**
- Adults Body Mass Index (BMI)
- Children - UK National BMI percentile classification
- Children - International Obesity Task Force (IOTF)
- National Institute for Health and Clinical Excellence (NICE) guidance

**Physical activity among adults**
- Objective measures of physical activity - Summary activity levels
- Activity types, frequency, duration, and intensity
- Objective measures of physical activity - Fitness
- English, Scottish and Welsh comparisons among adults

**Physical activity among children**
- Objective measure of physical activity

**Active sport**

**Diet and nutrition**
- Fruit and vegetable portions
- Estimated average requirements and reference nutrient intakes

**Health Survey for England**
- Data collection and burden
- Use of HSE data from different years
- General Health Questionnaire (GHQ12)
- Blood pressure
- Equivalised household income quintiles
- Logistic regression
- Hospital Episode Statistics - coding for Bariatric Surgery

**Overweight and obesity**

**Adults Body Mass Index (BMI)**
Overweight and obesity among adults is measured in the Health Survey for England (HSE) using Body Mass Index (BMI). The BMI is calculated by dividing weight in kilograms, by the square of the height in metres (kg/m\(^2\)).

\[
BMI = \frac{\text{Weight (kg)}}{\text{Height}^2 (m^2)}
\]
Adults are classified into the following BMI groups:

<table>
<thead>
<tr>
<th>BMI range (kg/m²)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5 to less than 25</td>
<td>Normal</td>
</tr>
<tr>
<td>25 to less than 30</td>
<td>Overweight</td>
</tr>
<tr>
<td>30 and over</td>
<td>Obese</td>
</tr>
<tr>
<td>40 and over</td>
<td>Morbidly obese</td>
</tr>
<tr>
<td>25 and over</td>
<td>Overweight including obese</td>
</tr>
</tbody>
</table>

**Children - UK National BMI percentile classification**

Due to differences in growth rates among boys and girls at each age, it is not possible to apply a universal formula in calculating obesity and overweight prevalence in children. Each sex and age group therefore needs its own level of classification for obesity. The British 1990 growth reference (UK90) percentiles are therefore used which gives a BMI threshold for each age above which a child is considered overweight or obese; those children whose BMI is above the 85th percentile are classified as overweight and those children whose BMI is above the 95th percentile are classified as obese. The percentiles are given for each sex and age. According to this method, 15% and 5% of children in 1990 had a BMI above this level and were thus classified as overweight/obese. Increases over 15% and 5% in the proportion of children who exceed the reference 85th/95th percentiles over time indicate an upward trend in the prevalence of overweight and obesity. Unless otherwise specified figures relating to the prevalence of childhood obesity in this report are determined by this method.

**Children - International Obesity Task Force (IOTF)**

This is an alternative method of determining childhood obesity. It is based on BMI reference data from six different countries around the world (over 190,000 subjects in total aged 0 to 25 from UK, Brazil, Hong Kong, the Netherlands, Singapore, and the United States). The BMI percentile curves that pass through the values of 25 kg/m² and 30 kg/m² (standard cut-off points for overweight and obesity, respectively) at age 18 were smoothed for each national dataset and then averaged. The averaged curves were then used to provide age and sex-specific BMI cut-off points for children and adolescents aged 2 to 18. The benefit of this approach is that it allows international comparisons of levels of obesity in children to be made. Figures derived using this method are discussed in Chapter 3 (Obesity among children) of this bulletin commenting upon results from Foresight: Tackling Obesities: Future Choices.

For further information: [http://www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/KeyInfo/Index.asp](http://www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/KeyInfo/Index.asp)
National Institute for Health and Clinical Excellence (NICE) guidance

NICE guidance suggests that the measurement of waist circumference should be used for people with a BMI less than 35kg/m\(^2\) to assess health risks (as shown in the table below). For adults with a BMI of 35kg/m\(^2\) or more, risks are assumed to be very high with any waist circumference.

**Assessing risk from overweight and obesity**

<table>
<thead>
<tr>
<th>BMI classification</th>
<th>Waist circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Normal weight (18.5 to less than 25kg/m(^2))</td>
<td>No increased risk</td>
</tr>
<tr>
<td>Overweight (25 to less than 30kg/m(^2))</td>
<td>No increased risk</td>
</tr>
<tr>
<td>Obesity I (30 to less than 35kg/m(^2))</td>
<td>Increased risk</td>
</tr>
<tr>
<td>Obesity II (35 to less than 40kg/m(^2))</td>
<td>Very high risk</td>
</tr>
<tr>
<td>Obesity III (40kg/m(^2) or more)</td>
<td>Very high risk</td>
</tr>
</tbody>
</table>

For men, low waist circumference is defined as less than 94cm, high as 94-102cm and very high as greater than 102cm. For women, low waist circumference is less than 80cm, high as 80-88cm and very high as greater than 88cm.

Source:
National Institute for Health and Clinical Excellence (NICE) guidelines.
Further information on the NICE guidelines. [http://www.nice.org.uk/guidance/CG43](http://www.nice.org.uk/guidance/CG43)

Physical activity among adults

The Health Survey for England (HSE) 2012 is the most recent to include questions about physical activity and fitness, where physical activity and fitness was the main focus of the report.

The physical activity module was first used in the HSE in 1991, repeated in 1992 to 1994 with minor changes, and received more substantial revisions in 1997 and 1998 (producing what is generally referred to as the ‘long’ version of the questionnaire). A ‘shorter’ version of the questionnaire was introduced in 1999, when the focus was minority ethnic groups; the shorter questionnaire was repeated in 2002, 2003 and 2004. In 2006, a slightly modified version of the long (1998) form of the questionnaire was used. In 2008, a new occupational physical activity set of questions were included within the questionnaire and additional questions on sedentary behaviour were also asked. To enable continuation of these trend data, the same methods for analysis were used in 2008, as well as the more detailed definition possible for 2008 using the enhanced questionnaire.

Objective measures of physical activity - Summary activity levels

In 2011, the Chief Medical Officers of the four UK countries introduced revised guidelines for physical activity. The most recent information on whether physical activity guidelines are being met is derived by summarising different types of activity into a frequency-duration...
scale. It takes into account the time spent participating in physical activities and the number of active days in the last week.

In the HSE, the summary levels are divided into four categories:

- **Meets recommendations**: a minimum of 150 minutes of moderate intensity physical activity (MPA) per week in bouts of 10 minutes or more or 75 minutes of vigorous intensity physical activity (VPA) per week or an equivalent combination of the two.

- **Some activity**: 60-149 minutes/week of MPA, 30-74 minutes/week of VPA, or an equivalent combination of these.

- **Low activity**: 30-59 minutes/week of MPA, 15-29 minutes/week of VPA, or an equivalent combination of these.

- **Inactive**: less than 30 minutes/week of MPA, less than 15 minutes/week of VPA, or an equivalent combination of these.

For comparisons of summary activity levels over time, HSE 2008 self-report data have been analysed with the lower duration for activities set to 30 minutes, to be comparable with results obtained from the shorter questionnaire used in 2003 and 2004. 1997 and 1998 data were also reanalysed using this longer minimum duration, to enable data for the five years to be compared. In 2008 bouts of activity lasting at least 10 minutes counted towards meeting the recommendations. Therefore, three bouts of activity lasting at least 10 minutes each would be considered sufficient to meet the recommendations on that day. Because bouts of activity lasting a minimum of 30 minutes are being used for comparison with results from previous years, the results presented in this chapter are likely to be an underestimate of the proportion of the population that meets the revised recommendations. The 2012 questionnaire was similar to that used in 2008 but with a number of additional questions, details of which can be found in the next section.

### Activity types, frequency, duration, and intensity

Details about four main types of physical activity were included in the questionnaire. For most activities in which they had participated, respondents were asked on how many days in the last four weeks they had done the activity for at least 10 minutes, and the average length of time spent on those days.

1. **Home activity** consisted of housework and gardening/DIY/building work. The lead-in question was ‘Have you done any housework in the last four weeks?’ Participants were shown a card with a list of examples of light housework and were asked if they had done any of the listed activities. They were then shown another card with examples of heavy housework, and frequency was accessed for these higher intensity activities. A similar sequence of questions was asked for gardening/DIY/building work. Frequency of light home activity (i.e. those activities listed in the first set of show cards) was not assessed.

2. **Walks**: The key question was ‘During the past four weeks, on how many days did you do a walk of least 10 minutes?’ Walking intensity was assessed by asking participants to rate their usual walking pace (slow / average / fairly brisk / fast). An additional question introduced in 2012 asked participants aged 65 years and over whether the effort of walking for 10 minutes or more was usually enough to make them ‘breathe faster, feel warmer or sweat’.

3. **Sports and exercise**: participants were asked ‘Can you tell me on how many separate days you did (name of specific sport and exercise activity) for at least 10 minutes at a time during the past four weeks?’, followed by a question about the activity’s usual
duration on these days. The intensity of these activities was assessed by asking participants whether or not the activity had made them ‘out of breath or sweaty’.

4. **Occupational activities:** After establishing whether participants did any paid or unpaid work in the last four weeks, the key question was *Which of these did you do whilst working?* Answer categories were sitting down or standing up; walking at work; climbing stairs or ladders; lifting, carrying or moving heavy loads. This was followed by a question about the average time spent on that type of activity on a typical work day.

New questions introduced in 2012 asked those participants reporting that they did some climbing of stairs or ladders, or lifting, carrying or moving heavy loads, whether they engaged in that activity every working day, or only on some days. Those replying that they engaged in that activity on only some days were then asked on how many work days in the last four weeks they did that activity.

As in previous years, participants were also asked *‘Thinking about your job in general would you say that you are…very physically active; fairly physically active; not very physically active; not at all physically active?’*

**Objective measures of physical activity - Fitness**

Physical fitness, also called functional capacity, is the ability of an individual to perform work. The most common form of work capacity assessed is the aerobic component, measured by the maximal oxygen uptake (VO2max). Oxygen uptake refers to the use of oxygen by the body’s cells. Oxygen uptake rises rapidly on starting exercise and reaches a plateau (steady state VO2) by three to five minutes of steady exercise. Maximal oxygen uptake is reached when oxygen uptake does not increase despite further increase in intensity of the exercise (e.g. running faster or up a steeper incline), although not everyone has such a plateau. VO2max is typically achieved by exercise that involves only about half the total body musculature.

The *HSE 2008* is the most up to date source of information on cardiovascular fitness. Physical fitness in adults, on pages 89 to 116 of the *HSE 2008*, presents information on cardiovascular fitness in a sub-sample of adults aged 16 to 74 who had their fitness levels assessed using a step test. An indirect method of measuring physical fitness was chosen because of the survey design of conducting the tests in participants’ homes; direct measurement of oxygen consumption was therefore not possible. The decision to use a step test rather than a treadmill or cycle ergometer was also made for practical reasons. A single step was chosen as this was easier for the nurses to transport to participants’ homes than the double step that was piloted with considerable problems in 2005.

The physical fitness test consisted of the step test originally developed by researchers at Medical Research Council (MRC) Cambridge. The test involved the subject stepping up and down a single step. The pace was given digitally by the nurse’s laptop and the stepping lasted a maximum of eight minutes. The pace of stepping increased through the duration of the test. The participant stepped up and down first at a slow pace for one minute, at a rate of one leg movement per second. This equates to one body lift (i.e. the respondent stepping up and back down from the step) over four seconds. Then the stepping pace gradually increased over the next seven minutes until, by the end of the eighth minute, the frequency was 33 body lifts per minute (i.e. one body lift in just under two seconds).

The participant’s heart rate was the primary outcome measure of the step test. The heart rate was recorded at 30 second intervals during the test and at 15 second intervals for two minutes after the step test ended. The participant wore a Polar heart rate monitor round the chest which transmitted the heart rate to a receiver worn on the participant’s wrist. Using a
stop watch to mark the time intervals, the nurse recorded the heart rate detected by the monitor. These heart rate measurements were then combined with the resting heart rate obtained earlier during blood pressure measurement to determine the submaximal relationship between heart rate and oxygen uptake. This relationship was then extrapolated up to age-predicted maximal heart rate to provide an estimate of the individual’s maximal oxygen uptake (VO$_2$max), the overall level of fitness.

Fitness categories in the HSE 2008 were defined as follows:

- **Light exertion:** requiring less than 30% of that person’s VO$_2$max
- **Moderate exertion:** requiring 30-64% of that person’s VO$_2$max
- **Severe exertion:** requiring 65-100% of that person’s VO$_2$max (therefore unsustainable for any substantial length of time)
- **Maximal exertion:** requiring more than 100% of that person’s VO$_2$max

**English, Scottish and Welsh comparisons among adults**

The Scottish Health Survey (SHS) 2012 physical activity module is based on the Allied Dunbar National Fitness Survey (ADNFS). A very similar questionnaire was used in both the 1998, 2003 and 2008 SHS.

Participants were asked about their participation in 4 types of activities:

- **Home-based activities** (housework, gardening, building work and DIY);
- **Walking**;
- **Sports and exercise**;
- **Activity at work**.

Prior to the SHS 2008, duration of participation in physical activities was set to 15 minutes. However, as the CMO recommendations state that activity can be accumulated in bouts of 10 minutes the questionnaire was updated in 2008 to include activities of 10 to 14 minutes duration.

For the first three categories, participants were asked to report any activities that lasted at least 10 minutes and the number of days in the past four weeks in which they had taken part in such activities. For walking, participants were also asked on how many days they had taken more than one walk of at least 10 minutes. Where a participant had taken more than one walk, the total time spent walking for that day was calculated as twice the average reported walk time.

In addition, those in full or part-time employment were asked about activity while at work. These participants were asked to rate how physically active they were in their job (options were: very physically active, fairly physically active, not very physically active and not at all physically active). This question on intensity was used in combination with a new question on sedentary activity at work to produce estimates of the duration of moderate activity at work per week. As this information was not collected prior to 2012, data from this method of calculating work-based activity is not directly comparable with that from the method used in earlier years. The impact of this change was minor.

The Welsh Health Survey asked adults on which days in the past week they did at least 30 minutes of light, moderate, and vigorous exercise or physical activity. Blocks of activity lasting more than 10 minutes, which were done on the same day, count towards the full 30 minutes. (Prior to 2011 the Department of Health recommended that adults do at least 30 minutes of moderate intensity physical activity on at least 5 days a week, however guidelines were revised during 2011 to allow more flexibility in how target activity levels are met).
new guidelines recommend that adults should aim to do at least 150 minutes of moderate activity during the week – alternatively, comparable benefits can be achieved by 75 minutes of vigorous activity.

Respondents were asked to include physical activity which is part of their job. Examples of each type of activity are:

- Light activity - housework or golf
- Moderate activity - heavy gardening or fast walking
- Vigorous activity - running or aerobics.

**Physical activity among children**

In 2011 new guidelines on the amount of activity recommended for health were published by the Chief Medical Officers of the four UK countries. For the first time, guidelines were published for children under five. Even for those unable to walk, physical activity should be encouraged from birth onwards. Those able to walk unaided are recommended to be active for at least 180 minutes (3 hours) per day, spread throughout the day. Examples of suitable activities include: walking or skipping to local destinations (school, a friend’s home, park, or shops); energetic play, such as using a climbing frame or riding a bicycle; bouts of more energetic activity, such as running and chasing games; and activities that involve all the major muscle groups.

The 2011 recommendations for children aged 5 to 18 are twofold. As previously, it is recommended that children should

- be at least moderately active for at least 60 minutes every day, though it is stated specifically that this is a minimum and that children and young people should engage in MVPA for up to several hours each day.
- undertake vigorous intensity activity, including muscle- and bone-strengthening activities, at least three days each week.

In the HSE 2012, the summary activity levels for children and young people are divided into three levels:

- Meets recommendations,
- Some activity
- Low activity

Due to the revisions to the 2012 children’s physical activity questionnaire care should be taken when comparing the results reported with previous HSE reports that present findings on child physical activity.

**Objective measures of physical activity**

The *HSE 2008* is the most up to date source of information on objective measures of physical activity. A sub-sample of children aged 4 to 15 were asked to wear an accelerometer during the week following the interview. The accelerometer provides a measure of frequency, intensity and duration of physical activity, allowing classification of activity levels as sedentary, light, moderate and vigorous. The accelerometer was worn on a specially provided belt and each child was asked to wear the accelerometer during waking hours for seven consecutive full days; parent co-operation was also required, particularly for younger children. The device was taken off for activities such as showering or swimming, as
the Actigraph is not waterproof. Also, some children removed their monitor during contact sports such as karate or rugby.

For adults, current evidence suggests that moderate or vigorous activity should be accumulated in bouts of at least 10 minutes to count towards meeting government at the time recommendations, as it is these bouts of sustained activity that provide health benefits. However, this is not a realistic requirement for children, since the nature of children’s physical activity typically differs from adults’, being less likely to involve clearly defined periods of specific activities. Thus children’s activity is much more likely to be sporadic, occurring in short bursts. For this reason, in keeping with other studies, all of children’s moderate or vigorous activity has been taken into account in assessing whether they have met the then government guidelines for physical activity, rather than imposing a requirement for bouts of 10 minutes or more.

Summary activity levels for both self-reported and objective measures of physical activity in children are:

- **Meets recommendations:** At least 60 minutes of moderate activity on all seven days in the last week.
- **Some activity:** 30-59 minutes of moderate activity on all seven days in the last week.
- **Low activity:** Fewer than 30 minutes of moderate activity on each day, or moderate activity of 60 minutes or more on fewer than seven days in the last week.

**Active sport**

The *HSE 2012* provides self-reported data on child participation in formal sports (including any organised team sports such as football, rugby, cricket, and netball, as well as running or athletics, all types of swimming, gymnastics, weight training, aerobics and tennis) and informal activities (including cycling (excluding to/from school), dancing, skating, trampolining, hopscotch, active play, skipping rope, and housework and gardening). Walking (excluding walking to or from school) is presented as part of the informal group of activities. It has been analysed separately as an activity of policy interest. The walks included are of any duration.

**Diet and nutrition**

**Fruit and vegetable portions**

Fruit and vegetable consumption is measured in portions; using guidelines specified in the ‘5 a day’ programme. The government recommends that people should eat five portions of fruit and vegetables a day. Five portions are defined as 400g of fruit and vegetables per day, an average of 80g per portion. A variety of foodstuffs represent a portion, including vegetables (fresh, frozen, canned), vegetables in composite dishes (such as pies or curries), salads, pulses, fruit (fresh, frozen, canned, dried), fruit in composites (such as pies or crumbles) and fruit juice. Below is a table showing the recommended portions sizes of the different types of fruit and vegetables in terms of everyday household measures. These measures have been used by the Health Survey for England when collecting data through dietary recall and for estimation of the number of portions respondents have consumed. The Low Income Diet and Nutrition Survey also followed the government guidelines in terms of what and how much counts as a portion, but estimated the weight of the fruit and vegetables consumed and divided by 80 (or 157 in the case of fruit juice to convert to millilitres) to determine the number of portions.
According to the current guidelines, fruit juice, regardless of how much is drunk in excess of one small glass (150ml), only counts as a maximum of one portion per day. This is due to its low fibre content and its high content of non-milk extrinsic sugars, which, when consumed in too high a quantity can lead to tooth decay and dental health problems. Pulses (such as beans, lentils and chick peas) can also only contribute a maximum of one portion per day regardless of how much is consumed; whilst they do contain fibre, they do not provide the same mixture of vitamins, minerals and other nutrients that can be obtained from fruit and vegetables. Due to their high starch content, potatoes in any form (including sweet potato varieties) and other starchy vegetables, such as plantain and green bananas, do not count towards the ‘5 a day’ portions. Nuts and seeds do not count towards the ‘5 a day’ portions. These guidelines and quantities are based on adult requirements and while the government recommends that children over the age of five should also consume five portions of a variety of the foodstuffs shown below, their portion sizes may be smaller. However, survey measures of fruit and vegetable consumption among children are based on adult portion sizes.

<table>
<thead>
<tr>
<th>Food item</th>
<th>Portion size</th>
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<tbody>
<tr>
<td>Vegetables (fresh, raw, tinned and frozen)</td>
<td>3 tablespoons</td>
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<tr>
<td>Pulses</td>
<td>3 tablespoons</td>
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<tr>
<td>Salad</td>
<td>1 cereal bowl</td>
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<tr>
<td>Vegetables in composites, such as vegetable chilli</td>
<td>3 tablespoons</td>
</tr>
<tr>
<td>Very large fruit, such as melon</td>
<td>1 average slice</td>
</tr>
<tr>
<td>Large fruit such as grapefruit</td>
<td>Half a fruit</td>
</tr>
<tr>
<td>Medium fruit, such as apples</td>
<td>1 fruit</td>
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<tr>
<td>Small fruit, such as plums</td>
<td>2 fruits</td>
</tr>
<tr>
<td>Very small fruit, such as blueberries</td>
<td>2 average handfuls</td>
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<tr>
<td>Dried fruit</td>
<td>1 tablespoon</td>
</tr>
<tr>
<td>Frozen fruit / tinned fruit</td>
<td>3 tablespoons</td>
</tr>
<tr>
<td>Fruit in composites, such as stewed fruit</td>
<td>3 tablespoons</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>1 small glass (150ml)</td>
</tr>
</tbody>
</table>

**Estimated average requirements and reference nutrient intakes**

In 1991 the Committee on Medical Aspects of Food and Nutrition Policy (COMA) recommended that population average intakes of different macronutrients should not exceed specified limits. For example the population average intakes of total fat, saturated fatty acids and non-milk extrinsic sugars (principally added sugars) should not exceed 35 per cent, 11 per cent and 11 per cent of food energy respectively.

Energy intake is compared against the Estimated Average Requirement (EAR) for a group. Estimates of energy requirements for different populations are termed EARs and are defined as the energy intake estimated to meet the average requirements of the group. About half the people in the group will usually need more energy than the EAR and half the people in the group will usually need less.

Nutrient intakes derived from surveys are compared with Reference Nutrient Intakes (RNIs). These RNIs represent the best estimate of the amount of a nutrient that is enough, or more than enough, for about 97 per cent of people in a group. If average intake of a group is at the level of the RNI, then the risk of deficiency in the group is very small.
Health Survey for England (HSE)

Data collection and burden

Data for the Health Survey for England (HSE) are collected from the adult population aged 16 and over living in private households in England. Since 1995 the surveys have also covered children aged 2–15 living in households selected for the survey, and since 2001 infants aged under two have been included as well as older children.

As with all previous years the HSE 2012 involved a stratified random probability of households. The core sample comprised of 9,024 addresses selected at random in 564 postcode sectors. Adults and children were interviewed at households identified at the selected addresses where there were three or more children in a household, two of the children were selected at random to limit the respondent burden for parents. More detailed information about survey design is presented in Chapters 2 to 7, Volume 2 of the HSE report. It should be noted that, as in 2011, there was no child boost sample in 2012. Thus the scope for analyses of some data for children may be limited by relatively small sample sizes.

Footnotes have been provided in this report on tables where age standardised figures have been presented and include the following variables: equivalised household income quintile and Government Office Region.

Use of HSE data from different years

This report contains data and information from different years of the HSE. This is to provide the most recent information for the general population that was available at the time of publishing. Where possible, data has been used from the most recent HSE 2012 results, however there are some restrictions to this.

The 2008 report investigated associated lifestyle factors such as diet, smoking and drinking, and also assessed the immediate impact of the smoking ban in public places introduced in England in July 2007 as a secondary focus.

Chapter 7 discusses blood pressure, longstanding illnesses and GHQ12 (12-item General Health Questionnaire – see below) by BMI and waist circumference.

General Health Questionnaire (GHQ12)

GHQ12 is the 12-item General Health Questionnaire designed to measure self-assessed general health, acute sickness leading to reduction in recent activity and psychosocial wellbeing.

Blood pressure

The levels of blood pressure used to define hypertension in the HSE are in accordance with the latest guidelines on hypertension management. To compute the prevalence of hypertension, adult informants were classified in one of four groups on the basis of their SBP (systolic blood pressure) and DBP (diastolic blood pressure) readings and their current use of anti-hypertensive medication.

- Normotensive-untreated SBP<140 mmHg and DBP<90 mmHg, not currently taking any prescribed drugs that lower blood pressure
- Hypertensive-controlled SBP<140 mmHg and DBP<90 mmHg, currently taking medication prescribed to lower blood pressure
- Hypertensive-uncontrolled SBP≥140 mmHg and DBP≥90 mmHg, currently taking medication prescribed to lower blood pressure
- Hypertensive-untreated SBP≥140 mmHg and DBP≥90 mmHg, not currently taking any prescribed drugs that lower blood pressure

The last three categories together are considered as ‘hypertensive’ for the purpose of this report. The definition of hypertension used for clinical purpose talks about ‘sustained’ levels of high blood pressure, while HSE only measures blood pressure at one point in time. This needs to be taken into account when interpreting the results. Hypertensive controlled and hypertensive uncontrolled groups are all those who take drugs that were prescribed to lower their blood pressure.

**Equivalised household income quintiles**

Household income was established in the HSE by means of a show-card on which banded incomes were presented. There has been increasing interest recently in using measures of equivalised income that adjust income to take account of the number of persons in the household. To derive this, each household member is given a score depending, for adults, on the number of adults apart from the household reference person, and for dependent children, on their age. The total household income is divided by the sum of the scores to provide the measure of equivalised household income. All individuals in each household were allocated to the equivalised household income quintile to which their household had been allocated.

**Logistic regression**

Logistic regression is a statistical technique that examines the relationship between an outcome variable and a number of predictor variables. In the table presented, the outcome variable is being in the high health risk category.

Results are displayed as odds ratios for the final model. Odds are expressed relative to a reference category. An odds ratio of above 1 implies that people within the category are more likely to be in the high health risk category. The 95% confidence interval is also shown. Where the interval does not include 1, the association is unlikely to be due to random chance and we say the category is significantly different from the reference category.

For example, the odds ratio for women in the category ‘Used to smoke cigarettes regularly’ is 1.36, with a 95% confidence interval of 1.08-1.72. The reference category for this variable is ‘Never smoked.’ As the odds ratio is greater than 1 and the 95% confidence interval does not contain 1, we say that women who used to smoke cigarettes are more likely to be in the high health category than women who have never smoked.

**Hospital Episode Statistics - coding for Bariatric Surgery used in tables 7.7 and 7.8**

The term “bariatric surgery” is often used to define a group of procedures that can be performed to facilitate weight loss although these procedures can be performed for conditions other than weight loss. It includes stomach stapling, gastric bypasses and sleeve gastrectomy. Using Hospital Episode Statistics (HES) data held at The Health and Social Care Information Centre, the number of Finished Consultant Episodes (FCEs) for bariatric
surgery has been determined where the primary diagnosis was obesity (ICD-10 code E66) and the main or secondary procedure was one of the following OPCS codes for the relevant time periods. OPCS-4.2 codes were used between 1996/97 to 2005/06, OPCS-4.3 codes for 2006/07, OPCS-4.4 codes for 2007/08 and 2008/09, OPCS-4.5 codes for 2009/10 and OPCS-4.6 codes for 2010/11, 2011/12 and 2012/13. There was a slight change to the OPCS-4.6 codes used in 2012/13 details of which can be found in the Methodological Change Note

The table on the next page shows how the coding has changed over time.

A * indicates that this code was included for that year.
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<td>G01.1</td>
<td>Oesophagogastrectomy and anastomosis of oesophagus to stomach</td>
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<td>Partial oesophagectomy and anastomosis of oesophagus to transposed jejunum</td>
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<td>G27.1</td>
<td>Total gastrectomy and excision of surrounding tissue</td>
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<td>G27.2</td>
<td>Total gastrectomy and anastomosis of oesophagus to duodenum</td>
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<td>Total gastrectomy and interposition of jejunum</td>
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Appendix C: Government policy, targets and outcome indicators

Public Health Outcomes Framework

Launched in January 2012, the Public Health Outcomes Framework is comprised of a number of indicators against which Public Health delivery partners will be encouraged to demonstrate improvement. The introduction of the framework will act as a stimulus to encourage public health delivery partners to make significant improvements in services and share best practice more widely. The intention is that the introduction of benchmarking (through the indicator measures) will have a strong impact on improving public health outcomes – this is consistent with recent evidence that the introduction of indicator measures can have a strong influence on achieving successful Health Outcomes - and will have a direct effect on protecting and improving the nation’s health.

For further information:

Healthy Lives, Healthy People: A call to action on obesity in England

This document published in October 2011 sets out national ambitions for a downward trend in excess weight in adults and children by 2020.

For a full copy of the report:

Start active, stay active: a report on physical activity from the four home countries’ Chief Medical Officers

Launched in July 2011, this UK-wide report presents guidelines on the volume, duration, frequency and type of physical activity required across the life-course to achieve general health benefits. It is aimed at the NHS, local authorities and a range of other organisations designing services to promote physical activity. The document is intended for professionals, practitioners and policymakers concerned with formulating and implementing policies and programmes that utilise the promotion of physical activity, sport, exercise and active travel to achieve health gains.

For further information:
National Ambition for Physical Activity

In January 2012 the Secretary of State for Health announced a new National Ambition for Physical Activity:

A year on year increase in the proportion of adults achieving at least 150 minutes of physical activity each week and a similar decrease in the proportion of those achieving less than 30 minutes of physical activity each week.

This is mirrored by the Public Health Outcomes Framework Indicator for physical activity and represents what could be achieved if all sector work together to drive up participation.

Public Health Responsibility Deal

What we eat, how much we drink and how active we are is heavily shaped by our environment. Creating the right environment can encourage and empower people to take responsibility for their health and make healthier choices.

Launched on 15 March 2011, the Public Health Responsibility Deal aims to tap into the potential for businesses and other organisations to improve public health and tackle health inequalities through their influence over food, alcohol, physical activity and health in the workplace. It will help deliver voluntary agreements or ‘pledges’ to improve public health through activities such as further reformulation of food; better information for consumers about food; and promotion of socially responsible retailing and consumption of alcohol. For further information:

https://responsibilitydeal.dh.gov.uk/

Plans for the Legacy from the 2012 Olympic and Paralympic Games

The Government published its plans in December 2010 for producing a safe and secure Games that would leave a lasting legacy.

This has focused on four areas:

- Harnessing the United Kingdom’s passion for sport to increase grass roots participation, particularly by young people – and to encourage the whole population to be more physically active
- Exploiting to the full the opportunities for economic growth offered by hosting the Games
- Promoting community engagement and achieving participation across all groups in society through the Games; and
- Ensuring that the Olympic Park can be developed after the Games as one of the principal drivers of regeneration in East London.

For further information:


Following the Games, the Minister of State for Sport and Tourism published a written statement on Sporting Legacy, which included the Government’s plans for community sport,
the Youth Sport Strategy, volunteering for sport, school sport and disability sport. Key to this is establishing a sporting habit for life in children and young people and investment in the School Games and Change4Life Sports Clubs in Schools will help ensure that every child has the opportunity to play competitive sport.

Healthy Lives, Healthy People: Our Strategy for Public Health in England

In November 2010, the government set out its long-term vision for the future of public health in England in the White Paper, Healthy Lives, Healthy People: Our Strategy for Public Health in England. The White Paper describes a new approach for public health in England. It also sets out examples of national level action to help tackle obesity. This includes:

- continuing to run the National Child Measurement Programme, so that local areas have information about levels of overweight and obesity in children to inform planning and commissioning of local services, and to provide a measure of the Public Health Outcomes Framework indicator on excess weight in 4-5 and 10-11 year olds.
- helping consumers make healthier food choices through the Change4Life programme.
- working with business and other partners through the Public Health Responsibility Deal (see section on Diet).

This White paper is available at:

Public Service Agreements

The current government ended the system of Public Service Agreements (PSAs) set at national level in 2010. For the meantime these are to be replaced by Departmental business plans, which each Government department has recently published setting out the details of its reform plans, including its:

- vision and priorities to 2014-15;
- structural reform plan, including actions and deadlines for implementing reforms over the next two years; and
- contribution to transparency, including the key indicators against which it will publish data to show the cost and impact of public services and departmental activities. However some PSA targets have been included in this report as they may have been in place when the data were collected.

Access the Department of Health’s Business Plan (2011-2015) through:

National Indicator Set

The Audit Commission was commissioned by the previous government to publish the National Indicator Set (NIS) as part of the assessment of local areas’ ‘Comprehensive Area Assessment’ (CAA). In May 2010, the new government announced their intention to abolish
CAA. The Audit Commission stopped work on updates to the assessments and decided not to update the National Indicator data on the CAA website.

**Change4Life**

In January 2009, the previous government launched an ambitious new campaign Change 4 Life – a society wide movement that aims to prevent people from becoming overweight by encouraging them to eat better and move more. The current government set out in the White Paper, *Healthy Lives, Healthy People: Our Strategy for Public Health in England*, its plans to broaden the Change4Life programme to take a more holistic approach.

For further information on this campaign:  
[www.nhs.uk/change4life/Pages/change-for-life.aspx](http://www.nhs.uk/change4life/Pages/change-for-life.aspx)

The Change4Life campaign has recently been expanded to focus on adults to encourage them to increase their physical activity levels.

For further information:  

**NICE guidance**

In 2006, the National Institute for Health and Clinical Excellence (NICE) produced guidelines on the prevention, identification, assessment and management of overweight and obesity in adults and children. These guidelines recommend a combination of BMI and waist circumference to assess health risks from obesity in adults.

The guidance on the prevention, identification, assessment, treatment and weight management of overweight and obesity in adults and children was intended to provide recommendations on the clinical management of overweight and obesity in the NHS. It also provides guidance on primary prevention approaches aimed at supporting adults and children to maintain a healthy weight.

The guidance was published in December 2006 and can be accessed on the NICE website:  
[http://www.nice.org.uk/guidance/CG43](http://www.nice.org.uk/guidance/CG43)

The various pieces of NICE guidance relating to physical activity are referenced in the Physical Activity Pathway published by NICE in May 2011.  

**5-a-day programme**

The 5-A-DAY programme was launched in March 2003 as part of the health promotion activity by the Department of Health to encourage people to eat more fruit and vegetables.

It aims to increase fruit and vegetable consumption by:

- raising awareness of the health benefits through targeted communications
- and improving access to fruit and vegetables
- working with national, regional and local organisations.
Current data from the National Diet and Nutrition Survey years 1-3 combined (2008-2011) showed that the mean daily consumption of fruit and vegetables was 4.1 portions in adults 19-64 years, 4.4 portions in older adults (65 years and over) and 3.0 portions and 2.8 portions in boys and girls respectively aged 11-18 years. For further information: www.nhs.uk/5aday

The eatwell plate

The eatwell plate is a policy tool that defines the Government’s recommendations on healthy diets. It makes healthy eating easier to understand by giving a visual representation of the types and proportions of foods needed for a healthy and well balanced diet.

For further information:

Current Government nutrient based recommendations

Current government food based recommendations are that everyone should eat plenty of fruit and vegetables (at least 5 of a variety each day), plenty of potatoes, bread, rice and other starchy foods, some milk and dairy foods, meat, fish, eggs, beans and other non-dairy sources of protein. Foods and drinks high in salt, fat and sugar should be consumed infrequently and in small amounts. This is visually represented in the eatwell plate, a policy tool that helps to make healthier eating easier to understand, showing the types and proportions of foods needed for a healthy, balanced diet.

Nutrient based recommendations for the population are based on advice from the Committee on Medical Aspects of Food and Nutrition Policy (COMA) and its successor the Scientific Advisory Committee on Nutrition (SACN). In 1991, the Department of Health published Dietary Reference Values (DRVs) which cover a range of intakes for most nutrients. SACN published revised DRVs for energy in 2011 representing the estimated average requirement for the population. For total fat, saturated and trans fatty acids and non-milk extrinsic sugars, dietary reference values (DRV) are the recommended maximum contribution these nutrients should make to the population average diet. For total carbohydrate, cis monounsaturated fatty acids and non-starch polysaccharides (NSP) the DRVs are recommended population averages. For protein, vitamins and minerals, reference nutrient intake (RNI) values are set at the levels of intake considered likely to be sufficient to meet the requirements of 97.5% of the population and the lower reference nutrient intake (LRNI) values (for vitamins and minerals) are set at levels considered likely to be sufficient to meet the needs of only the 2.5% of the population with the lowest requirements.

Table 1 shows the current DRVs for macronutrients and Table 2 shows the maximum daily salt intakes for children and adults.
Table 1 Current recommendations for fat, carbohydrates (including sugars) and fibre for adults

<table>
<thead>
<tr>
<th>Population average % of food energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated fatty acids</td>
</tr>
<tr>
<td>Polyunsaturated fatty acids</td>
</tr>
<tr>
<td>Monounsaturated fatty acids</td>
</tr>
<tr>
<td>Trans fatty acids</td>
</tr>
<tr>
<td>Total fat</td>
</tr>
<tr>
<td>Non-milk extrinsic sugars</td>
</tr>
<tr>
<td>Intrinsic and milk sugars, and starch</td>
</tr>
<tr>
<td>Total carbohydrate</td>
</tr>
<tr>
<td>Fibre as non-starch polysaccharide</td>
</tr>
</tbody>
</table>

Table 2 Recommended maximum daily salt intakes for infants, children & adults

<table>
<thead>
<tr>
<th>Age</th>
<th>Target average salt intake (g/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 months</td>
<td>Less than 1</td>
</tr>
<tr>
<td>7-12 months</td>
<td>1</td>
</tr>
<tr>
<td>1-3 years</td>
<td>2</td>
</tr>
<tr>
<td>4-6 years</td>
<td>3</td>
</tr>
<tr>
<td>7-10 years</td>
<td>5</td>
</tr>
<tr>
<td>11 years +</td>
<td>6</td>
</tr>
</tbody>
</table>

School Food

The Department for Education maintain existing standards for school food. All school food must meet the minimum standards set out in the Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2007 which came into force on 10th September 2007 and was amended in 2008 and 2011 (the amendments reflect minor technical changes to the school lunch requirements for Local Authority (LA) maintained primary, secondary and special schools and pupil referral units).

The regulations introduce combined food-based and nutrient-based standards for school lunches in primary schools and secondary and special schools and pupil referral units. They are compulsory for all maintained schools and require school lunches to provide prescribed amounts of essential nutrients, vitamins and minerals.

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Academies created between 2008 and 2010 are subject to the food standards through their Funding Agreement. Academies created after 2010 are not, nor are Free Schools. None of those older Academies have applied to be exempt from the standards.

Revised compulsory food-based standards for all Local Authority maintained schools are expected to be available by September 2014, as part of the School Food Plan. Academies will be encouraged to sign up voluntarily to these standards. Thus far, all the big academy chains have been willing to do so.

For further information on the Education Regulations:

The Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2007. The Secretary of State for Education and Skills: 

The Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2008. The Secretary of State for Education and Skills:

The Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2011. The Secretary of State for Education and Skills:

**Government Buying Standards for Food (GBSF)**

GBSF were published by the Department of the Environment, Food and Rural Affairs (Defra) in June 2011 and provide mandatory standards and best practice criteria on aspects of diet/nutrition, sustainable environment and animal welfare. GBSF standards are mandatory for government departments and their agencies and are encouraged for the wider public and private sectors.

A summary of the current standards and supporting guidance notes are available at:

Public Health England will be publishing updated catering guidance to support organisations that must meet, or have voluntarily chosen to adopt GBSF shortly. This will include guidance on the scientific principles for developing nutrient based standards to use for planning nutritionally balanced menus, and guidance on serving food to adults including older people to provide healthier and more sustainable catering. Target recommendations for nutrient intake and nutrient based standards for adults aged 19-74 years set out in this guidance are provided in Tables 3 and 4.
### Table 3 Target recommendations

<table>
<thead>
<tr>
<th></th>
<th>Energy</th>
<th>Protein</th>
<th>Total fat, saturated fat, sugar, salt</th>
<th>Vitamins and minerals (where insufficiencies are apparent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average population requirement</td>
<td>Target</td>
<td>Average population requirement</td>
<td>Target</td>
</tr>
<tr>
<td>Breakfast</td>
<td>20</td>
<td>20</td>
<td>No target</td>
<td>20</td>
</tr>
<tr>
<td>Lunch</td>
<td>30</td>
<td>30</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Evening meal</td>
<td>30</td>
<td>30</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Snacks</td>
<td>20</td>
<td>20</td>
<td>No target</td>
<td>**</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>98 or less</td>
<td>100</td>
</tr>
</tbody>
</table>

* Target for nutrients where excess or insufficiencies are apparent.

** Snacks will provide additional micronutrients to contribute to the micronutrient target of 100% or more over the day. You should take care not to encroach upon maximum safe levels of intake.
### Table 4 Nutrient-based standards for adults aged 19-74yrs

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Average population requirement (provided as daily averages over 7 days)</th>
<th>Recommended target for areas of excess or insufficiency (provided as daily averages over 7 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy* (MJ/kcal)</td>
<td>9.4/2250</td>
<td>Less than 85.8</td>
</tr>
<tr>
<td>Total fat (g)</td>
<td>87.5</td>
<td>Less than 85.8</td>
</tr>
<tr>
<td>Saturated fat (g)</td>
<td>Max 27.5</td>
<td>Less than 27.0</td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>Min 300</td>
<td></td>
</tr>
<tr>
<td>NMES (g)</td>
<td>Max 66.0</td>
<td>Less than 64.7</td>
</tr>
<tr>
<td>Fibre (as NSP) (g)</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Protein (g)</td>
<td>Min 50</td>
<td></td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>Max 2400</td>
<td>Less than 2352</td>
</tr>
<tr>
<td>Salt (equivalent g)</td>
<td>Max 6.0</td>
<td>Less than 5.9</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>700</td>
<td>More than 700</td>
</tr>
<tr>
<td>Iodine (µg**)</td>
<td>140</td>
<td>More than 140</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>14.8</td>
<td>More than 14.8</td>
</tr>
<tr>
<td>Magnesium (mg)</td>
<td>300</td>
<td>More than 300</td>
</tr>
<tr>
<td>Potassium (mg)</td>
<td>3500</td>
<td>More than 3500</td>
</tr>
<tr>
<td>Selenium (µg**)</td>
<td>75</td>
<td>More than 75</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>9.5</td>
<td>More than 9.5</td>
</tr>
<tr>
<td>Riboflavin (mg)</td>
<td>1.3</td>
<td>More than 1.3</td>
</tr>
<tr>
<td>Folate (µg**)</td>
<td>Min 200</td>
<td>More than 200</td>
</tr>
<tr>
<td>Vitamin A*** (µg**)</td>
<td>700</td>
<td>More than 700</td>
</tr>
<tr>
<td>Vitamin D (µg**)</td>
<td>Min 10****</td>
<td></td>
</tr>
</tbody>
</table>

* If only considering adults aged 60-74 years average energy requirement is lower** µg = micrograms. 1000 micrograms = 1 milligram (mg)
** µg = micrograms
*** Retinol equivalents = Retinol + (beta-carotene divided by 6)
**** Some population groups will need supplementary vitamin D, see paragraph 1.29
Appendix D: Further information

This report draws together statistics on obesity, physical activity and diet and forms part of a suite of statistical reports covering, in addition, drug misuse, alcohol and smoking.

Constructive comments on this report would be welcomed. Any questions concerning any data in this publication, or requests for further information, should be addressed to:

The Contact Centre
Health and Social Care Information Centre
1 Trevelyan Square
Boar Lane
Leeds
West Yorkshire
LS1 6AE
Telephone: 0845 300 6016
Email: enquiries@hscic.gov.uk

Press enquiries should be made to:
Media Relations Manager:
Telephone: 0845 300 6016
Email: enquiries@hscic.gov.uk

This report is available on the internet at:
http://www.hscic.gov.uk/pubs/sopad14

Previous reports on Statistics on Obesity, Physical Activity and Diet: England can be found on the Health and Social Care Information Centre website:
http://www.hscic.gov.uk

Information on the main data sources used within this report are described in Appendix A and government plans and targets are presented in Appendix C. However further information regarding the topics discussed within this report maybe found from the following sources:
Annual Reports of the Chief Medical Officer

These reports provide an important record of the nation’s health and the major challenges faced by government in tackling the main health problems. The latest suite of reports are available in the links below:


Association for the Study of Obesity

The Association for the Study of Obesity (ASO) was founded in 1967 and is the UK’s foremost charitable organisation dedicated to the understanding and treatment of obesity. The ASO aims to develop an understanding of obesity through the pursuit of excellence in research and education, the facilitation of contact between individuals and organisations, and the promotion of action to prevent and treat obesity.

Further information is available at: http://www.aso.org.uk

Food Standards Agency

The Food Standards Agency is an independent government department responsible for food safety and hygiene across the UK. They work with businesses to help them produce safe food, and with local authorities to enforce food safety regulations.

Further information is available at: http://www.food.gov.uk/

International Obesity Task Force

The International Obesity Task Force (IOTF) is a global network of expertise, a research-led think tank and advocacy arm of the IOTF. The IOTF is working to alert the world to the growing health crisis threatened by soaring levels of obesity. It works with the World Health Organisation, other NGOs and stakeholders to address this challenge.

Further information is available at: www.iotf.org
**National Institute for Health and Clinical Excellence (NICE)**

The NICE website includes some information and clinical guidelines on the prevention, identification, assessment and management of overweight and obesity in adults and children.

Further information is available at: [http://www.nice.org.uk/CG43](http://www.nice.org.uk/CG43)

**National Obesity Forum**

The National Obesity Forum (NOF) was established by medical practitioners in May 2000 to raise awareness of the growing health impact that being overweight or obese was having on patients and the NHS.

Further information is available at: [http://www.nationalobesityforum.org.uk/](http://www.nationalobesityforum.org.uk/)

The NOF latest report is available here: [http://www.nationalobesityforum.org.uk/media/PDFs/StateOfTheNationsWaistlineObesityintheUKAnalysisandExpectations.pdf](http://www.nationalobesityforum.org.uk/media/PDFs/StateOfTheNationsWaistlineObesityintheUKAnalysisandExpectations.pdf)

**Public Health England**

The Public Health England Obesity website (formerly the National Obesity Observatory) provides a single point of contact for wide-ranging authoritative information on data, evaluation, evidence and research related to weight status and its determinants. They work closely with a wide range of organisations and provide support to policy makers and practitioners involved in obesity and related issues.

Further information is available at: [http://www.noo.org.uk/](http://www.noo.org.uk/)

**Scientific Advisory Committee on Nutrition**

The Scientific Advisory Committee on Nutrition (SACN) is an advisory committee of independent experts that provides advice to the Food Standards Agency and Department of Health as well as other government agencies and departments. Its remit includes matters concerning nutrient content of individual foods, advice on diet and the nutritional status of people.

Further information is available at: [www.sacn.gov.uk/](http://www.sacn.gov.uk/)

**Scottish Health Survey**

The Scottish Health Survey provides information on the health and health-related behaviours of people living in private households in Scotland.

Further information is available at: [http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey](http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey)
Welsh Health Survey

The Welsh Health Survey is a source of information about the health of people living in Wales, the way they use health services, and the things that can affect their health and is produced by the Welsh Assembly Government.


World Health Organisation

The WHO BMI database provides both national and sub-national adult underweight, overweight and obesity prevalence rates by country, year of survey and gender. The information is presented interactively as maps, tables, graphs and downloadable documents.

Further information is available at: http://apps.who.int/bmi/