

# Forecasting Obesity to 2010

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# 1 INTRODUCTION

## 1.1 Report Structure

The focus of this report is to forecast what levels of obesity in England may be in 2010 if current trends in obesity prevalence continue unchanged. The report is split into three main sections. Section 2 looks at the current picture of overweight and obesity prevalence among children and adults, using data from the Health Survey for England 2003 (HSE 2003).<sup>1</sup> The results present both the prevalence of obesity among the population and also the estimated number of people within the population who are obese. Section 3 uses trend data from HSE to project discernible trends forward to 2010 and analyses these in relation to mid-population estimates for 2010 to forecast the number and proportion of the population predicted to be obese and overweight. Section 4 looks at the estimated number and proportion of adults and children who may be obese in 2010 within different socio-demographic groups.

## 1.2 Measures of obesity

For both adults and children, Body Mass Index (BMI) has been used as the measure of obesity. Among adults, the following categories have been used to indicate overweight and obese:

| <b>Description</b>   | <b>BMI (kg/m<sup>2</sup>)</b> |
|----------------------|-------------------------------|
| Not overweight/obese | 25 or less                    |
| Overweight           | Over 25 to 30                 |
| Obese                | Over 30                       |

Among children, this report has used the UK National Body Mass Index (BMI) percentile classification to describe childhood overweight and obesity among children aged 2-15:

| <b>Description</b>   | <b>BMI centile for child's exact age</b>          |
|----------------------|---|
| Not overweight/obese | 85 <sup>th</sup> centile or below                 |
| Overweight           | Over 85 <sup>th</sup> to 95 <sup>th</sup> centile |
| Obese                | Over 95 <sup>th</sup> centile                     |

## 1.3 Non-response weighting

In 2003, the Health Survey for England introduced non-response weighting for the first time. Non-response occurs when selected individuals or households decline to take part in the study. This can introduce bias as some groups are more likely to decline than others. Non-response weighting is a statistical calculation that improves the precision of survey estimates, giving greater confidence that the estimate presented is reflective of the population. As this report is concerned with estimating the actual number of people within the English population who are overweight or

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<sup>1</sup> This report was first produced for the Department of Health in September 2005. At that time, data from HSE 2003 were the most recent available.

obese, HSE 2003 estimates that are weighted for non-response have been presented throughout.

## 1.4 Weighting children's data

When interviewing children for HSE, it is standard protocol that only two children per household are eligible for interview. This means that in households with more than two children, a random selection is made to identify which two children should be interviewed. In households where there is only one child or a maximum of two children per household, these children would always be selected for interview. This protocol makes children's probability of selection for interview uneven. As such, since 1995, all child data has been weighted to take into account these different selection probabilities. Therefore all HSE 2003 estimates for children presented in this report have been weighted to account for both non-response bias and selection probability bias.

# 2 PREVALENCE AND NUMBERS OVERWEIGHT AND OBESE IN 2003

## 2.1 Introduction

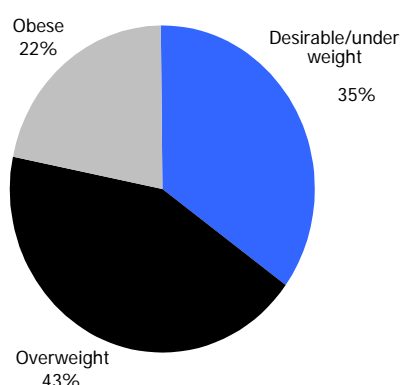
This section presents the current picture of overweight and obesity among children and adults, using data from HSE 2003. The results presented show the proportions of adults and children who are overweight, obese, and overweight including obese, within a variety of socio-demographic groups. These prevalence data have then been applied to the 2003 mid population estimates to give an estimated number of people within each group who are overweight, obese, and overweight including obese. Within the tables, the prevalence and the population numbers have been presented side by side for ease of reference.

## 2.2 Prevalence and number of adults overweight and obese, 2003

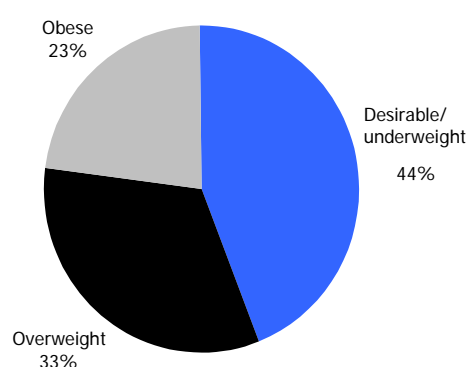
### 2.2.1 Prevalence and number of adults overweight and obese, by age and sex

Figures 1 and 2 show the distribution of overweight and obesity with the adult population.

**Figure 1 Men's BMI status**  
*Base: All aged 16 and over with valid BMI*



**Figure 2 Women's BMI status**  
*Base: All aged 16 and over with valid BMI*



- Using HSE 03 prevalence data and applying this to the 2003 mid population levels, it is estimated that in 2003, around 8,403,365 men aged 16 and over within the English population were overweight. A further 4,302,588 were obese.
- For women, it is estimated that approximately 6,772,757 were overweight and 4,754,080 obese.

**Table 1**

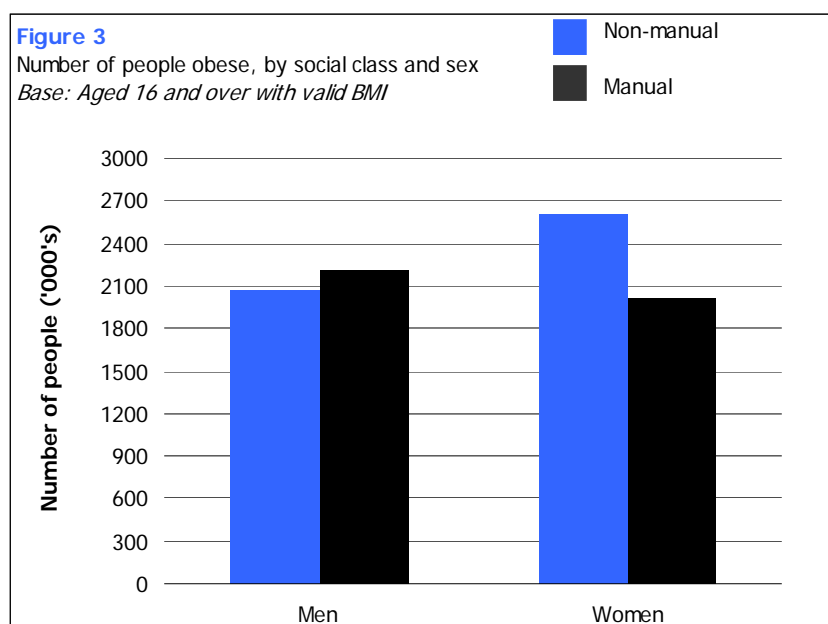
### **2.2.2 Prevalence and number of adults overweight and obese, by ethnic group and sex**

- Within non-white ethnic groups, it is estimated that in 2003 around 225,519 men and 334,431 women were obese (15% of men and 20% of women in non-white ethnic groups respectively)

**Table 2**

### **2.2.3 Prevalence and number of adults overweight and obese, by social class and sex**

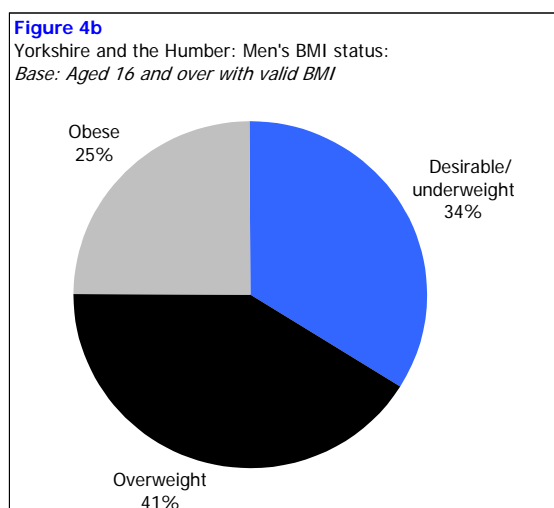
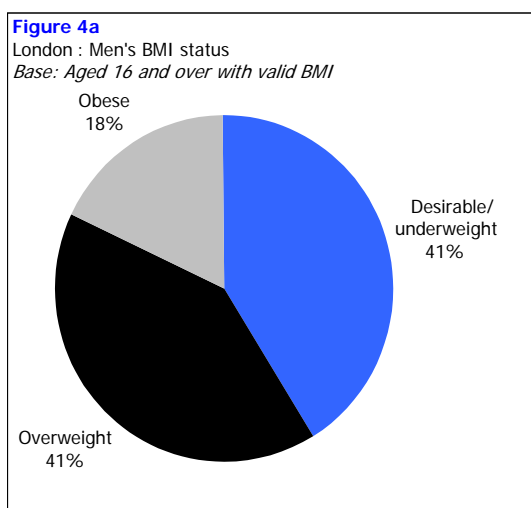
- All HSE informants aged 16 and over are asked about their current or former occupation. From this information they can then be classified into different categories ranging from professional occupations to unskilled manual occupations. For the following analysis, these groups have been combined into two categories: manual and non-manual.
- Figure 2 shows the estimated number of men and women who were obese within manual and non-manual social classes. Looking at the population distribution of obesity among women shows that of all women classified as obese, a greater number are from non-manual social classes than manual social classes. Among men, the reverse is true. However, it is important to note that the



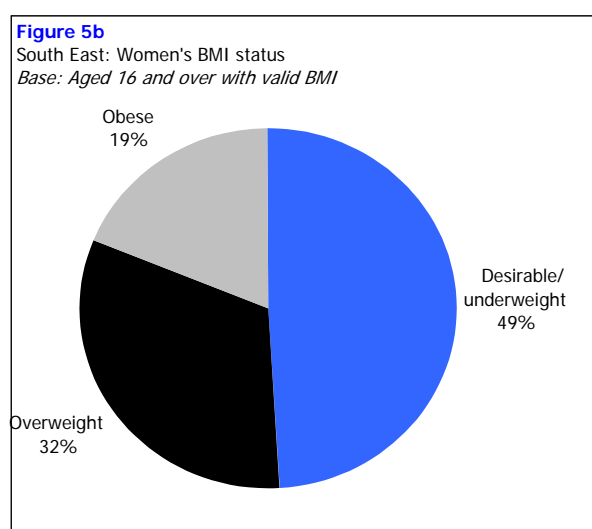
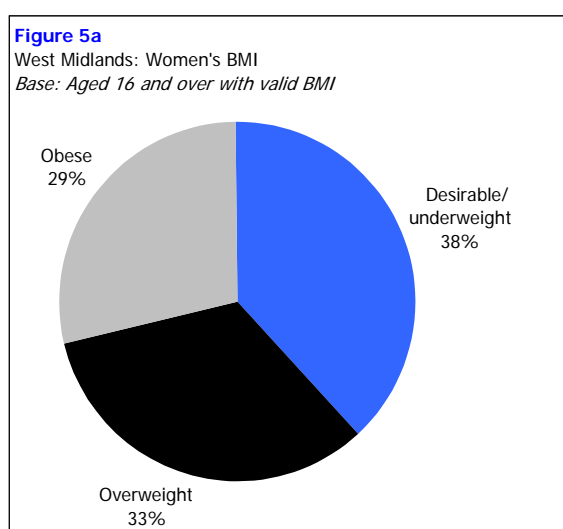
number of obese people depends both on prevalence in a subgroup and the total number of people (or the proportion of the population) who are in that subgroup: among women, obesity prevalence is higher among those in manual social classes (28%) than those in non-manual social classes (19%).

**Table 3**

## 2.2.4 Prevalence and number of adults overweight and obese, by Government Office Region and sex



- Figures 4a and 4b show how obesity prevalence among men varied within two different regions. In HSE 03, 18% of men living in London were classified as obese (approximately 519,146 men) compared with 25% of men living in Yorkshire and the Humber (approximately 483,872 men).



- Figures 5a and 5b show similar regional variations among women. 29% of women living in the West Midlands were classified as obese (approximately

619,847 women) compared with 19% living in the South East (around 641,175 women).

**Tables 4, 5**

#### ***2.2.5 Prevalence and number of adults overweight and obese, by levels of physical activity and sex***

- Levels of physical activity were assessed by whether a respondent met (or exceeded) the target to do 30 minutes of at least moderate intensity activity, five times a week. People meeting this target were classified as active, those not meeting this target were classified as insufficiently active.
- Among both men and women, the number and proportion of people who were obese was greatest among those who were classified as insufficiently active than those who were active.

**Table 6**

#### ***2.2.6 Prevalence and numbers of adults overweight and obese, by smoking status, age and sex***

- The prevalence of obesity among adults was examined in relation to adult smoking status. Among current smokers, obesity prevalence was significantly greater among women than men (18% and 14% respectively). Around 883,067 women and 716,803 men who currently smoked were obese.

**Table 7**

#### ***2.2.7 Prevalence and number of adults overweight and obese, by alcohol consumption and sex***

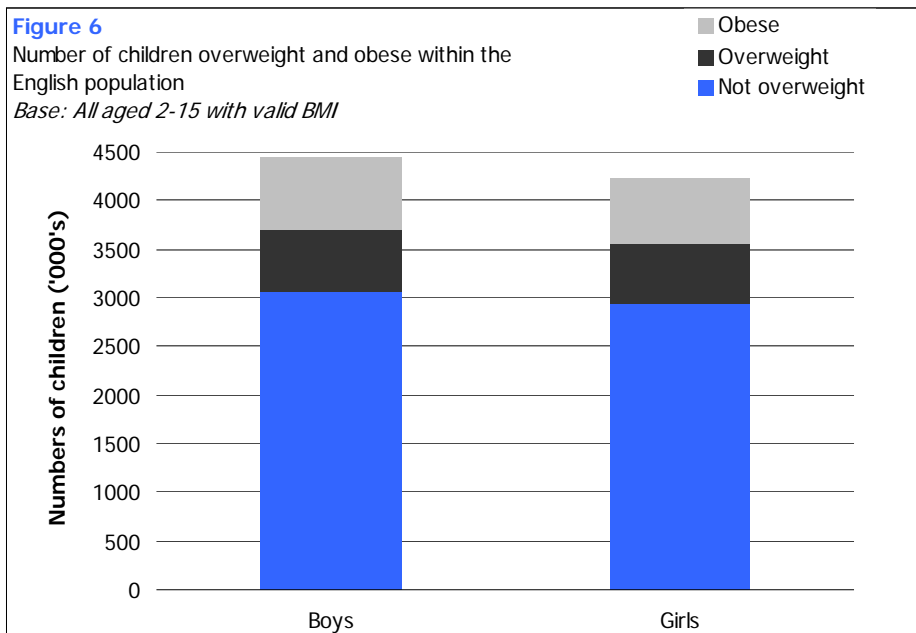
- There were no major differences in overweight, obesity and overweight including obesity prevalence by different levels of alcohol consumption. As such, this information has not been presented.

### **2.3 Prevalence and numbers of children overweight and obese**

#### ***2.3.1 Prevalence and number of children overweight and obese, by sex***

- Figure 6 shows the estimated number of children aged 2-15 by their BMI status. Approximately, 643,513 boys and 613,048 girls were overweight in 2003 with a further 746,662 boys and 675,983 girls who were obese.

**Table 8**



### 2.3.2 Prevalence and number of children overweight and obese, by ethnic group and sex

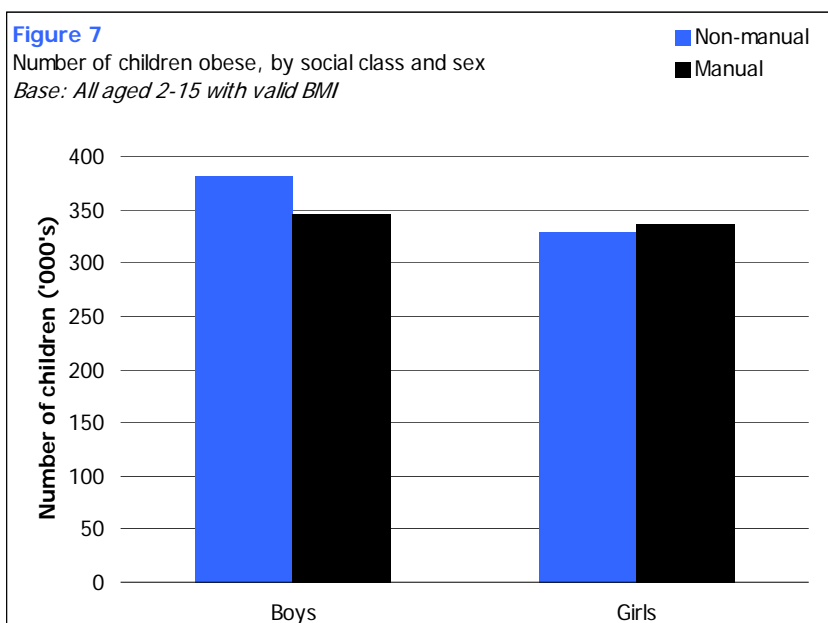
- Within non-white ethnic groups, it is estimated that 128,443 boys and 101,496 girls in 2003 were obese (22% and 18% of non-white ethnic groups respectively). However, caution should be taken with these figures as the base sizes for boys and girls within non-white ethnic groups were small.

**Table 9**

### 2.3.3 Prevalence and number of children overweight and obese, by social class and sex

- The prevalence of childhood obesity was examined in relation to social class, as classified by the head of household's occupation. In a two-parent household, the head of household is the father, in a one-parent household, it is the parent or legal guardian. The head of household's job can be classified into different categories ranging from professional occupations to unskilled manual occupations. For the following analysis, these groups have been combined into two categories: manual and non-manual.



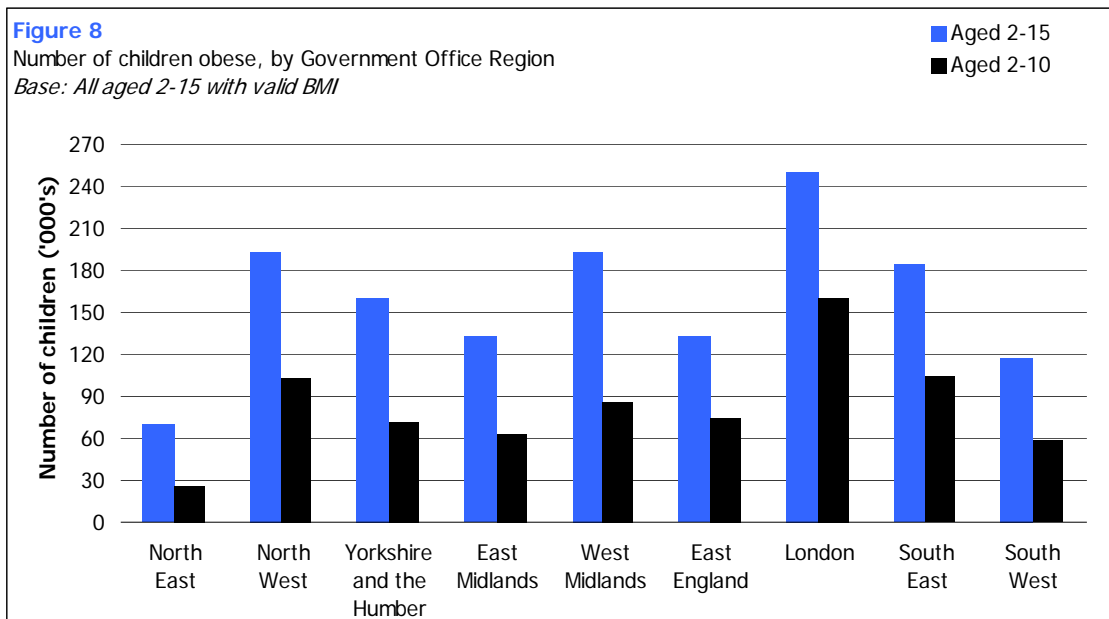


- Among all boys who were classified obese, a greater number lived in non-manual households than manual households; 382,253 compared with 345,909. The reverse was true for girls, whereby a greater number who were categorised as obese lived in manual rather than non-manual households (337,199 and 328,365 respectively). It is also important to note that the proportion of girls who were obese was significantly higher among those from manual households (19%) than non-manual households (14%). Among boys, no significant difference was detected.

**Table 10**

#### **2.3.4 Prevalence and number of children overweight and obese, by Government Office Region**

- Analysis by Government Office Region has been presented for all children and has not been presented separately by sex owing to small bases sizes.



- Figure 8 shows the total number of children aged 2-15 and the total number of children aged 2-10 who are obese within each Government Office Region. The estimated figures show that the North East has the lowest number of obese children aged 2-15 and 2-10 (69,975 and 25,078 children respectively) though it should be noted that the North East also has the lowest population of children out of all the regions. The highest estimated numbers of obese children aged 2-15 were observed in London (around 249,666 children). Prevalence of obesity by region varied from 13% in the South East to 20% in London. Prevalence of overweight varied from 11% in the East of England to 18% in the South East.

**Table 11**

### 2.3.5 Prevalence and number of children overweight and obese, by physical activity levels

- Children's levels of physical activity were categorised as follows:  
*Active* – active for at least 60 minutes per day for seven days in the last week. This group represents children who achieve the recommended levels of physical activity.  
*Insufficiently active* – active less often/shorter periods only.
- This analysis used HSE 2002 data, as this is the most recent occasion that these questions were administered among children. Prevalence of obesity was higher among inactive children than active children in most age and sex groups. However, because the majority of children fell into the 'active' category, the number of children who were obese was greatest among those who were classified as active compared with those who were insufficiently active.

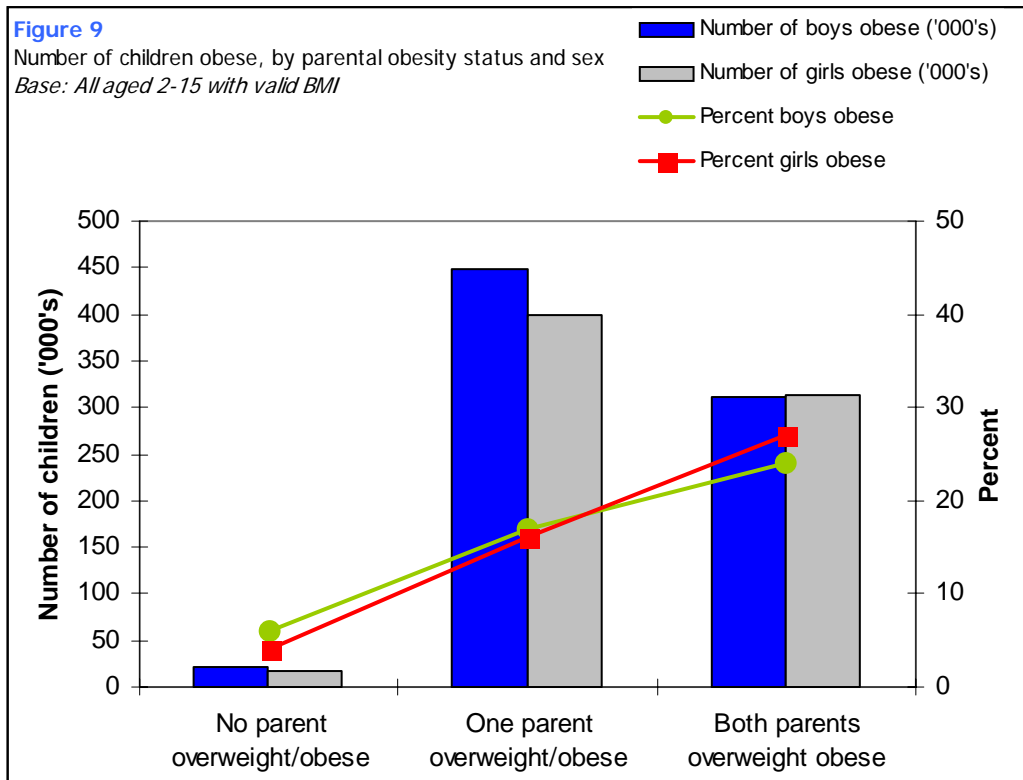
**Table 12**

### 2.3.6 Prevalence and number of children overweight and obese, by parental BMI status

- Figure 9 shows the number of children who are obese by their parents' BMI status.

For both boys and girls, a greater number of children who lived in households where either one parent was obese or overweight were themselves obese compared with children who lived in households where neither parent was overweight or obese. However, it is important to note that the prevalence of childhood obesity was greatest among those who live in households where both parents were themselves either overweight or obese (see figure 9).

**Table 13**



## **3 PREVALENCE AND NUMBERS OVERWEIGHT AND OBESE, 2003 AND 2010**

### **3.1 Background**

This section presents data from the Health Survey for England to model recent trends in obesity and overweight prevalence. These data are available from 1993 to 2003 inclusive for adults and 1995 to 2003 for children. The trends discernible have been projected forward to 2010 and analysed in relation to mid-population estimates for 2010 to forecast the number and proportion of the population estimated to be obese and overweight, if the current trend continues unchanged. (A full explanation of the method used is given below). The results presented show the expected proportions of adults and children who will be overweight and obese in 2010 and compares this with the proportion and population estimates from 2003. Within the tables, the prevalence and the population numbers have been presented side by side for ease of reference.

However, for some analyses, such as looking levels of obesity by the proportion of people in manual/non-manual occupations, those meeting physical activity recommendations, or children with none, one or two overweight or obese parents, it is difficult to attempt to forecast how these underlying population characteristics would alter by 2010. Therefore, these analyses were produced by applying the weighted proportions of the population in various categories evident from HSE 2003 to the 2010 mid-population estimates rather than attempting to forecast how these underlying characteristics would alter in the future.

### **3.2 Method of analysis**

The unweighted prevalence of adult obesity for 1993 to 2003 was calculated for each year separately, by sex and age groups. The obtained rates were plotted and a non-linear curve was fitted to the data using a curve estimation procedure. The rates were then projected to the year 2010 based on the rates in 1993-2003. Among the models available in the curve estimation procedure (SPSS 13.0), the power and exponential curves were selected as the best non-linear curves to be applied to the data. The choice between the two curves was made on the basis of the curve that 'best fits' our data for each specific category of age/sex/other variable combination. (The fitting of curves to the data is discussed in greater detail in the appendix).

The same procedure was applied to the prevalence of childhood obesity for 1995-2003. The only difference is that the rates were calculated using data that had been weighted to correct for selection bias, as the Health Survey interviews a maximum of two children per household.

### **3.3 Methodological issues**

#### ***Non-response weighting***

Non-response weighting was applied to HSE data for the first time in 2003. However, non-response weights are not available for previous HSE data sets (1993 -2002). Therefore, when analysing trends over time, it has become standard protocol to use

unweighted data for every year to ensure that prevalances and estimates are comparable. This practice has been applied to this report and trends in obesity and overweight from 1993 to 2003 have been calculated using unweighted data. The results from these trends have been modelled and applied to projected 2010 population estimates to give estimated obesity and overweight prevalence and population numbers in 2010.

However, when presenting 2003 results alone (i.e. not as part of a trend table) it is best practice to present estimates that have been weighted for non-response as non-response weighting improves the precision of survey estimates, giving greater confidence that the estimate presented is reflective of the population. These general rules have been followed throughout the various stages of the obesity forecasting report.

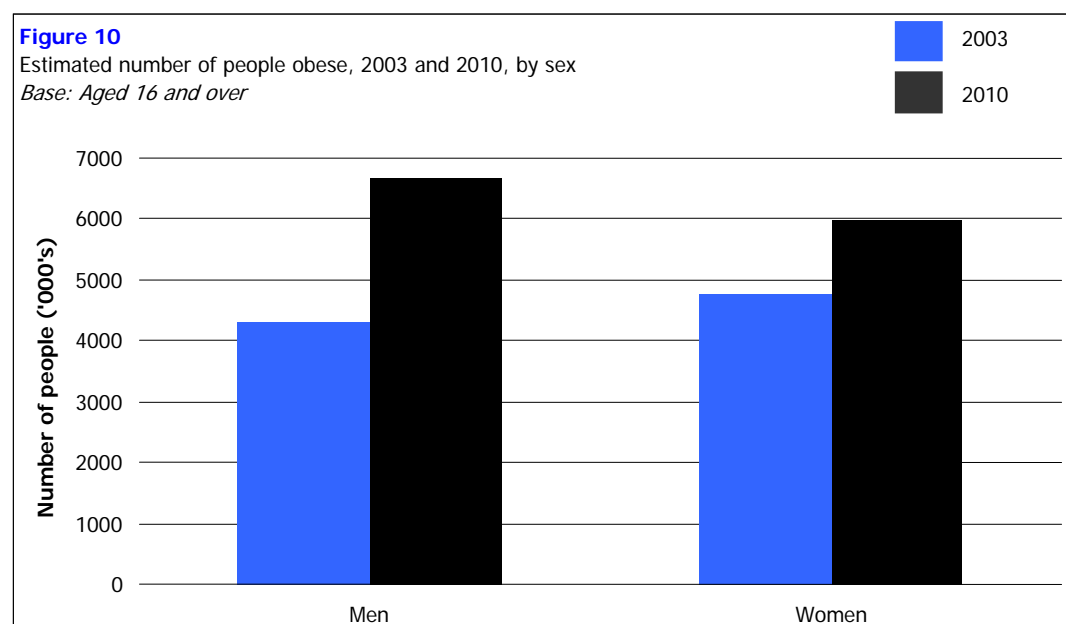
### ***Calculating overweight trends***

For both children and adults, overweight prevalence varied from year to year such that there were no discernible trends between 1993 and 2003 (for adults) and 1995 and 2005 (for children). Therefore, the numbers of overweight individuals in 2010 have been estimated by applying the mean prevalence for the three years 2001-2003 to the estimated 2010 population.

## **3.4 Prevalence and number of adults overweight and obese, 2003 and 2010**

### ***3.4.1 Prevalence and number of adults obese, by age and sex***

Figure 1 shows the estimated numbers of obese adults in 2003 and 2010.



- It is estimated that in 2010 around 6,658,953 men will be obese, increasing from around 4,302,588 in 2003

- For women, it is estimated that a further 1,230,573 women will be obese in 2010 than in 2003.
- It is notable, based on the forecast model presented within this report, that the number and proportion of men who are obese is predicted to be greater than the number and proportion of women in 2010. This report is based on the assumption that trends evident between 1993 and 2003 will continue to 2010. Trends analysis between 1993 and 2003 have shown a greater rate of increase in obesity among men than women (10 percentage points increase for men, 7 percentage points increase for women).<sup>2</sup> This feature of the trend data upon which the forecast analysis is based helps to explain the prediction that in 2010 more men than women will be obese, if current increases in obesity continue unchecked.<sup>3</sup>

**Table 14**

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<sup>2</sup> See <http://www.ic.nhs.uk/pubs/hlthsvyeng2004upd/04TrendTabs.xls/file>

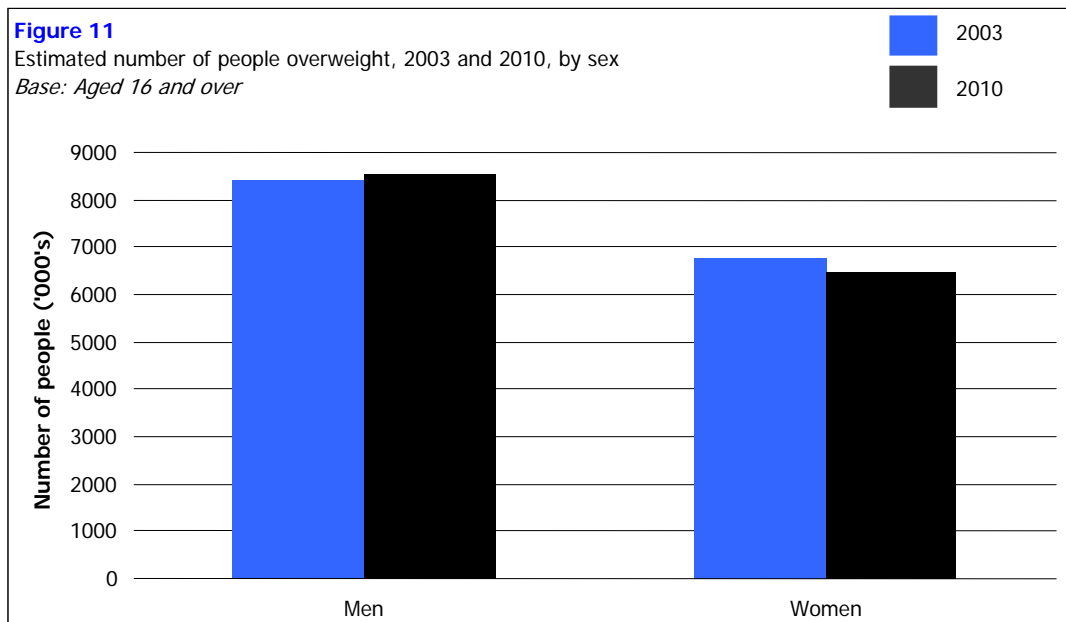
<sup>3</sup> This difference may also be the result of the forecast modelling technique used. Predictions of adult obesity in 2010 were produced by applying a power curve to the obesity trend data between 1993 to 2003 and extrapolating this forward to 2010. It was a power curve that was judged to 'best fit' the observed trends in obesity between 1993 and 2010. However, determining the shape of obesity trend data is problematical. For example, if we isolate the period 1998 to 2003 and apply a linear trend, the prediction is that in 2010 obesity prevalence will remain to be greater among women than among men. A fuller explanation is given in the appendix.

### 3.4.2 Prevalence and number of adults overweight, 2003 and 2010, by age and sex

Figure 2 shows the estimated number of adults overweight in 2003 and 2010.

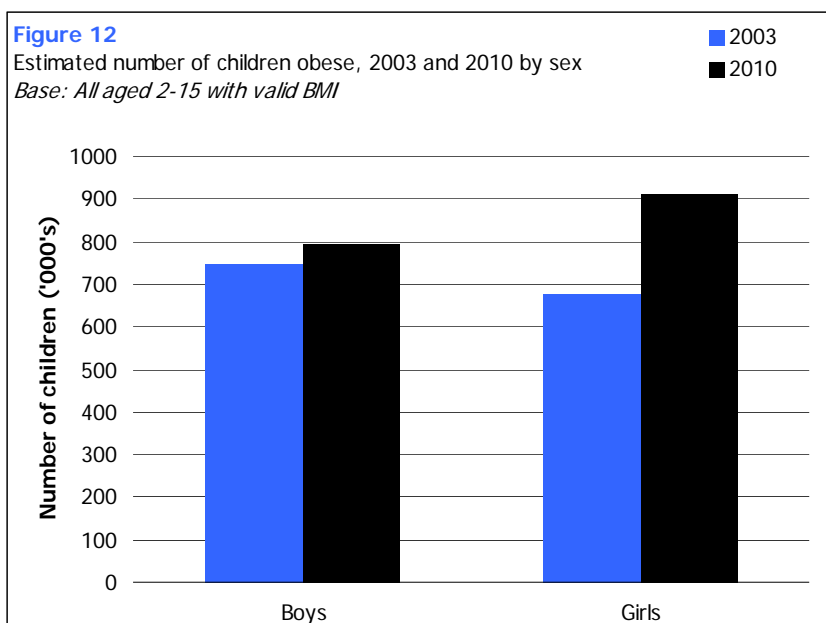
- For men, the forecasted estimates were similar between the two years, with around 152,824 more men expected to be overweight. For women, estimates in 2010 were slightly lower than in 2003, with around 294,545 fewer women expected to be overweight. This is unsurprising as the mean prevalence in 2001-2003, on which the 2010 forecast is based, was lower than the prevalence in 2003.

Figure 11, Table 14



### 3.5 Prevalence and number of children overweight and obese, by age and sex

- Forecast projections showed that in 2010, an increase in the proportion and number of boys who are obese can be expected, rising from 746,662 in 2003 to 792,321 in 2010.
- The greatest increases are expected among girls, with around a six percentage point increase in obesity rates between 2003 and 2010. It is estimated that around 910,630 girls will be obese in 2010.



- Notably, the proportion and number of children likely to be overweight in 2010 are similar to the estimates for 2003; around 610,799 boys and 586,338 girls in 2010. Again, this may be explained due to the use of the 2001-2003 average prevalence for forecasting the numbers of overweight children in 2010.

**Figure 12, Table 15**

## **4 PREVALENCE AND NUMBER OF OVERWEIGHT AND OBESITY, 2003 AND 2010, BY SOCIO-DEMOGRAPHIC FACTORS**

### **4.1 Introduction**

The results presented in this section show the predicted proportions of adults and children who will be overweight and obese in 2010 within different socio-demographic groups and by other characteristics. Where possible, comparisons have been made with the proportion and population estimates from 2003 (as presented in section 2). Within the tables, the prevalence and the population numbers have been presented side by side for ease of reference. The method of analysis used to produce the forecast predictions is discussed at section 3.1.

### **4.2 Interpretation of forecast modelling**

To be able to forecast levels of obesity to 2010, 'best fit' curves have been applied to HSE trends. However, the type of 'best fit' curve that was applied to particular data can affect the accuracy of the forecasting results and, in some cases, reverse the trends seen so far. For example, when looking at men's levels of physical activity by proportions of obesity and overweight, HSE data shows that those not meeting the



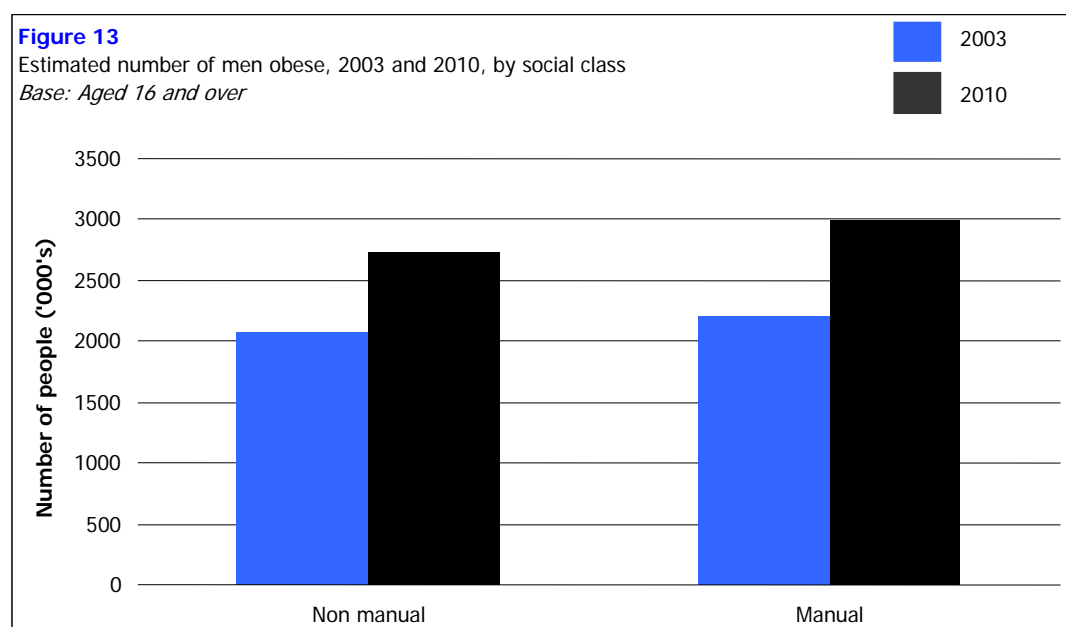
recommended levels of physical activity per week are more likely to be obese than those who do meet the recommended targets. However, during the forecast modelling process, it was found that a power curve was the 'best fit' for the trend data for those not meeting the recommended physical activity targets, whilst an exponential curve was the 'best fit' for trend data for those meeting the weekly physical activity targets. The result of this was that when the models were applied to the 2010 data, the estimates showed that people who met the recommended physical activity targets were more likely to be obese than those who did not meet the targets in 2010. In this particular instance, the existence of only three years' data (1998, 1999 and 2003) on which to base the modelling made it difficult to determine the best shape for a curve, let alone the correct parameters.

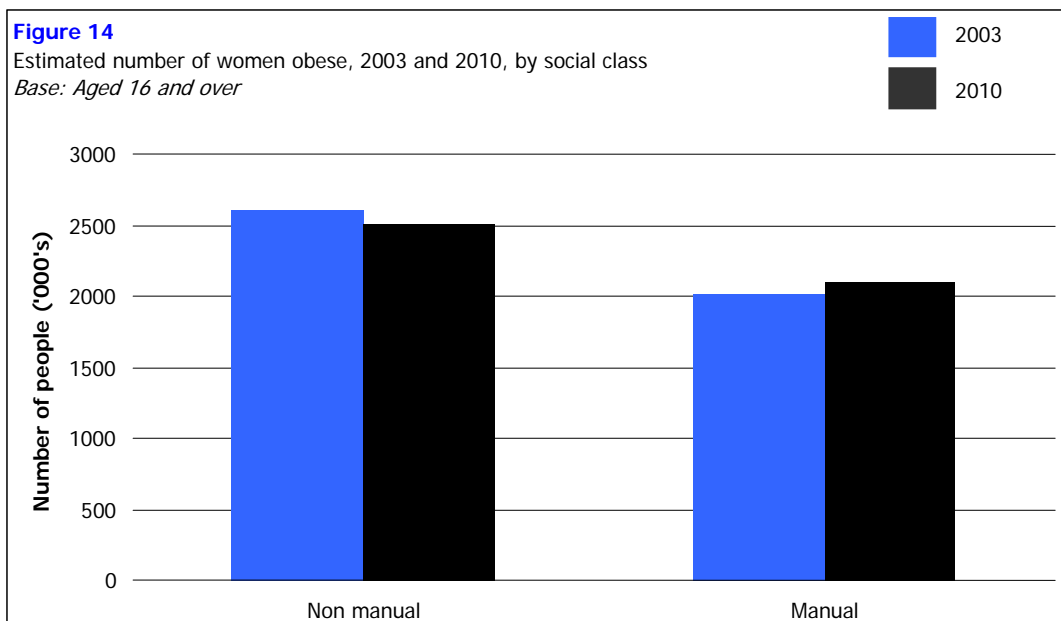
Given these nuances in the forecasting methods, caution should be taken when interpreting some results. This has been highlighted at the appropriate places within the commentary.

### 4.3 Prevalence and numbers of adults overweight and obese, 2003 and 2010, by socio-demographic factors

#### 4.3.1 Prevalence and number of adults obese, by social class and sex

Figures 13 and 14 show the estimated numbers of obese adults in 2003 and 2010 by social class.



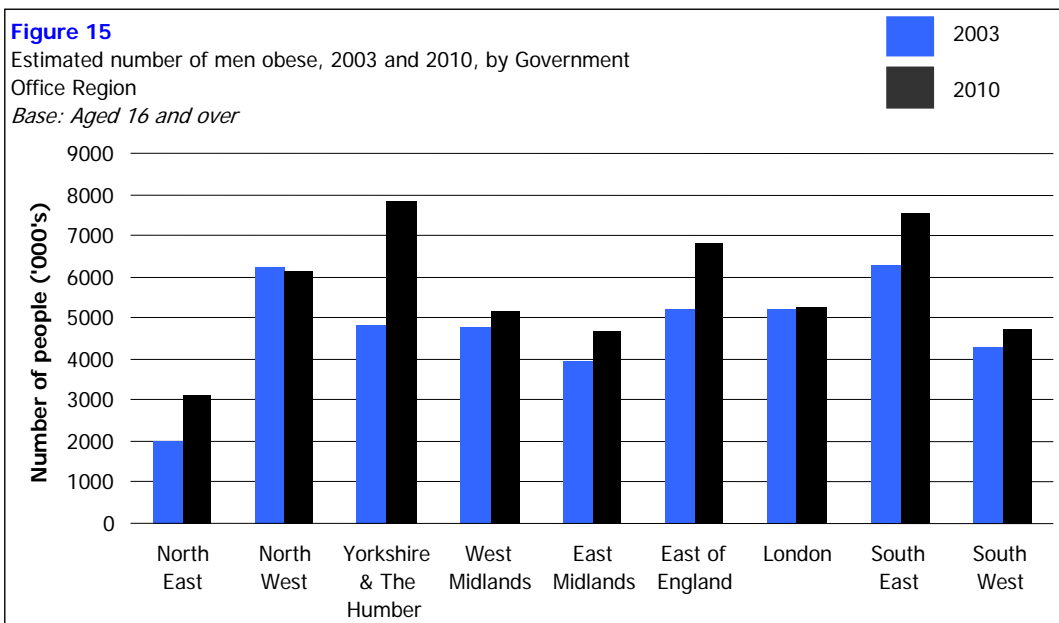


- All HSE informants aged 16 and over are asked about their current or former occupation. From this information they can then be classified into different categories ranging from professional occupations to unskilled manual occupations. For the following analysis, these groups have been combined into two categories: manual and non-manual.
- For men in both non-manual and manual social classes, forecast projections showed an increase in levels of obesity between 2003 and 2010. Within both manual and non-manual social classes there is an estimated increase in obesity of six percentage points between 2003 and 2010.
- For women in non-manual and manual social classes, estimates of obesity in 2010 were very similar to estimates shown in 2003.

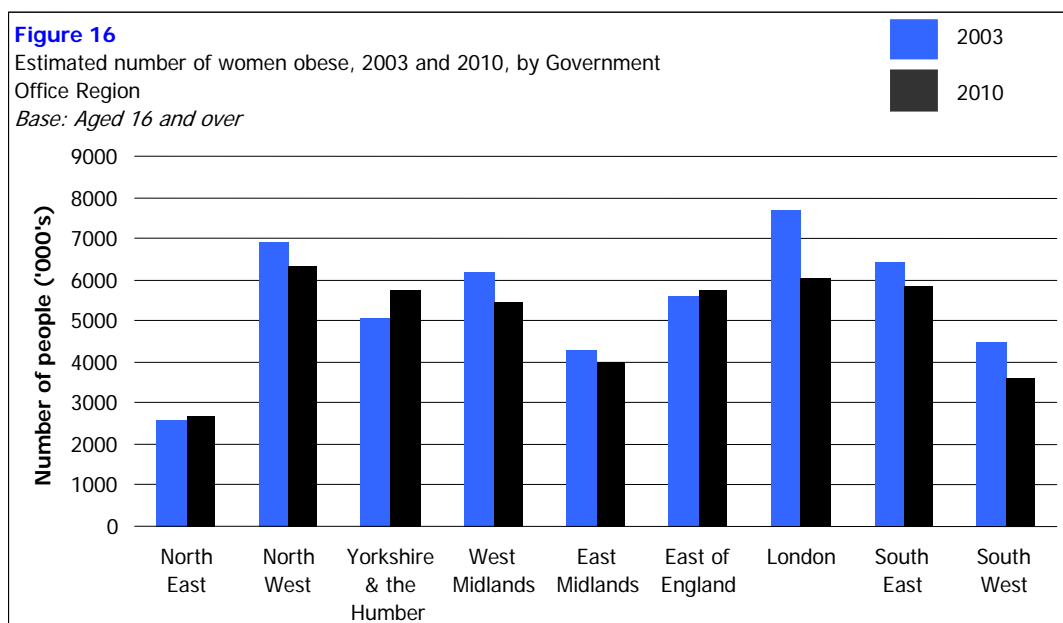
**Table 16**

#### **4.3.2 Prevalence and number of adults obese by Government Office Region.**

- Caution must be taken when analysing trends by Government Office Region (GOR). This is due to differences in the way the categories are defined. For example, in 1998, there were 10 GORs as Merseyside was presented as a separate area but from 1999 onwards, this was included within the North West region. Furthermore, administrative changes in the boundaries of each GOR over time mean that year on year, the geographic areas represented by a GOR category are not always directly comparable, which may lead to imprecisions within the trend analysis.



- For men, the forecasted estimates showed increases in obesity in the majority of Government Office Regions. The largest increase is predicted in Yorkshire and the Humber with the number of men who are obese estimated to rise from 483,872 in 2003 to around 784,073 in 2010. Within the North West the number of adults who are obese is not predicted to rise.



- Among women, the pattern varied, with 2010 estimates showing an increase in obesity among some regions (such as Yorkshire and the Humber) and others showing a fall in the number of obese women (such as London and the South West).

**Table 17**

#### 4.3.3 Prevalence and number of adults obese, by physical activity status and sex

- Levels of physical activity were assessed by whether a respondent met (or exceeded) the target to do 30 minutes of activity, five times a week. People meeting this target were classified as active, those not meeting this target were classified as insufficiently active.
- The inset table below gives estimated figures for male and female obesity in 2010 by levels of physical activity:

|                                 | Insufficiently active | Active |
|---------------------------------|-----------------------|--------|
| <b>Men</b>                      |                       |        |
| % estimated to be obese in 2010 | 24%                   | 29%    |
| <b>Women</b>                    |                       |        |
| % estimated to be obese in 2010 | 23%                   | 17%    |

- Among men, caution needs to be taken when interpreting these figures as data from HSE was available for only three years (1998, 1999, 2003). As such, it is difficult to detect true trends over time and therefore model the forecast projections. The figures present above (using the 'best fit' curve most appropriate for each category) indicate that a higher proportion of men within active groups will be obese than those who are insufficiently active. This result is contrary to the trends shown by previous HSE reports that have each shown that the proportion of people who are obese is greater among those who are insufficiently active than those who are active. This contradiction is a result of the methodology used to forecast obesity in 2010 and therefore results for men have not been presented fully within this report.
- Among women, estimates for 2010 do follow the same pattern as previous HSE reports, with a greater number of women estimated to be obese among those who are insufficiently active than among those who are active.

**Table 18**

#### 4.3.4 Prevalence and number of adults obese, by drinking status and sex

Obesity and overweight prevalence were analysed in relation to levels of drinking. Levels of drinking were assessed using the recommended weekly units of alcohol consumption as thresholds. These were as follows:

##### **Men:**

- Consuming less than 21 units of alcohol per week
- Consuming 21 units or more a week

##### **Women:**

- Consuming less than 14 units of alcohol per week

- Consuming 14 units or more a week

The table below presents the number and proportion of people estimated to be obese in 2010 within each group:

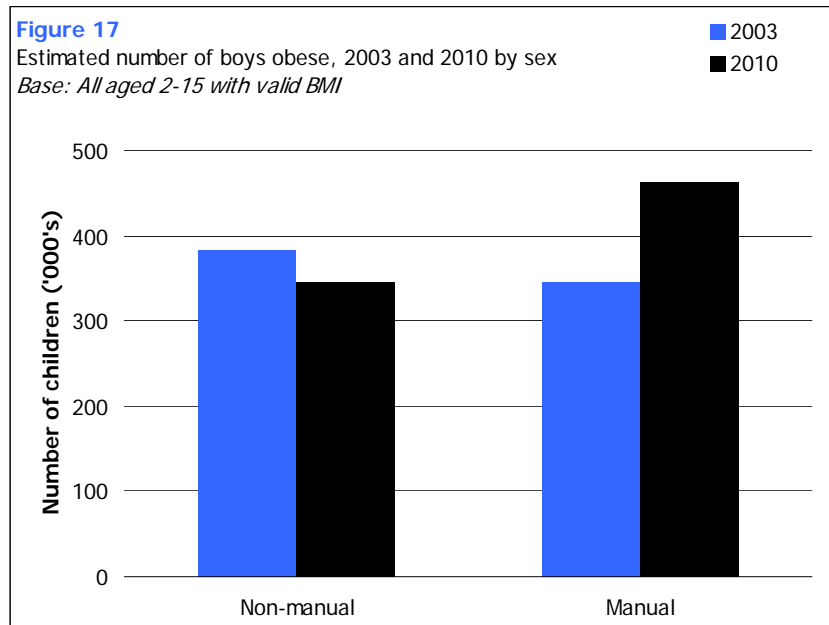
|                              | <b>Men</b>                  |                           | <b>Women</b>                |                           |
|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|
|                              | Less than 21 units per week | 21 units or more per week | Less than 14 units per week | 14 units or more per week |
| % predicted to be obese      | 30                          | 25                        | 21                          | 25                        |
| Number predicted to be obese | 1,837,489                   | 3,558,658                 | 817,891                     | 4,442,297                 |

- As with the physical activity results, analysis by drinking status needs to be interpreted with caution. Among men, HSE trend data shows that the prevalence of obesity is higher in those exceeding the recommended weekly limit for almost every year from 1994-2002. However, because of the relative shapes of the two trend curves applied during the forecast modelling, the results for 2010 show the opposite effect, with prevalence of obesity among men being lower for those who drink more than 21 units per week than those who do not.
- As the forecasted estimates and prevalences are likely to be a result of the design effects associated with forecast modelling rather than a true prediction, full estimates have not been presented within this report.

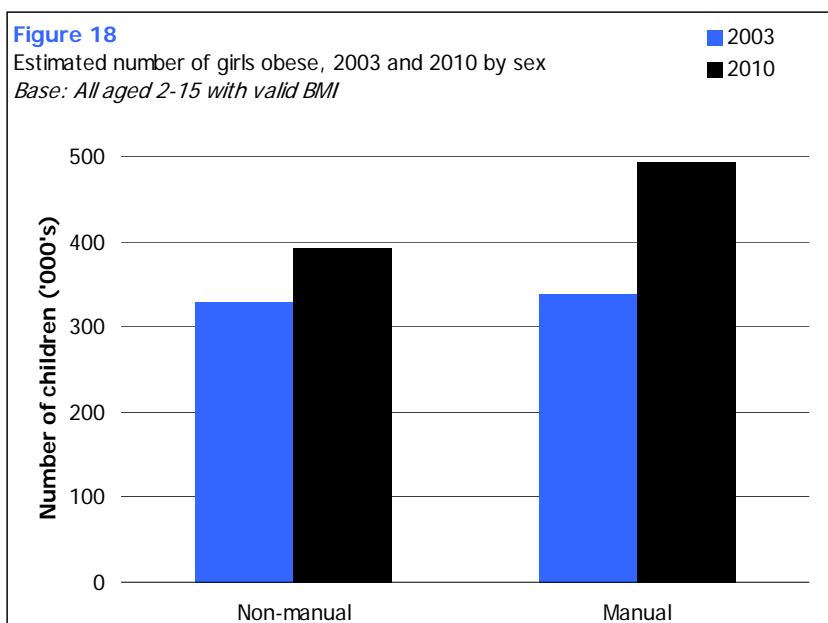
**(table not shown)**

#### 4.4 Prevalence and number of children obese, 2003 and 2010, by socio-demographic factors

##### 4.4.1 Prevalence and number of children obese, by social class and sex



- In 2010, it is predicted that around 462,000 boys aged 2-15 in manual households and around 345,000 boys in non-manual households will be obese. The projected rate of increase in levels of obesity is greater among those who live in manual households than those who live in non-manual households; a two percentage point rise in prevalence between 2003 and 2010 for those in non-manual households, compared with a seven percentage point rise in prevalence for those in manual households.

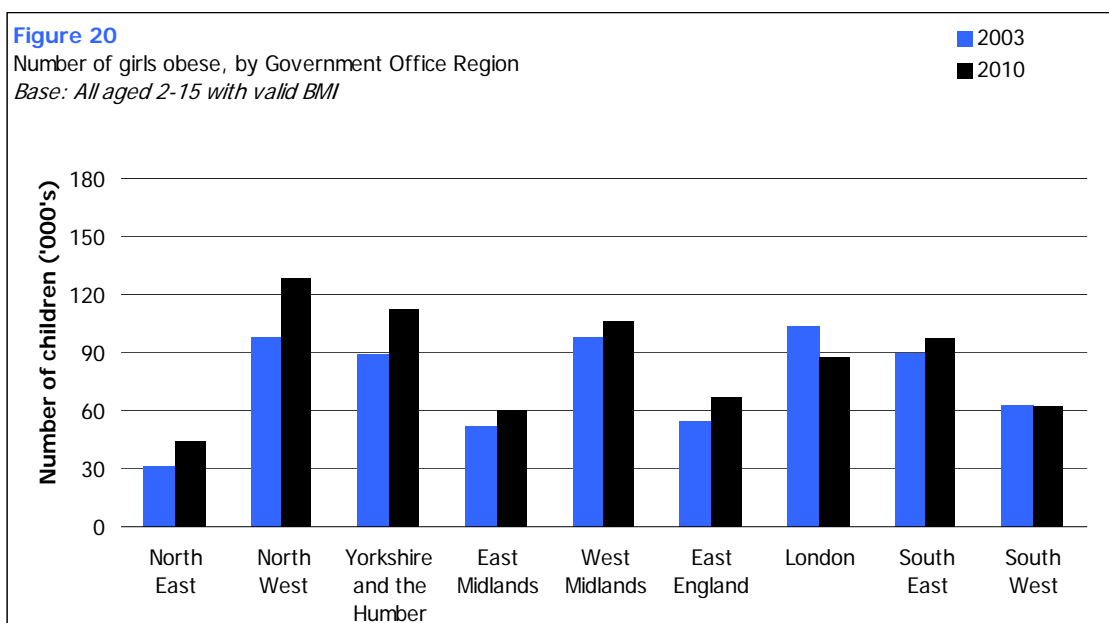
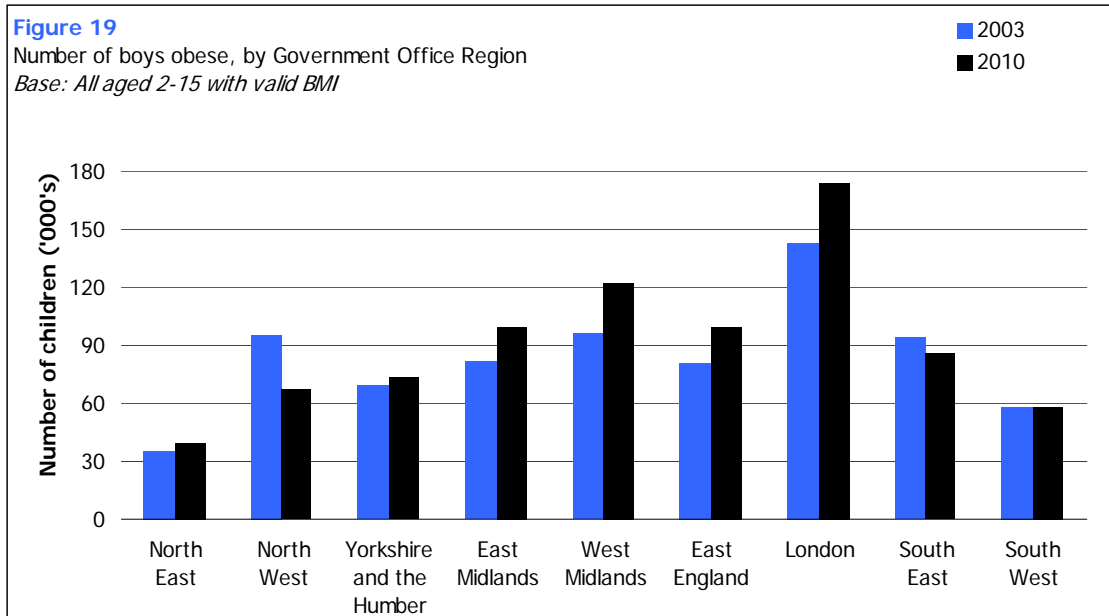


- A similar pattern is predicted among girls. Forecast estimates show a more pronounced rate of increase in levels of obesity among girls living in manual households than those living in non-manual households; a three percentage point increase in prevalence between 2003 and 2010 for those living in non-manual households, compared with a nine percentage point increase for those in manual households.

**Table 19**

#### **4.4.2 Prevalence and number of children obese, by Government Office Region and sex**

- Figures 19 and 20 show predicted numbers of children who will be obese in 2010 by Government Office Region.
- As with the data for adults, caution must be exercised when examining trends by Government Office Region (see section 4.3.2).



- As for adults, the pattern for children varied across each region, with some regions showing increases in obesity by 2010 and others showing either no change or potential declines. For boys, the greatest increase is predicted in London, with the number of boys who are obese rising from 143,052 to 174,218 between 2003 and 2010. For girls, the greatest increase is predicted in the North West, rising from 98,469 to 128,999.

**Table 20, 21**

#### **4.4.3 Prevalence and number of children obese by levels of physical activity and sex**

- Children's levels of physical activity were categorised as follows:



*Active* – active for 60 minutes per day for seven days in the last week. This group represents children who achieve the recommended levels of physical activity.

*Insufficiently active* – active less often/shorter periods only.

- Caution should be exercised with these predictions as there were only two HSE data points (1997 and 2002) which meant that it was not possible to produce trends analysis. Instead the analysis has been produced by applying the mean prevalence estimates from 1997 and 2002 to mid-year population estimates for 2010.
- In 2010 it is expected that at least 200,392 boys and 246,290 girls who are insufficiently active will be obese. Among those who are active, it is predicted that around 421,584 boys and 335,801 girls will also be obese. The numbers are larger among the active category as the majority of children actually meet the recommended levels of physical activity per week. (In 2002, 70% of children were classified as active and 30% classified as insufficiently active). Therefore, substantive importance should not be attached to the projection that a greater number of children within the active category will be obese than those who are insufficiently active.

**Table 22**

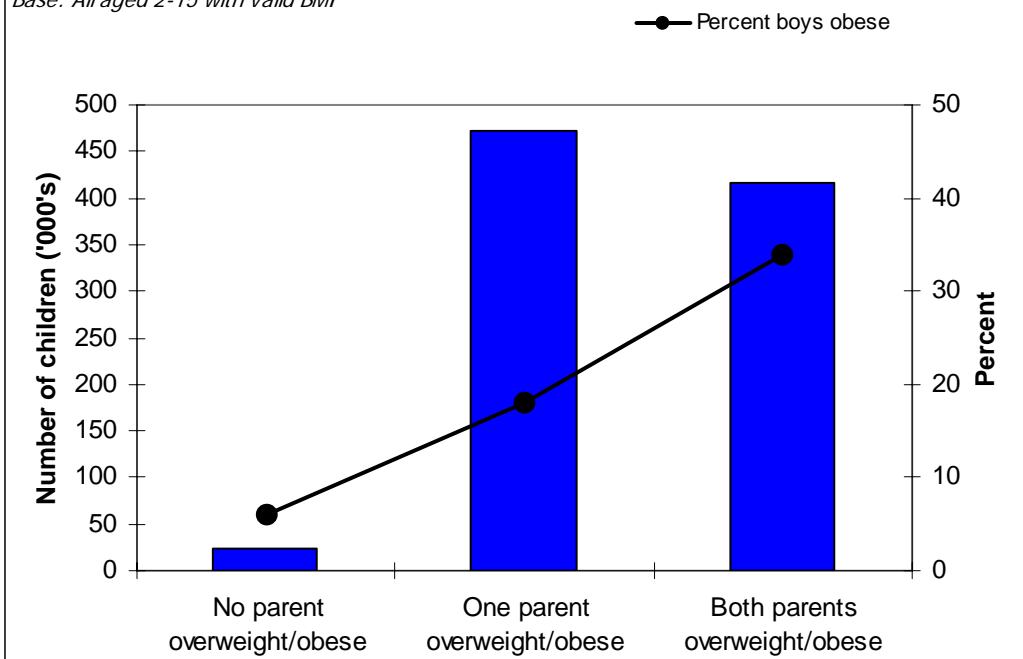
#### **4.4.4 Prevalence and number of children obese, by parental BMI status and sex**

- Figures 21 and 22 show the numbers and proportions of children predicted to be obese in 2010 by their parents' BMI status.

**Figure 21**

Number of boys predicted to be obese in 2010, by parental obesity status and sex

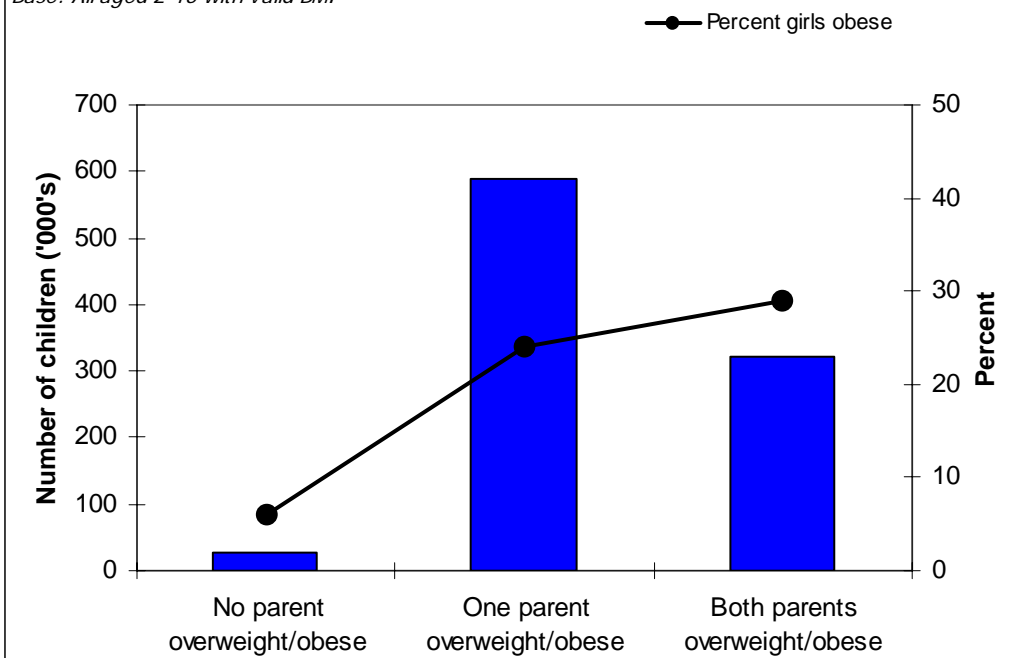
Base: All aged 2-15 with valid BMI



**Figure 22**

Number of girls predicted to be obese in 2010, by parental obesity status and sex

Base: All aged 2-15 with valid BMI



- In 2010, around 415,844 boys and 320,727 girls who live in households where both parents are overweight or obese are themselves predicted to be obese.

- Whilst these figures represent a rise in obesity among this group from 2003 onwards, it is notable that projected figures show a greater rate of increase among boys than girls. For boys, forecast estimates have predicted that in 2010 a further 100,000 boys who live in households where both parents are overweight or obese will themselves be obese than in 2003 (a 10 percentage point increase in prevalence). Equivalent figures for girls show approximately 7,000 more girls within this group will be obese in 2010, representing two percentage point increase in prevalence from 2003.
- As was observed with estimates for 2003, a greater number of obese children live in households where one parent is overweight/obese than those who live in households where both parents are overweight/obese. Similar caution should be exercised when interpreting this result as around twice as many children actually live in households where one parent is overweight/obese than those who live in households where both parents are overweight/obese. Therefore, it is important to look at the projected patterns of prevalence among these groups to get an accurate picture. Figures 21 and 22, show that whilst the number of children who are obese may be greater among those who live in households where one parent is overweight/obese, the percentage of children who are obese within each group will continue to be higher among those who live in households where both parents are overweight/obese; 18% and 34% respectively for boys, 24% and 29% respectively for girls.

**Table 23**

## APPENDIX: EXTRPOLATION OF TRENDS

The forecasting method in this report makes assumptions about future changes in obesity based on past patterns of change. Analyses were based on the (unweighted) prevalence of obesity for each year from 1993 to 2003 for adults calculated separately for each age-group and sex. For children, the data were from 1995 to 2003; these were weighted for sampling selection because not all children in a household were eligible to be included. Plots of these data indicated that year to year changes in the prevalence of obesity were not always constant across the time period - rather there appeared to be some evidence that rates of increase in some groups were either accelerating or slowing down. Therefore a curve was fitted to the data to allow for this. Two curves, power and exponential, were selected as being plausible models for the data that would allow for either acceleration or slowing down in changes in prevalence of obesity. Both the exponential and the power curves were fitted to the data for each group and the best fitting curve was chosen. A projection for prevalence of obesity in 2010 was made by extrapolating the chosen fitted curve (power or exponential) for each group, and these are presented in the main report.

Thus the assumption in this report is that the trends are non-linear. Other assumptions are possible. One alternative would be to extrapolate using a linear trend, and when developing the method for this report, a linear trend was also fitted to the data and alternative projections based on extrapolating the linear trend were made. Another plausible alternative scenario is that rates of change will continue in line with the trend seen for more recent years starting around 1998-2000. This could be modelled by fitting a linear trend restricted to data from more recent years. A projection based on extrapolating from a linear trend for recent years starting around 1998 would produce a forecast of prevalence of obesity in 2010 that lies between the projection given in this report and a projection based on extrapolation from a linear trend fitted to the complete set of years. Thus a comparison of the projected prevalence and numbers given in this report with the alternative projections based on a linear trend provides a sensitivity analysis that gives some indication of the range of plausible values for the forecast. The table below provides this comparison for prevalence of obesity for adult men and women and for boys and girls.

### Projected prevalence and number obese in 2010

| Sex                       | 2010 (predicted)  |             |   |             |
|---------------------------|---|-------------|---|-------------|
|                           | Forecast based on extrapolation of power or exponential trend |             | Forecast based on extrapolation of linear trend |             |
|                           | %   | N thousands | %   | N thousands |
| <b>Children aged 2-15</b> |   |             |   |             |
| Boys                      | 19 <sup>b</sup>   | 792,321     | 23  | 966,470     |
| Girls                     | 22 <sup>a</sup>   | 910,630     | 21  | 839,696     |
| <b>Adults aged 16+</b>    |   |             |   |             |
| Men                       | 33 <sup>a</sup>   | 6,658,953   | 28  | 5,714,475   |
| Women                     | 28 <sup>a</sup>   | 5,984,653   | 31  | 6,562,471   |

a Exponential trend

b Power trend

For prevalence of overweight, there were no discernible trends between 1993 and 2003 (adults) and 1995 and 2005 (children). Therefore, the predicted numbers of overweight in 2010 have been calculated by applying the mean prevalence for the three years 2001-2003 to the projected 2010 population.

**Table 1      Prevalence and number of adults overweight and obese, by age and sex***Aged 16 and over with valid BMI status*

2003

| BMI Status                              | Age group |                |       |           |       |           |     |           | Total |            |
|---|-----------|----------------|-------|-----------|-------|-----------|-----|-----------|-------|------------|
|   | 16-34     |                | 35-54 |           | 55-74 |           | 75+ |           |       |            |
|   | %         | N <sup>a</sup> | %     | N         | %     | N         | %   | N         | %     | N          |
| <b>Men</b>                              |           |                |       |           |       |           |     |           |       |            |
| Overweight                              | 33        | 2,066,211      | 47    | 3,281,310 | 50    | 2,349,520 | 50  | 706,323   | 43    | 8,403,365  |
| Obese                                   | 14        | 851,769        | 27    | 1,848,110 | 28    | 1,305,710 | 21  | 296,998   | 22    | 4,302,588  |
| Overweight including obese              | 46        | 2,917,981      | 74    | 5,129,420 | 77    | 3,655,231 | 71  | 1,003,321 | 65    | 12,705,953 |
| <b>Women</b>                            |           |                |       |           |       |           |     |           |       |            |
| Overweight                              | 24        | 1,470,007      | 33    | 2,329,645 | 40    | 2,021,398 | 40  | 951,706   | 33    | 6,772,757  |
| Obese                                   | 16        | 980,440        | 24    | 1,695,650 | 29    | 1,455,904 | 26  | 622,087   | 23    | 4,754,080  |
| Overweight including obese              | 39        | 2,450,447      | 57    | 4,025,295 | 69    | 3,477,302 | 67  | 1,573,793 | 56    | 11,526,837 |
| <i>Bases (weighted)</i>                 |           |                |       |           |       |           |     |           |       |            |
| Men                                     | 2154      | -              | 2389  | -         | 1607  | -         | 369 | -         | 6519  | -          |
| Women                                   | 1996      | -              | 2362  | -         | 1675  | -         | 536 | -         | 6570  | -          |
| <i>Bases (unweighted): <sup>b</sup></i> |           |                |       |           |       |           |     |           |       |            |
| Men                                     | 1648      | 6285.1         | 2179  | 6944.1    | 1733  | 4739.1    | 406 | 1423.1    | 5966  | 19391.4    |
| Women                                   | 1876      | 6205.7         | 2594  | 7040.1    | 2004  | 5049.9    | 616 | 2365.2    | 7090  | 20660.9    |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

**Table 2      Prevalence and number of adults overweight and obese, by ethnic group and sex***Aged 16 and over with valid BMI status**2003*

| BMI Status                            | Age group |                |       |           |       |           |     |           | Total |                      |
|---------------------------------------|-----------|----------------|-------|-----------|-------|-----------|-----|-----------|-------|----------------------|
|                                       | 16-34     |                | 35-54 |           | 55-74 |           | 75+ |           |       |                      |
|                                       | %         | N <sup>a</sup> | %     | N         | %     | N         | %   | N         | %     | N                    |
| <b>Men</b>                            |           |                |       |           |       |           |     |           |       |                      |
| <b>White</b>                          |           |                |       |           |       |           |     |           |       |                      |
| Overweight                            | 33        | 1,787,806      | 48    | 3,008,611 | 49    | 2,104,350 | 49  | 654,702   | 44    | 7,555,468            |
| Obese                                 | 14        | 749,053        | 27    | 1,738,951 | 28    | 1,190,472 | 21  | 282,494   | 23    | 3,960,969            |
| Overweight including obese            | 47        | 2,536,858      | 75    | 4,747,562 | 77    | 3,294,822 | 70  | 937,196   | 66    | 11,516,438           |
| <b>Non-white</b>                      |           |                |       |           |       |           |     |           |       |                      |
| Overweight                            | 32        | 234,941        | 44    | 232,836   | 54    | 112,942   | c   | c         | 40    | 580,719              |
| Obese                                 | 12        | 88,810         | 18    | 93,012    | 21    | 43,697    | c   | c         | 15    | 225,519              |
| Overweight including obese            | 44        | 323,751        | 62    | 325,848   | 75    | 156,639   | c   | c         | 55    | 806,238              |
| <b>Women</b>                          |           |                |       |           |       |           |     |           |       |                      |
| <b>White</b>                          |           |                |       |           |       |           |     |           |       |                      |
| Overweight                            | 24        | 1,313,875      | 33    | 2,131,736 | 40    | 1,831,290 | 40  | 933,077   | 33    | 6,209,979            |
| Obese                                 | 16        | 882,163        | 24    | 1,534,796 | 29    | 1,313,901 | 27  | 612,787   | 23    | 4,343,646            |
| Overweight including obese            | 40        | 2,196,038      | 57    | 3,666,532 | 68    | 3,145,191 | 67  | 1,545,864 | 56    | 10,553,625           |
| <b>Non-white</b>                      |           |                |       |           |       |           |     |           |       |                      |
| Overweight                            | 22        | 170,001        | 31    | 178,805   | 47    | 94,398    | c   | c         | 27    | 443,203 <sup>d</sup> |
| Obese                                 | 14        | 107,925        | 26    | 149,241   | 38    | 77,265    | c   | c         | 20    | 334,431 <sup>d</sup> |
| Overweight including obese            | 35        | 277,926        | 57    | 328,046   | 85    | 171,663   | c   | c         | 48    | 777,635 <sup>d</sup> |
| <b>Bases (weighted)</b>               |           |                |       |           |       |           |     |           |       |                      |
| White                                 | 1977      | -              | 2353  | -         | 1683  | -         | 490 | -         | 6503  | -                    |
| Men                                   | 1971      | -              | ,406  | -         | 1815  | -         | 775 | -         | 6968  | -                    |
| Women                                 |           |                |       |           |       |           |     |           |       |                      |
| Non White                             | 335       | -              | 241   | -         | 90    | -         | 13  | -         | 679   | -                    |
| Men                                   | 344       | -              | 228   | -         | 70    | -         | 8   | -         | 650   | -                    |
| Women                                 |           |                |       |           |       |           |     |           |       |                      |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |       |           |       |           |     |           |       |                      |
| White                                 |           |                |       |           |       |           |     |           |       |                      |
| Men                                   | 1526      | 5416.8         | 2158  | 6330.5    | 1823  | 4265.7    | 539 | 1330.5    | 6046  | 17343.4              |
| Women                                 | 1864      | 5465.1         | 2649  | 6402.3    | 2174  | 4602.1    | 893 | 2307.9    | 7580  | 18777.4              |
| Non White                             |           |                |       |           |       |           |     |           |       |                      |
| Men                                   | 239       | 743.4          | 200   | 523.9     | 85    | 209.7     | 14  | 30.8      | 538   | 1507.8               |
| Women                                 | 307       | 790.5          | 242   | 579.5     | 80    | 202.7     | 8   | 35.9      | 637   | 1608.6               |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates<sup>c</sup> Data not shown due to small base sizes<sup>d</sup> This total excludes those who are aged 75 and over, as the bases sizes for this group were too small to be able to calculate meaningful data

**Table 3      Prevalence and number of adults overweight and obese, by Social Class, age and sex***Aged 16 and over with valid BMI status*

2003

| BMI Status                             | Age group |                |       |           |       |           |     |         | Total |           |
|--|-----------|----------------|-------|-----------|-------|-----------|-----|---------|-------|-----------|
|  | 16-34     |                | 35-54 |           | 55-74 |           | 75+ |         |       |           |
|  | %         | N <sup>a</sup> | %     | N         | %     | N         | %   | N       | %     | N         |
| <b>Men</b>                             |           |                |       |           |       |           |     |         |       |           |
| <b>Non-Manual</b>                      |           |                |       |           |       |           |     |         |       |           |
| Overweight                             | 33        | 1,045,820      | 49    | 1,806,270 | 52    | 1,138,337 | 53  | 349,370 | 44    | 4,339,797 |
| Obese                                  | 14        | 454,671        | 26    | 946,084   | 25    | 558,101   | 18  | 115,875 | 21    | 2,074,731 |
| Overweight including obese             | 47        | 1,500,491      | 75    | 2,752,354 | 77    | 1,696,438 | 71  | 465,245 | 66    | 6,414,528 |
| <b>Manual</b>                          |           |                |       |           |       |           |     |         |       |           |
| Overweight                             | 32        | 983,581        | 45    | 1,467,515 | 47    | 1,201,108 | 46  | 300,408 | 42    | 3,952,612 |
| Obese                                  | 12        | 377,534        | 28    | 914,603   | 30    | 753,726   | 25  | 163,761 | 23    | 2,209,624 |
| Overweight including obese             | 44        | 1,361,115      | 73    | 2,382,117 | 77    | 1,954,835 | 70  | 464,169 | 65    | 6,162,236 |
| <b>Women</b>                           |           |                |       |           |       |           |     |         |       |           |
| <b>Non-Manual</b>                      |           |                |       |           |       |           |     |         |       |           |
| Overweight                             | 23        | 973,557        | 33    | 1,621,457 | 39    | 1,219,833 | 39  | 522,132 | 32    | 4,336,979 |
| Obese                                  | 13        | 556,863        | 20    | 981,367   | 24    | 741,641   | 25  | 327,521 | 19    | 2,607,392 |
| Overweight including obese             | 36        | 1,530,420      | 54    | 2,602,824 | 63    | 1,961,474 | 64  | 849,653 | 51    | 6,944,371 |
| <b>Manual</b>                          |           |                |       |           |       |           |     |         |       |           |
| Overweight                             | 25        | 491,371        | 32    | 702,917   | 41    | 795,520   | 42  | 432,834 | 33    | 2,422,643 |
| Obese                                  | 20        | 382,899        | 30    | 651,879   | 35    | 678,130   | 29  | 299,204 | 28    | 2,012,112 |
| Overweight including obese             | 45        | 874,271        | 62    | 1,354,797 | 76    | 1,473,650 | 71  | 732,038 | 61    | 4,434,755 |
| <b>Bases (weighted)</b>                |           |                |       |           |       |           |     |         |       |           |
| <i>Non-Manual</i>                      |           |                |       |           |       |           |     |         |       |           |
| <i>Men</i>                             | 1270      | -              | 1441  | -         | 877   | -         | 241 | -       | 3829  | -         |
| <i>Women</i>                           | 1275      | -              | 1561  | -         | 1007  | -         | 383 | -       | 4226  | -         |
| <i>Manual</i>                          |           |                |       |           |       |           |     |         |       |           |
| <i>Men</i>                             | 949       | -              | 1111  | -         | 876   | -         | 259 | -       | 3195  | -         |
| <i>Women</i>                           | 938       | -              | 1016  | -         | 844   | -         | 351 | -       | 3149  | -         |
| <b>Bases (unweighted) <sup>b</sup></b> |           |                |       |           |       |           |     |         |       |           |
| <i>Non-Manual</i>                      |           |                |       |           |       |           |     |         |       |           |
| <i>Men</i>                             | 970       | 3168.0         | 1321  | 3684.4    | 950   | 2193.1    | 265 | 659.8   | 3506  | 9656.1    |
| <i>Women</i>                           | 1193      | 4266.4         | 1724  | 4845.6    | 1210  | 3113.9    | 440 | 1326.7  | 4567  | 13517.5   |
| <i>Manual</i>                          |           |                |       |           |       |           |     |         |       |           |
| <i>Men</i>                             | 729       | 3117.1         | 1003  | 3256.8    | 941   | 2544.9    | 285 | 761.4   | 2958  | 9734.5    |
| <i>Women</i>                           | 885       | 1936.2         | 1105  | 2196.5    | 1006  | 1934.1    | 403 | 1038.3  | 3399  | 7148.7    |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates



**Table 4      Prevalence and number of men overweight and obese, by Government Office Region and age**

*Aged 16 and over with valid BMI status*

2003

| BMI status                            | Age group |                |       |         |       |         |     |         | Total |                      |
|---------------------------------------|-----------|----------------|-------|---------|-------|---------|-----|---------|-------|----------------------|
|                                       | 16-34     |                | 35-54 |         | 55-74 |         | 75+ |         |       |                      |
|                                       | %         | N <sup>a</sup> | %     | N       | %     | N       | %   | N       | %     | N                    |
| <b>Men</b>                            |           |                |       |         |       |         |     |         |       |                      |
| <b>North East</b>                     |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 26        | 77,328         | 50    | 177,702 | 48    | 123,105 | c   | c       | 42    | 378,134 <sup>d</sup> |
| Obese                                 | 11        | 33,232         | 24    | 84,935  | 33    | 83,645  | c   | c       | 23    | 201,812 <sup>d</sup> |
| Overweight including obese            | 37        | 110,560        | 74    | 262,637 | 81    | 206,750 | c   | c       | 65    | 579,946 <sup>d</sup> |
| <b>North West</b>                     |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 32        | 260,673        | 46    | 433,276 | 47    | 310,992 | 41  | 76,808  | 42    | 1,081,749            |
| Obese                                 | 15        | 122,706        | 26    | 245,726 | 31    | 205,098 | 27  | 49,963  | 24    | 623,493              |
| Overweight including obese            | 46        | 383,379        | 72    | 679,002 | 78    | 516,090 | 68  | 126,771 | 66    | 1,705,243            |
| <b>Yorkshire and the Humber</b>       |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 32        | 198,216        | 45    | 313,663 | 45    | 220,069 | 44  | 62,539  | 41    | 794,487              |
| Obese                                 | 15        | 90,388         | 31    | 215,121 | 29    | 142,689 | 25  | 35,675  | 25    | 483,872              |
| Overweight including obese            | 47        | 288,603        | 77    | 528,784 | 75    | 362,758 | 69  | 98,214  | 66    | 1,278,359            |
| <b>East Midlands</b>                  |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 35        | 178,267        | 51    | 308,040 | 46    | 196,700 | 65  | 81,789  | 45    | 764,796              |
| Obese                                 | 16        | 84,206         | 24    | 145,794 | 33    | 141,396 | 19  | 23,426  | 24    | 394,821              |
| Overweight including obese            | 51        | 262,473        | 76    | 453,834 | 79    | 338,096 | 84  | 105,214 | 69    | 1,159,617            |
| <b>West Midlands</b>                  |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 35        | 230,829        | 42    | 306,218 | 54    | 281,821 | 63  | 95,231  | 43    | 914,100              |
| Obese                                 | 15        | 100,616        | 28    | 204,078 | 27    | 143,783 | 19  | 28,314  | 23    | 476,790              |
| Overweight including obese            | 51        | 331,445        | 70    | 510,296 | 81    | 425,604 | 82  | 123,545 | 66    | 1,390,890            |
| <b>East of England</b>                |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 35        | 228,065        | 46    | 351,304 | 51    | 277,137 | 49  | 81,321  | 44    | 937,827              |
| Obese                                 | 17        | 111,001        | 29    | 220,535 | 28    | 152,543 | 21  | 34,777  | 24    | 518,856              |
| Overweight including obese            | 52        | 339,066        | 74    | 571,839 | 79    | 429,680 | 69  | 116,098 | 68    | 1,456,683            |
| <b>London</b>                         |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 30        | 360,784        | 47    | 481,466 | 52    | 276,509 | 48  | 80,425  | 41    | 1,199,184            |
| Obese                                 | 12        | 139,100        | 24    | 247,628 | 20    | 106,179 | 16  | 26,239  | 18    | 519,146              |
| Overweight including obese            | 42        | 499,884        | 71    | 729,093 | 73    | 382,688 | 64  | 106,664 | 58    | 1,718,330            |
| <b>South East</b>                     |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 33        | 322,198        | 50    | 574,301 | 54    | 425,447 | 39  | 94,724  | 45    | 1,416,670            |
| Obese                                 | 10        | 96,758         | 27    | 303,463 | 23    | 176,300 | 20  | 49,306  | 20    | 625,827              |
| Overweight including obese            | 43        | 418,955        | 77    | 877,764 | 77    | 601,748 | 59  | 144,030 | 65    | 2,042,498            |
| <b>South West</b>                     |           |                |       |         |       |         |     |         |       |                      |
| Overweight                            | 37        | 210,320        | 49    | 335,778 | 45    | 239,870 | 54  | 96,129  | 46    | 882,096              |
| Obese                                 | 12        | 67,094         | 26    | 177,601 | 28    | 150,195 | 20  | 35,124  | 23    | 430,014              |
| Overweight including obese            | 49        | 277,414        | 75    | 513,379 | 73    | 390,064 | 74  | 131,253 | 68    | 1,312,110            |
| <b>Bases (weighted)</b>               |           |                |       |         |       |         |     |         |       |                      |
| North East                            | 106       | -              | 126   | -       | 113   | -       | 23  | -       | 339   | -                    |
| North West                            | 282       | -              | 379   | -       | 242   | -       | 61  | -       | 878   | -                    |
| Yorkshire and the Humber              | 216       | -              | 274   | -       | 172   | -       | 50  | -       | 634   | -                    |
| East Midlands                         | 210       | -              | 219   | -       | 158   | -       | 48  | -       | 591   | -                    |
| West Midlands                         | 255       | -              | 284   | -       | 173   | -       | 57  | -       | 676   | -                    |
| East of England                       | 274       | -              | 262   | -       | 214   | -       | 65  | -       | 755   | -                    |
| London                                | 453       | -              | 370   | -       | 197   | -       | 57  | -       | 930   | -                    |
| South East                            | 360       | -              | 408   | -       | 303   | -       | 81  | -       | 1052  | -                    |
| South West                            | 164       | -              | 278   | -       | 203   | -       | 65  | -       | 663   | -                    |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |       |         |       |         |     |         |       |                      |
| North East                            | 96        | 70.3           | 136   | 357.0   | 139   | 253.9   | 27  | 71.4    | 368   | 752.6                |
| North West                            | 233       | 824.8          | 364   | 939.9   | 268   | 663.0   | 68  | 185.1   | 849   | 2612.8               |
| Yorkshire and the Humber              | 164       | 617.7          | 236   | 690.5   | 178   | 483.8   | 53  | 141.9   | 560   | 1933.9               |
| East Midlands                         | 170       | 516.0          | 212   | 599.3   | 180   | 425.3   | 55  | 125.6   | 574   | 1666.2               |
| West Midlands                         | 197       | 656.1          | 265   | 730.0   | 191   | 523.2   | 65  | 151.3   | 629   | 2060.6               |
| East of England                       | 224       | 646.8          | 253   | 768.9   | 238   | 546.7   | 74  | 167.5   | 728   | 2129.9               |
| London                                | 299       | 1190.2         | 298   | 1032.7  | 193   | 527.1   | 59  | 159.6   | 727   | 2909.6               |
| South East                            | 266       | 971.4          | 356   | 1144.9  | 313   | 783.2   | 87  | 243.9   | 930   | 3143.4               |
| South West                            | 122       | 567.5          | 244   | 680.8   | 210   | 532.6   | 69  | 176.8   | 601   | 1957.7               |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

c Data not shown due to small base sizes

d This total excludes those who are aged 75 and over, as the bases sizes for this group were too small to be able to calculate meaningful data

**Table 5      Prevalence and number of women overweight and obese, Government Office Region and age***Aged 16 and over with valid BMI status*

2003

| BMI status                             | Age group |                |       |         |       |         |      |          | Total |           |
|--|-----------|----------------|-------|---------|-------|---------|------|----------|-------|-----------|
|  | 16-34     |                | 35-54 |         | 55-74 |         | 75+  |          |       |           |
|  | %         | N <sup>a</sup> | %     | N       | %     | N       | %    | N        | %     | N         |
| <b>Women</b>                           |           |                |       |         |       |         |      |          |       |           |
| <b>North East</b>                      |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 25        | 76,813         | 37    | 136,522 | 38    | 103,221 | [49] | [59,437] | 35    | 375,993   |
| Obese                                  | 20        | 61,991         | 30    | 110,849 | 23    | 64,113  | [19] | [23,047] | 24    | 260,000   |
| Overweight including obese             | 45        | 138,804        | 67    | 247,371 | 61    | 167,334 | [67] | [81,271] | 59    | 634,780   |
| <b>North West</b>                      |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 28        | 230,189        | 37    | 351,660 | 44    | 310,249 | 36   | 115,000  | 36    | 1,007,098 |
| Obese                                  | 16        | 130,325        | 26    | 249,197 | 31    | 217,523 | 29   | 92,546   | 24    | 689,591   |
| Overweight including obese             | 43        | 360,514        | 63    | 600,858 | 74    | 527,772 | 64   | 207,546  | 60    | 1,696,690 |
| <b>Yorkshire and the Humber</b>        |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 25        | 152,033        | 28    | 199,435 | 43    | 223,385 | 37   | 87,936   | 32    | 662,790   |
| Obese                                  | 17        | 107,167        | 25    | 174,888 | 28    | 147,106 | 33   | 78,668   | 24    | 507,830   |
| Overweight including obese             | 42        | 259,201        | 53    | 374,323 | 71    | 370,491 | 69   | 166,605  | 55    | 1,170,619 |
| <b>East Midlands</b>                   |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 26        | 133,206        | 33    | 197,614 | 37    | 164,405 | 48   | 114,556  | 33    | 609,781   |
| Obese                                  | 16        | 83,857         | 24    | 142,582 | 34    | 150,220 | 21   | 51,206   | 24    | 427,865   |
| Overweight including obese             | 43        | 217,063        | 56    | 340,195 | 71    | 314,626 | 69   | 165,763  | 57    | 1,037,646 |
| <b>West Midlands</b>                   |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 21        | 133,809        | 32    | 237,418 | 44    | 242,896 | 38   | 95,477   | 33    | 709,600   |
| Obese                                  | 28        | 181,854        | 30    | 220,320 | 30    | 164,860 | 21   | 52,813   | 29    | 619,847   |
| Overweight including obese             | 49        | 315,663        | 62    | 457,738 | 74    | 407,756 | 59   | 148,290  | 61    | 1,329,447 |
| <b>East of England</b>                 |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 29        | 182,381        | 30    | 234,322 | 40    | 228,797 | 34   | 90,726   | 33    | 736,226   |
| Obese                                  | 13        | 85,164         | 26    | 203,428 | 29    | 165,160 | 39   | 105,729  | 24    | 559,481   |
| Overweight including obese             | 42        | 267,545        | 56    | 437,751 | 68    | 393,957 | 73   | 196,455  | 57    | 1,295,707 |
| <b>London</b>                          |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 19        | 222,206        | 31    | 317,419 | 34    | 350,493 | 41   | 109,748  | 27    | 999,865   |
| Obese                                  | 11        | 130,618        | 22    | 232,464 | 33    | 343,921 | 23   | 59,812   | 20    | 766,816   |
| Overweight including obese             | 31        | 352,824        | 53    | 549,883 | 67    | 694,414 | 64   | 169,560  | 48    | 1,766,681 |
| <b>South East</b>                      |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 21        | 203,310        | 33    | 384,560 | 39    | 328,068 | 43   | 177,379  | 32    | 1,093,318 |
| Obese                                  | 13        | 128,261        | 19    | 215,385 | 26    | 216,653 | 20   | 80,876   | 19    | 641,175   |
| Overweight including obese             | 35        | 331,570        | 52    | 599,946 | 65    | 544,721 | 63   | 258,256  | 52    | 1,734,493 |
| <b>South West</b>                      |           |                |       |         |       |         |      |          |       |           |
| Overweight                             | 23        | 128,290        | 37    | 260,451 | 40    | 223,507 | 40   | 116,183  | 35    | 728,431   |
| Obese                                  | 12        | 68,217         | 21    | 145,311 | 26    | 147,748 | 30   | 87,207   | 21    | 448,484   |
| Overweight including obese             | 36        | 196,507        | 58    | 405,762 | 66    | 371,255 | 70   | 203,390  | 56    | 1,176,914 |
| <b>Bases (weighted)</b>                |           |                |       |         |       |         |      |          |       |           |
| North East                             | 109       | -              | 125   | -       | 108   | -       | 35   | -        | 376   | -         |
| North West                             | 268       | -              | 342   | -       | 222   | -       | 69   | -        | 901   | -         |
| Yorkshire and the Humber               | 215       | -              | 218   | -       | 167   | -       | 50   | -        | 650   | -         |
| East Midlands                          | 168       | -              | 208   | -       | 150   | -       | 56   | -        | 582   | -         |
| West Midlands                          | 202       | -              | 253   | -       | 181   | -       | 60   | -        | 696   | -         |
| East of England                        | 228       | -              | 252   | -       | 191   | -       | 65   | -        | 735   | -         |
| London                                 | 342       | -              | 321   | -       | 163   | -       | 50   | -        | 876   | -         |
| South East                             | 301       | -              | 380   | -       | 304   | -       | 85   | -        | 1071  | -         |
| South West                             | 163       | -              | 265   | -       | 189   | -       | 66   | -        | 683   | -         |
| <b>Bases (unweighted).<sup>b</sup></b> |           |                |       |         |       |         |      |          |       |           |
| North East                             | 123       | 306.6          | 157   | 367.2   | 145   | 273.4   | 43   | 121.3    | 468   | 1068.5    |
| North West                             | 271       | 837.0          | 385   | 961.2   | 269   | 710.0   | 81   | 321.9    | 1006  | 2830.1    |
| Yorkshire and the Humber               | 196       | 618.6          | 224   | 700.2   | 191   | 519.3   | 56   | 240.3    | 667   | 2078.4    |
| East Midlands                          | 172       | 508.4          | 248   | 603.8   | 191   | 443.6   | 67   | 199.6    | 678   | 1755.4    |
| West Midlands                          | 194       | 646.3          | 292   | 734.2   | 222   | 551.2   | 70   | 250.2    | 778   | 2181.9    |
| East of England                        | 224       | 637.2          | 290   | 775.5   | 235   | 576.6   | 76   | 267.8    | 825   | 2257.1    |
| London                                 | 282       | 1154.4         | 319   | 1035.2  | 181   | 577.8   | 55   | 265.5    | 837   | 3032.9    |
| South East                             | 271       | 955.1          | 402   | 1158.8  | 351   | 832.4   | 95   | 408.3    | 1119  | 3354.6    |
| South West                             | 143       | 550.7          | 277   | 703.9   | 219   | 565.6   | 73   | 290.2    | 712   | 2110.4    |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

[ ] indicate that caution should be taken with these estimates due to small base sizes

**Table 6 Prevalence and numbers of overweight and obesity among adults, by levels of physical activity, age and sex**

*Aged 16 and over with valid BMI*

2003

| Level of physical activity            | Age group |                |       |           |       |           |      |           | Total |                        |
|---------------------------------------|-----------|----------------|-------|-----------|-------|-----------|------|-----------|-------|------------------------|
|                                       | 16-34     |                | 35-54 |           | 55-74 |           | 75+  |           |       |                        |
|                                       | %         | N <sup>a</sup> | %     | N         | %     | N         | %    | N         | %     | N                      |
| <b>Men</b>                            |           |                |       |           |       |           |      |           |       |                        |
| <b>Insufficiently active</b>          |           |                |       |           |       |           |      |           |       |                        |
| Overweight                            | 33        | 1,086,643      | 48    | 1,974,565 | 49    | 1,707,923 | 47   | 611,610   | 44    | 5,380,741              |
| Obese                                 | 16        | 514,519        | 29    | 1,199,252 | 29    | 826,234   | 22   | 278,817   | 25    | 2,818,821              |
| Overweight including obese            | 49        | 1,601,161      | 77    | 3,173,817 | 78    | 2,728,009 | 69   | 890,427   | 69    | 8,393,414              |
| <b>Active</b>                         |           |                |       |           |       |           |      |           |       |                        |
| Overweight                            | 32        | 979,569        | 47    | 1,936,216 | 51    | 1,795,273 | [69] | [92,726]  | 42    | 4,803,784              |
| Obese                                 | 11        | 337,251        | 23    | 956,960   | 22    | 781,474   | [15] | [20,465]  | 18    | 2,096,149              |
| Overweight including obese            | 44        | 1,316,820      | 70    | 2,893,176 | 74    | 2,576,746 | [84] | [113,190] | 60    | 6,899,933              |
| <b>Women</b>                          |           |                |       |           |       |           |      |           |       |                        |
| <b>Insufficiently active</b>          |           |                |       |           |       |           |      |           |       |                        |
| Overweight                            | 24        | 101,8545       | 33    | 1,583,814 | 40    | 1,614,184 | 41   | 915,598   | 33    | 5,132,141              |
| Obese                                 | 17        | 755,790        | 27    | 1,284,779 | 32    | 1,284,328 | 27   | 604,459   | 25    | 3,929,356              |
| Overweight including obese            | 41        | 1,774,335      | 59    | 2,868,594 | 71    | 2,898,512 | 67   | 1,520,057 | 58    | 9,061,497              |
| <b>Active</b>                         |           |                |       |           |       |           |      |           |       |                        |
| Overweight                            | 24        | 456,312        | 34    | 743,805.2 | 41    | 405,659   | c    | c         | 32    | 1,556,977 <sup>d</sup> |
| Obese                                 | 12        | 221,480        | 19    | 411,600   | 18    | 171,942   | c    | c         | 16    | 780,884 <sup>d</sup>   |
| Overweight including obese            | 36        | 677,792        | 53    | 115,5405  | 59    | 577,601   | c    | c         | 48    | 2,337,861 <sup>d</sup> |
| <b>Bases (weighted)</b>               |           |                |       |           |       |           |      |           |       |                        |
| <i>Insufficiently active</i>          |           |                |       |           |       |           |      |           |       |                        |
| Men                                   | 1118      | -              | 1422  | -         | 1180  | -         | 331  | -         | 4051  | -                      |
| Women                                 | 1387      | -              | 1623  | -         | 1348  | -         | 511  | -         | 4869  | -                      |
| <i>Active</i>                         |           |                |       |           |       |           |      |           |       |                        |
| Men                                   | 1036      | -              | 963   | -         | 423   | -         | 35   | -         | 2458  | -                      |
| Women                                 | 603       | -              | 738   | -         | 324   | -         | 24   | -         | 1689  | -                      |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |       |           |       |           |      |           |       |                        |
| <i>Insufficiently active</i>          |           |                |       |           |       |           |      |           |       |                        |
| Men                                   | 859       | 3261.5         | 1302  | 8335.4    | 1273  | 3487.5    | 365  | 3430.0    | 3799  | 12068.9                |
| Women                                 | 1299      | 4324.9         | 1786  | 4839.7    | 1609  | 4071.6    | 587  | 2257.9    | 5281  | 15338.9                |
| <i>Active</i>                         |           |                |       |           |       |           |      |           |       |                        |
| Men                                   | 789       | 3023.6         | 874   | 2805.0    | 456   | 1251.6    | 38   | 134.6     | 2157  | 7322.5                 |
| Women                                 | 571       | 1880.8         | 807   | 2200.4    | 391   | 978.3     | 28   | 107.3     | 1797  | 5322.0                 |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

c Data not shown due to small base sizes

d This total excludes those who are aged 75 and over, as the bases sizes for this group were too small to be able to calculate meaningful data

[ ] indicate that caution should be taken with these estimates due to small base sizes

**Table 7 Prevalence and numbers of overweight and obesity among adults, by smoking status, age and sex**

*Aged 16 and over with valid BMI*

2003

| Smoking status                        | Age group |                |       |           |       |           |     |         | Total |           |
|---------------------------------------|-----------|----------------|-------|-----------|-------|-----------|-----|---------|-------|-----------|
|                                       | 16-34     |                | 35-54 |           | 55-74 |           | 75+ |         |       |           |
|                                       | %         | N <sup>a</sup> | %     | N         | %     | N         | %   | N       | %     | N         |
| <b>Men</b>                            |           |                |       |           |       |           |     |         |       |           |
| <b>Never smoked Cigarettes</b>        |           |                |       |           |       |           |     |         |       |           |
| Overweight                            | 29        | 891,615        | 46    | 1,333,801 | 48    | 635,703   | c   | 157,555 | 39    | 3,018,674 |
| Obese                                 | 13        | 401,291        | 24    | 683,271   | 25    | 327,772   | 13  | 51,320  | 19    | 1,463,655 |
| Overweight including obese            | 41        | 1,292,906      | 70    | 2,017,073 | 72    | 963,475   | 54  | 208,875 | 58    | 4,482,328 |
| <b>Used to smoke cigarettes</b>       |           |                |       |           |       |           |     |         |       |           |
| Overweight                            | 35        | 315,376        | 43    | 921,623   | 45    | 1,144,080 | 36  | 336,626 | 42    | 2,717,705 |
| Obese                                 | 19        | 173,031        | 32    | 683,054   | 28    | 703,609   | 18  | 163,837 | 27    | 1,723,531 |
| Overweight including obese            | 54        | 488,407        | 75    | 1,604,677 | 73    | 1,847,689 | 54  | 500,462 | 69    | 4,441,236 |
| <b>Current cigarette smoker</b>       |           |                |       |           |       |           |     |         |       |           |
| Overweight                            | 33        | 735,847        | 40    | 766,574   | 40    | 349,506   | c   | c       | 36    | 1,874,948 |
| Obese                                 | 10        | 226,811        | 17    | 335,734   | 17    | 151,939   | c   | c       | 14    | 716,803   |
| Overweight including obese            | 43        | 962,658        | 57    | 1,102,309 | 57    | 501,445   | c   | c       | 50    | 2,591,751 |
| <b>Women</b>                          |           |                |       |           |       |           |     |         |       |           |
| <b>Never smoked Cigarettes</b>        |           |                |       |           |       |           |     |         |       |           |
| Overweight                            | 20        | 635,970        | 29    | 1,004,000 | 36    | 850,809   | 27  | 303,589 | 28    | 2,794,368 |
| Obese                                 | 12        | 383,385        | 21    | 723,044   | 24    | 569,645   | 18  | 208,147 | 19    | 1,884,220 |
| Overweight including obese            | 32        | 1,019,354      | 50    | 1,727,043 | 60    | 1,420,454 | 45  | 511,737 | 46    | 4,678,588 |
| <b>Used to smoke cigarettes</b>       |           |                |       |           |       |           |     |         |       |           |
| Overweight                            | 18        | 214,231        | 31    | 509,834   | 37    | 635,427   | 30  | 304,229 | 30    | 1,663,721 |
| Obese                                 | 16        | 183,641        | 25    | 422,443   | 30    | 525,374   | 19  | 193,063 | 24    | 1,324,521 |
| Overweight including obese            | 34        | 397,872        | 56    | 932,277   | 67    | 1,160,801 | 49  | 497,292 | 54    | 2,988,241 |
| <b>Current cigarette smoker</b>       |           |                |       |           |       |           |     |         |       |           |
| Overweight                            | 23        | 430,126        | 30    | 571,984   | 32    | 310,423   | 20  | 43,387  | 27    | 1,355,920 |
| Obese                                 | 15        | 286,905        | 19    | 372,691   | 21    | 199,017   | 12  | 24,454  | 18    | 883,067   |
| Overweight including obese            | 38        | 717,031        | 49    | 944,675   | 53    | 509,440   | 32  | 67,841  | 45    | 2,238,987 |
| <i>Bases (weighted)</i>               |           |                |       |           |       |           |     |         |       |           |
| <i>Never smoked cigarettes</i>        |           |                |       |           |       |           |     |         |       |           |
| <b>Men</b>                            | 1047      | -              | 994   | -         | 447   | -         | 104 | -       | 2591  | -         |
| <b>Women</b>                          | 998       | -              | 1136  | -         | 774   | -         | 253 | -       | 3162  | -         |
| <i>Used to smoke cigarettes</i>       |           |                |       |           |       |           |     |         |       |           |
| <b>Men</b>                            | 306       | -              | 725   | -         | 859   | -         | 241 | -       | 2130  | -         |
| <b>Women</b>                          | 357       | -              | 563   | -         | 586   | -         | 231 | -       | 1736  | -         |
| <i>Current cigarette smokers</i>      |           |                |       |           |       |           |     |         |       |           |
| <b>Men</b>                            | 770       | -              | 653   | -         | 298   | -         | 24  | -       | 1746  | -         |
| <b>Women</b>                          | 624       | -              | 660   | -         | 313   | -         | 52  | -       | 1649  | -         |
| <i>Bases (unweighted)<sup>b</sup></i> |           |                |       |           |       |           |     |         |       |           |
| <i>Never smoked cigarettes</i>        |           |                |       |           |       |           |     |         |       |           |
| <b>Men</b>                            | 788       | 3120.6         | 913   | 2880.7    | 476   | 1333.9    | 114 | 387.0   | 2291  | 7711.9    |
| <b>Women</b>                          | 919       | 3178.9         | 1239  | 3436.6    | 917   | 2356.3    | 290 | 1130.8  | 3365  | 10103.9   |
| <i>Used to smoke cigarettes</i>       |           |                |       |           |       |           |     |         |       |           |
| <b>Men</b>                            | 240       | 908.1          | 664   | 2127.9    | 939   | 2532.9    | 266 | 924.8   | 2109  | 6508.1    |
| <b>Women</b>                          | 338       | 1162.8         | 618   | 1669.4    | 706   | 1725.3    | 265 | 1022.0  | 1927  | 5540.0    |
| <i>Current cigarette smokers</i>      |           |                |       |           |       |           |     |         |       |           |
| <b>Men</b>                            | 597       | 2256.4         | 586   | 1935.5    | 315   | 872.4     | 26  | 111.3   | 1524  | 5171.5    |
| <b>Women</b>                          | 603       | 1864.0         | 733   | 1934.1    | 378   | 968.4     | 60  | 212.5   | 1774  | 5016.9    |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

c Data not shown due to small base sizes

**Table 8      Prevalence and number of children overweight and obese prevalence, by age and sex***Aged 2-15 with valid BMI*

2003

| BMI Status                            | Age group |                |      |         |       |         | Total 2-10 |         | Total 2-15 |           |
|---------------------------------------|-----------|----------------|------|---------|-------|---------|------------|---------|------------|-----------|
|                                       | 2-5       |                | 6-10 |         | 11-15 |         |            |         |            |           |
|                                       | %         | N <sup>a</sup> | %    | N       | %     | N       | %          | N       | %          | N         |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |           |
| Overweight                            | 13        | 156,669        | 15   | 244,021 | 14    | 242,822 | 15         | 400,690 | 15         | 643,513   |
| Obese                                 | 12        | 144,195        | 17   | 266,690 | 20    | 335,777 | 15         | 410,884 | 17         | 746,662   |
| Overweight including obese            | 25        | 300,864        | 32   | 510,710 | 35    | 578,600 | 30         | 811,575 | 32         | 1,390,174 |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |           |
| Overweight                            | 12        | 140,880        | 14   | 211,311 | 16    | 260,856 | 13         | 352,192 | 15         | 613,048   |
| Obese                                 | 10        | 116,261        | 14   | 208,041 | 22    | 351,682 | 12         | 324,302 | 16         | 675,983   |
| Overweight including obese            | 23        | 257,141        | 28   | 419,352 | 38    | 612,537 | 26         | 676,494 | 31         | 1,289,031 |
| <b>Bases (weighted)</b>               |           |                |      |         |       |         |            |         |            |           |
| Boys                                  | 330       | -              | 549  | -       | 535   | -       | 878        | -       | 1452       | -         |
| Girls                                 | 341       | -              | 516  | -       | 547   | -       | 858        | -       | 1393       | -         |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |      |         |       |         |            |         |            |           |
| Boys                                  | 332       | 1183.6         | 532  | 1581.8  | 553   | 1676.8  | 864        | 2765.4  | 1417       | 4442.2    |
| Girls                                 | 336       | 1129.3         | 533  | 1506.8  | 547   | 1591.9  | 869        | 2636.1  | 1416       | 4228.0    |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese<sup>b</sup> Bases are presented in thousands and use data from the 2003 mid population estimates

**Table 9 Prevalence and number of children overweight and obese prevalence, by ethnic group, age and sex**

*Aged 2-15 with valid BMI*

2003

| BMI Status                            | Age group |                |      |         |       |         | Total 2-10 |         | Total 2-15 |           |
|---------------------------------------|-----------|----------------|------|---------|-------|---------|------------|---------|------------|-----------|
|                                       | 2-5       |                | 6-10 |         | 11-15 |         |            |         |            |           |
|                                       | %         | N <sup>a</sup> | %    | N       | %     | N       | %          | N       | %          | N         |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |           |
| <b>White</b>                          |           |                |      |         |       |         |            |         |            |           |
| Overweight                            | 15        | 152,006        | 15   | 216,454 | 15    | 210,628 | 15         | 368,460 | 15         | 579,088   |
| Obese                                 | 11        | 115,907        | 17   | 237,314 | 18    | 265,257 | 15         | 353,221 | 16         | 618,478   |
| Overweight including obese            | 26        | 267,912        | 32   | 453,769 | 33    | 475,884 | 30         | 721,681 | 31         | 1,197,566 |
| <b>Non White</b>                      |           |                |      |         |       |         |            |         |            |           |
| Overweight                            | 7         | 11,609         | 14   | 30,407  | 13    | 26,417  | 11         | 42,017  | 12         | 69,299    |
| Obese                                 | 17        | 29,711         | 17   | 35,663  | 30    | 62,625  | 17         | 65,374  | 22         | 128,443   |
| Overweight including obese            | 23        | 41,320         | 31   | 66,070  | 44    | 89,043  | 28         | 107,391 | 34         | 197,742   |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |           |
| <b>White</b>                          |           |                |      |         |       |         |            |         |            |           |
| Overweight                            | 13        | 129,160        | 14   | 188,975 | 15    | 211,141 | 14         | 318,136 | 14         | 529,277   |
| Obese                                 | 10        | 93,924         | 14   | 190,280 | 21    | 292,533 | 12         | 284,203 | 16         | 576,736   |
| Overweight including obese            | 23        | 223,084        | 28   | 379,255 | 37    | 503,673 | 26         | 602,339 | 30         | 1,106,012 |
| <b>Non White</b>                      |           |                |      |         |       |         |            |         |            |           |
| Overweight                            | [8]       | [14,457]       | 13   | 26,867  | 22    | 44,534  | 11         | 41,324  | 16         | 85,858    |
| Obese                                 | [16]      | [26,687]       | 11   | 22,194  | 26    | 52,615  | 13         | 48,881  | 18         | 101,496   |
| Overweight including obese            | [24]      | [41,144]       | 24   | 49,061  | 48    | 97,149  | 24         | 90,205  | 34         | 187,354   |
| <b>Bases (weighted)</b>               |           |                |      |         |       |         |            |         |            |           |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |           |
| White                                 | 272       | -              | 480  | -       | 500   | -       | 752        | -       | 1252       | -         |
| Non White                             | 58        | -              | 67   | -       | 74    | -       | 125        | -       | 199        | -         |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |           |
| White                                 | 296       | -              | 448  | -       | 463   | -       | 745        | -       | 1208       | -         |
| Non White                             | 44        | -              | 68   | -       | 72    | -       | 112        | -       | 184        | -         |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |      |         |       |         |            |         |            |           |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |           |
| White                                 | 282       | 1036.9         | 476  | 1405.9  | 492   | 1435.0  | 758        | 2442.8  | 1250       | 3877.8    |
| Non White                             | 50        | 176.0          | 55   | 210.4   | 61    | 207.4   | 105        | 386.4   | 166        | 593.8     |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |           |
| White                                 | 294       | 985.5          | 473  | 335.3   | 482   | 364.2   | 767        | 2320.9  | 1249       | 3685.1    |
| Non White                             | 41        | 170.1          | 60   | 203.9   | 65    | 200.4   | 101        | 374.0   | 166        | 574.3     |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

**Table 10 Prevalence and number of children overweight and obese prevalence, by social class, age and sex**

*Aged 2-15 with valid BMI*

2003

| BMI Status                            | Age group |                |      |         |       |         | Total 2-10 |         | Total 2-15 |         |
|---------------------------------------|-----------|----------------|------|---------|-------|---------|------------|---------|------------|---------|
|                                       | 2-5       |                | 6-10 |         | 11-15 |         |            |         |            |         |
|                                       | %         | N <sup>a</sup> | %    | N       | %     | N       | %          | N       | %          | N       |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |         |
| <b>Non-manual</b>                     |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 12        | 81,594         | 16   | 150,033 | 12    | 109,378 | 15         | 231,627 | 14         | 341,005 |
| Obese                                 | 11        | 75,765         | 15   | 141,477 | 19    | 165,011 | 14         | 217,242 | 16         | 382,253 |
| Overweight including obese            | 24        | 157,359        | 32   | 291,510 | 31    | 274,389 | 29         | 448,869 | 30         | 723,258 |
| <b>Manual</b>                         |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 14        | 73,748         | 16   | 107,909 | 16    | 127,336 | 15         | 181,657 | 16         | 308,993 |
| Obese                                 | 12        | 64,558         | 18   | 119,471 | 20    | 161,880 | 16         | 184,029 | 18         | 345,909 |
| Overweight including obese            | 27        | 138,307        | 34   | 227,379 | 36    | 289,216 | 31         | 365,686 | 33         | 654,903 |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |         |
| <b>Non-manual</b>                     |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 14        | 89,843         | 12   | 96,267  | 16    | 151,646 | 12         | 186,109 | 14         | 337,755 |
| Obese                                 | 8         | 51,067         | 13   | 108,660 | 18    | 168,638 | 11         | 159,727 | 14         | 328,365 |
| Overweight including obese            | 21        | 140,910        | 25   | 204,926 | 35    | 320,284 | 23         | 345,836 | 28         | 666,120 |
| <b>Manual</b>                         |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 11        | 54,082         | 15   | 101,485 | 16    | 110,493 | 14         | 155,567 | 15         | 266,060 |
| Obese                                 | 14        | 64,525         | 15   | 101,524 | 26    | 171,150 | 15         | 166,049 | 19         | 337,199 |
| Overweight including obese            | 25        | 118,607        | 31   | 203,009 | 42    | 281,643 | 29         | 321,616 | 34         | 603,258 |
| <b>Bases (weighted)</b>               |           |                |      |         |       |         |            |         |            |         |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |         |
| Non-manual                            | 167       | -              | 285  | -       | 280   | -       | 451        | -       | 731        | -       |
| Manual                                | 141       | -              | 229  | -       | 270   | -       | 371        | -       | 641        | -       |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |         |
| Non-manual                            | 182       | -              | 271  | -       | 290   | -       | 453        | -       | 743        | -       |
| Manual                                | 147       | -              | 224  | -       | 224   | -       | 371        | -       | 595        | -       |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |      |         |       |         |            |         |            |         |
| <b>Boys</b>                           |           |                |      |         |       |         |            |         |            |         |
| Non-manual                            | 176       | 665.0          | 284  | 913.6   | 287   | 883.5   | 460        | 1578.8  | 747        | 2460.9  |
| Manual                                | 135       | 518.4          | 217  | 667.5   | 248   | 793.1   | 352        | 1186.4  | 600        | 1981.2  |
| <b>Girls</b>                          |           |                |      |         |       |         |            |         |            |         |
| Non-manual                            | 188       | 657.6          | 290  | 835.3   | 310   | 922.2   | 478        | 1492.9  | 788        | 2415.2  |
| Manual                                | 137       | 472.0          | 222  | 657.0   | 218   | 670.2   | 359        | 1144.1  | 577        | 1813.8  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

**Table 11 Prevalence and number of children overweight and obese prevalence, by Government Office Region and age**

*Aged 2-15 with valid BMI*

2003

| BMI Status                            | Age group |                |      |         |       |         | Total 2-10 |         | Total 2-15 |         |
|---------------------------------------|-----------|----------------|------|---------|-------|---------|------------|---------|------------|---------|
|                                       | 2-5       |                | 6-10 |         | 11-15 |         |            |         |            |         |
|                                       | %         | N <sup>a</sup> | %    | N       | %     | N       | %          | N       | %          | N       |
| <b>All children</b>                   |           |                |      |         |       |         |            |         |            |         |
| <b>North East</b>                     |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | [21]      | [23,561]       | 15   | 22,428  | 14    | 23,339  | 18         | 45,989  | 16         | 69,328  |
| Obese                                 | [2]       | [2,095]        | 15   | 22,983  | 27    | 44,897  | 9          | 25,078  | 15         | 69,975  |
| Overweight including obese            | [23]      | [25,656]       | 29   | 45,411  | 41    | 68,236  | 27         | 71,067  | 32         | 139,303 |
| <b>North West</b>                     |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 10        | 31,923         | 14   | 59,812  | 17    | 79,736  | 12         | 91,735  | 14         | 171,471 |
| Obese                                 | 14        | 42,706         | 14   | 60,281  | 19    | 88,867  | 14         | 102,988 | 16         | 191,855 |
| Overweight including obese            | 24        | 74,630         | 28   | 120,093 | 36    | 168,603 | 26         | 194,723 | 30         | 363,326 |
| <b>Yorkshire and The Humber</b>       |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 12        | 28,193         | 15   | 47,520  | 13    | 44,573  | 14         | 75,713  | 14         | 120,286 |
| Obese                                 | 8         | 17,774         | 17   | 53,640  | 26    | 88,344  | 13         | 71,414  | 18         | 159,758 |
| Overweight including obese            | 20        | 45,967         | 32   | 101,160 | 39    | 132,918 | 27         | 147,127 | 32         | 280,045 |
| <b>East Midlands</b>                  |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 8         | 15,424         | 13   | 32,284  | 16    | 44,904  | 11         | 50,709  | 13         | 95,613  |
| Obese                                 | 12        | 22,322         | 16   | 41,413  | 24    | 68,932  | 14         | 63,735  | 18         | 132,667 |
| Overweight including obese            | 20        | 37,747         | 29   | 73,697  | 40    | 113,835 | 26         | 114,444 | 31         | 198,280 |
| <b>West Midlands</b>                  |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 17        | 42,314         | 17   | 56,936  | 12    | 43,804  | 17         | 99,250  | 15         | 143,055 |
| Obese                                 | 11        | 28,983         | 17   | 57,242  | 29    | 105,628 | 15         | 86,225  | 20         | 191,853 |
| Overweight including obese            | 28        | 71,297         | 34   | 114,178 | 41    | 149,433 | 32         | 185,475 | 35         | 334,908 |
| <b>East England</b>                   |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 13        | 33,476         | 12   | 42,109  | 9     | 32,860  | 13         | 75,586  | 11         | 108,446 |
| Obese                                 | 9         | 22,002         | 15   | 51,526  | 17    | 59,491  | 13         | 73,529  | 14         | 133,020 |
| Overweight including obese            | 22        | 55,479         | 27   | 93,636  | 26    | 92,352  | 25         | 149,115 | 26         | 241,466 |
| <b>London</b>                         |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 12        | 46,198         | 11   | 47,258  | 17    | 72,370  | 11         | 93,456  | 13         | 165,826 |
| Obese                                 | 20        | 76,183         | 19   | 83,554  | 21    | 89,929  | 20         | 159,738 | 20         | 249,666 |
| Overweight including obese            | 33        | 122,381        | 29   | 130,812 | 37    | 162,299 | 31         | 253,193 | 33         | 415,492 |
| <b>South East</b>                     |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 11        | 39,659         | 20   | 100,764 | 20    | 105,400 | 17         | 140,423 | 18         | 245,823 |
| Obese                                 | 12        | 43,062         | 12   | 61,248  | 15    | 80,059  | 12         | 104,310 | 13         | 184,369 |
| Overweight including obese            | 22        | 82,721         | 32   | 162,011 | 36    | 185,459 | 29         | 244,733 | 31         | 430,192 |
| <b>South West</b>                     |           |                |      |         |       |         |            |         |            |         |
| Overweight                            | 16        | 33,781         | 13   | 38,387  | 17    | 53,820  | 14         | 72,168  | 15         | 125,988 |
| Obese                                 | 5         | 10,480         | 16   | 47,226  | 19    | 59,168  | 12         | 57,706  | 15         | 116,874 |
| Overweight including obese            | 21        | 44,261         | 29   | 85,613  | 36    | 112,988 | 26         | 129,874 | 30         | 242,862 |
| <b>Bases (weighted)</b>               |           |                |      |         |       |         |            |         |            |         |
| North East                            | 43        | -              | 52   | -       | 53    | -       | 95         | -       | 148        | -       |
| North West                            | 90        | -              | 146  | -       | 167   | -       | 236        | -       | 403        | -       |
| Yorkshire and The Humber              | 67        | -              | 107  | -       | 102   | -       | 174        | -       | 176        | -       |
| East Midlands                         | 54        | -              | 95   | -       | 95    | -       | 149        | -       | 244        | -       |
| West Midlands                         | 65        | -              | 125  | -       | 118   | -       | 190        | -       | 308        | -       |
| East England                          | 71        | -              | 114  | -       | 136   | -       | 186        | -       | 321        | -       |
| London                                | 108       | -              | 127  | -       | 151   | -       | 235        | -       | 386        | -       |
| South East                            | 103       | -              | 188  | -       | 161   | -       | 292        | -       | 453        | -       |
| South West                            | 69        | -              | 111  | -       | 126   | -       | 180        | -       | 307        | -       |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |      |         |       |         |            |         |            |         |
| North East                            | 46        | 110.5          | 61   | 154.3   | 59    | 167.9   | 107        | 264.8   | 161        | 432.7   |
| North West                            | 99        | 313.3          | 165  | 430     | 177   | 465.6   | 264        | 743.4   | 449        | 1208.9  |
| Yorkshire and The Humber              | 61        | 231.6          | 98   | 316.3   | 100   | 336.7   | 159        | 547.9   | 255        | 884.6   |
| East Midlands                         | 56        | 191.9          | 99   | 263.8   | 104   | 281.4   | 155        | 455.7   | 253        | 737.1   |
| West Midlands                         | 72        | 253            | 136  | 340.7   | 127   | 360.2   | 208        | 593.7   | 350        | 953.9   |
| East England                          | 70        | 256.3          | 117  | 343.5   | 137   | 350.9   | 187        | 599.8   | 320        | 950.7   |
| London                                | 99        | 374.9          | 110  | 444     | 124   | 436.2   | 209        | 818.9   | 340        | 1255.1  |
| South East                            | 102       | 374            | 177  | 502.7   | 149   | 522.4   | 279        | 876.7   | 438        | 1399.1  |
| South West                            | 63        | 214.4          | 102  | 297.3   | 123   | 315.7   | 165        | 511.7   | 288        | 827.3   |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

[ ] Indicates caution should be taken with these estimates due to small base sizes



**Table 12 Prevalence and number of children overweight and obese, by physical activity levels, age and sex**

*Aged 2-15 with valid BMI*

2002

| BMI Status                            | Age group |                |      |         |     |         | Total 2-10 |         | Total 2-15 |         |
|---------------------------------------|-----------|----------------|------|---------|-----|---------|------------|---------|------------|---------|
|                                       | 2-5       | 6-10           |      | 11-15   |     |         |            |         |            |         |
|                                       | %         | N <sup>a</sup> | %    | N       | %   | N       | %          | N       | %          | N       |
| <b>Boys</b>                           |           |                |      |         |     |         |            |         |            |         |
| <b>Insufficiently active</b>          |           |                |      |         |     |         |            |         |            |         |
| Overweight                            | 10        | 34,350         | 13   | 60,330  | 16  | 79,072  | 12         | 94,680  | 13         | 173,753 |
| Obese                                 | 17        | 56,538         | 18   | 83,159  | 20  | 98,465  | 17         | 139,697 | 18         | 238,163 |
| Overweight including obese            | 27        | 90,888         | 30   | 143,489 | 35  | 177,538 | 29         | 234,378 | 31         | 411,915 |
| <b>Active</b>                         |           |                |      |         |     |         |            |         |            |         |
| Overweight                            | 15        | 125,945        | 14   | 149,835 | 14  | 161,716 | 14         | 275,779 | 14         | 437,495 |
| Obese                                 | 14        | 117,314        | 15   | 160,907 | 20  | 230,604 | 14         | 278,221 | 16         | 508,825 |
| Overweight including obese            | 29        | 243,259        | 28   | 310,742 | 33  | 392,320 | 28         | 554,001 | 30         | 946,321 |
| <b>Girls</b>                          |           |                |      |         |     |         |            |         |            |         |
| <b>Insufficiently active</b>          |           |                |      |         |     |         |            |         |            |         |
| Overweight                            | 14        | 48,289         | 15   | 78,298  | 14  | 106,084 | 14         | 126,587 | 14         | 232,671 |
| Obese                                 | 13        | 46,119         | 18   | 97,553  | 21  | 158,336 | 16         | 143,673 | 18         | 302,008 |
| Overweight including obese            | 27        | 94,408         | 33   | 175,852 | 35  | 264,420 | 31         | 270,260 | 33         | 534,680 |
| <b>Active</b>                         |           |                |      |         |     |         |            |         |            |         |
| Overweight                            | 15        | 119,317        | 10   | 102,072 | 16  | 134,540 | 12         | 221,389 | 14         | 355,929 |
| Obese                                 | 11        | 82,819         | 19   | 183,965 | 18  | 146,232 | 15         | 266,783 | 16         | 413,016 |
| Overweight including obese            | 26        | 202,136        | 29   | 286,037 | 34  | 280,772 | 28         | 488,172 | 30         | 768,945 |
| <b>Bases(weighted)</b>                |           |                |      |         |     |         |            |         |            |         |
| <b>Boys</b>                           |           |                |      |         |     |         |            |         |            |         |
| Insufficiently active                 | 251       | -              | 437  | -       | 409 | -       | 688        | -       | 1097       | -       |
| Active                                | 634       | -              | 1023 | -       | 958 | -       | 1657       | -       | 2615       | -       |
| <b>Girls</b>                          |           |                |      |         |     |         |            |         |            |         |
| Insufficiently active                 | 285       | -              | 480  | -       | 630 | -       | 764        | -       | 1395       | -       |
| Active                                | 631       | -              | 882  | -       | 695 | -       | 1512       | -       | 2208       | -       |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |      |         |     |         |            |         |            |         |
| <b>Boys</b>                           |           |                |      |         |     |         |            |         |            |         |
| Insufficiently active                 | 218       | 358.8          | 376  | 480.8   | 360 | 503.9   | 594        | 839.6   | 954        | 1343.5  |
| Active                                | 554       | 853.5          | 872  | 1119.9  | 841 | 1159.8  | 1426       | 1973.4  | 2267       | 3133.2  |
| <b>Girls</b>                          |           |                |      |         |     |         |            |         |            |         |
| Insufficiently active                 | 243       | 366.3          | 402  | 538.7   | 564 | 754.9   | 645        | 904.9   | 1209       | 1659.8  |
| Active                                | 559       | 789.2          | 733  | 985.3   | 610 | 827.1   | 1292       | 1774.6  | 1902       | 2601.7  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2002 mid population estimates

**Table 13 Prevalence and number of overweight and obesity prevalence among children, by parental overweight/obesity and sex**

2003

| BMI Status                            | Age group |                |      |          |       |          | Total 2-10 |         | Total 2-15 |         |
|---------------------------------------|-----------|----------------|------|----------|-------|----------|------------|---------|------------|---------|
|                                       | 2-5       |                | 6-10 |          | 11-15 |          |            |         |            |         |
|                                       | %         | N <sup>a</sup> | %    | N        | %     | N        | %          | N       | %          | N       |
| <b>Boys</b>                           |           |                |      |          |       |          |            |         |            |         |
| <b>No obese/overweight parents</b>    |           |                |      |          |       |          |            |         |            |         |
| overweight                            | c         | c              | [13] | [17,931] | [7]   | [9,994]  | 12         | 30,481  | 10         | 40,475  |
| obese                                 | c         | c              | [4]  | [5,460]  | [7]   | [9,814]  | 5          | 11,835  | 6          | 21,649  |
| overweight and obese                  | c         | c              | [16] | [23,391] | [14]  | [19,809] | 17         | 42,315  | 16         | 62,124  |
| <b>One overweight/obese parent</b>    |           |                |      |          |       |          |            |         |            |         |
| overweight                            | 15        | 120,377        | 13   | 133,312  | 14    | 140,636  | 14         | 253,689 | 14         | 394,352 |
| obese                                 | 11        | 87,216         | 14   | 137,400  | 23    | 224,325  | 13         | 244,616 | 17         | 448,941 |
| overweight and obese                  | 26        | 207,593        | 27   | 270,712  | 38    | 364,961  | 27         | 478,305 | 31         | 843,266 |
| <b>Both parents obese/overweight</b>  |           |                |      |          |       |          |            |         |            |         |
| overweight                            | 17        | 46,754         | 26   | 118,386  | 20    | 112,913  | 23         | 165,140 | 22         | 278,053 |
| obese                                 | 18        | 50,478         | 29   | 127,858  | 24    | 133,061  | 25         | 178,337 | 24         | 311,397 |
| overweight and obese                  | 35        | 97,232         | 55   | 246,244  | 43    | 245,974  | 48         | 343,477 | 46         | 589,450 |
| <b>Girls</b>                          |           |                |      |          |       |          |            |         |            |         |
| <b>No obese/overweight parents</b>    |           |                |      |          |       |          |            |         |            |         |
| overweight                            | [6]       | [9,086]        | [11] | [13,776] | 9     | 18,055   | 9          | 22,862  | 9          | 40,917  |
| obese                                 | [7]       | [10,701]       | [0]  | [-]      | 3     | 6,244    | 4          | 10,701  | 4          | 16,945  |
| overweight and obese                  | [14]      | [19,787]       | [11] | [13,776] | 13    | 24,299   | 13         | 33,563  | 13         | 57,862  |
| <b>One overweight/obese parent</b>    |           |                |      |          |       |          |            |         |            |         |
| overweight                            | 9         | 63,468         | 13   | 124,027  | 15    | 137,312  | 11         | 187,495 | 13         | 324,808 |
| obese                                 | 10        | 69,892         | 13   | 131,289  | 22    | 199,593  | 12         | 201,181 | 16         | 400,774 |
| overweight and obese                  | 19        | 133,361        | 26   | 255,316  | 37    | 336,905  | 23         | 388,677 | 28         | 725,582 |
| <b>Both parents obese/overweight</b>  |           |                |      |          |       |          |            |         |            |         |
| overweight                            | 20        | 59,217         | 16   | 62,553   | 20    | 95,293   | 17         | 121,770 | 18         | 217,063 |
| obese                                 | 17        | 48,726         | 25   | 100,775  | 34    | 164,161  | 22         | 149,500 | 27         | 313,661 |
| overweight and obese                  | 37        | 107,942        | 41   | 163,328  | 54    | 259,454  | 39         | 271,270 | 45         | 530,724 |
| <b>Bases (weighted)</b>               |           |                |      |          |       |          |            |         |            |         |
| <i>Boys</i>                           |           |                |      |          |       |          |            |         |            |         |
| No obese/overweight parents           | 22        | -              | 40   | -        | 38    | -        | 62         | -       | 100        | -       |
| One overweight/obese parent           | 166       | -              | 279  | -        | 261   | -        | 445        | -       | 706        | -       |
| Both parents obese/overweight         | 59        | -              | 126  | -        | 152   | -        | 185        | -       | 337        | -       |
| <i>Girls</i>                          |           |                |      |          |       |          |            |         |            |         |
| No obese/overweight parents           | 34        | -              | 34   | -        | 49    | -        | 68         | -       | 117        | -       |
| One overweight/obese parent           | 167       | -              | 263  | -        | 236   | -        | 430        | -       | 666        | -       |
| Both parents obese/overweight         | 70        | -              | 108  | -        | 124   | -        | 178        | -       | 302        | -       |
| <b>Bases (unweighted)<sup>b</sup></b> |           |                |      |          |       |          |            |         |            |         |
| <i>Boys</i>                           |           |                |      |          |       |          |            |         |            |         |
| No obese/overweight parents           | 22        | 100.7          | 39   | 143.8    | 38    | 147.3    | 61         | 244.5   | 99         | 391.8   |
| One overweight/obese parent           | 163       | 800.5          | 261  | 991.6    | 251   | 973.9    | 424        | 1792.1  | 675        | 2766.0  |
| Both parents obese/overweight         | 58        | 282.4          | 126  | 446.4    | 145   | 555.7    | 184        | 728.8   | 329        | 1284.4  |
| <i>Girls</i>                          |           |                |      |          |       |          |            |         |            |         |
| No obese/overweight parents           | 34        | 146.2          | 32   | 124.2    | 51    | 201.4    | 66         | 270.3   | 117        | 471.7   |
| One overweight/obese parent           | 162       | 705.2          | 261  | 984.8    | 239   | 913.2    | 423        | 1690.0  | 662        | 2603.2  |
| Both parents obese/overweight         | 67        | 278.0          | 121  | 397.8    | 125   | 477.4    | 188        | 675.8   | 313        | 1153.1  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight, obese or overweight including obese

<sup>b</sup> Population bases (n) are presented in thousands and use data from the 2003 mid population estimates

<sup>c</sup> Percentages and estimates not presented due to small base sizes

[ ] Indicates caution should be taken with these estimates due to small base sizes

**Table 14**      **Prevalence and number of adults overweight and obese in 2003 and 2010, by age and sex***Aged 16 and over**2003, 2010 (predicted)*

| BMI                                    | Status | Age group |                |       |           |       |           |     |         | Total <sup>d</sup> |           |
|--|--------|-----------|----------------|-------|-----------|-------|-----------|-----|---------|--------------------|-----------|
|  |        | 16-34     |                | 35-54 |           | 55-74 |           | 75+ |         |                    |           |
|  |        | %         | N <sup>a</sup> | %     | N         | %     | N         | %   | N       | %                  | N         |
| <b>Men</b>                             |        |           |                |       |           |       |           |     |         |                    |           |
| <b>Obesity</b>                         |        |           |                |       |           |       |           |     |         |                    |           |
| 2003 <sup>b</sup>                      |        | 14        | 851,769        | 27    | 1,848,110 | 28    | 1,305,710 | 21  | 296,998 | 22                 | 4,302,588 |
| 2010                                   |        | 16        | 100,0442       | 38    | 2,739,197 | 35    | 1,800,426 | 22  | 355,637 | 33                 | 6,658,953 |
| <b>Overweight</b>                      |        |           |                |       |           |       |           |     |         |                    |           |
| 2003 <sup>b</sup>                      |        | 33        | 2,066,211      | 47    | 3,281,310 | 50    | 2,349,520 | 50  | 706,323 | 43                 | 8,403,365 |
| 2010                                   |        | 32        | 2,066,758      | 46    | 3,311,964 | 47    | 2,410,355 | 42  | 688,703 | 42                 | 8,556,189 |
| <b>Women</b>                           |        |           |                |       |           |       |           |     |         |                    |           |
| <b>Obesity</b>                         |        |           |                |       |           |       |           |     |         |                    |           |
| 2003 <sup>b</sup>                      |        | 16        | 980,440        | 24    | 1,695,650 | 29    | 1,455,904 | 26  | 622,087 | 23                 | 4,754,080 |
| 2010                                   |        | 22        | 1,340,247      | 29    | 2,120,025 | 28    | 1,552,815 | 23  | 559,090 | 28                 | 5,984,653 |
| <b>Overweight</b>                      |        |           |                |       |           |       |           |     |         |                    |           |
| 2003 <sup>b</sup>                      |        | 24        | 1,470,007      | 33    | 2,329,645 | 40    | 2,021,398 | 40  | 951,706 | 33                 | 6,772,757 |
| 2010                                   |        | 22        | 1,388,170      | 32    | 2,312,614 | 36    | 1,951,753 | 33  | 794,704 | 30                 | 6,478,212 |
| <i>Bases (weighted):</i>               |        |           |                |       |           |       |           |     |         |                    |           |
| <i>Men</i>                             |        |           |                |       |           |       |           |     |         |                    |           |
| 2003                                   |        | 2154      | -              | 2389  | -         | 1607  | -         | 369 | -       | 6519               | -         |
| <i>Women</i>                           |        |           |                |       |           |       |           |     |         |                    |           |
| 2003                                   |        | 1996      | -              | 2362  | -         | 1675  | -         | 536 | -       | 6570               | -         |
| <i>Bases (unweighted):<sup>c</sup></i> |        |           |                |       |           |       |           |     |         |                    |           |
| <i>Men</i>                             |        |           |                |       |           |       |           |     |         |                    |           |
| 2003                                   |        | 1648      | 6285.1         | 2179  | 6944.1    | 1733  | 4739.1    | 406 | 1423.1  | 5966               | 19391.4   |
| 2010                                   |        | -         | 6382.0         | -     | 7259.1    | -     | 5174.9    | -   | 1639.9  | -                  | 20455.9   |
| <i>Women</i>                           |        |           |                |       |           |       |           |     |         |                    |           |
| 2003                                   |        | 1876      | 6205.7         | 2594  | 7040.1    | 2004  | 5049.9    | 616 | 2365.2  | 7090               | 20660.9   |
| 2010                                   |        | -         | 6225.6         | -     | 7336.2    | -     | 5476.8    | -   | 2434.0  | -                  | 21472.6   |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.<sup>d</sup> For 2010 data, the total number of people either obese or overweight may differ from the cumulative total of the age groups presented. This is due to imprecision within the forecast modelling.

**Table 15** Prevalence and number of children overweight and obese in 2003 and 2010, by age and sex*Aged 2-15**2003, 2010 (predicted)*

| BMI Status                            | Age group |                |      |         |       |         | Total 2-10 <sup>d</sup> |         | Total 2-15 <sup>d</sup> |         |
|---------------------------------------|-----------|----------------|------|---------|-------|---------|-------------------------|---------|-------------------------|---------|
|                                       | 2-5       |                | 6-10 |         | 11-15 |         |                         |         |                         |         |
|                                       | %         | N <sup>a</sup> | %    | N       | %     | N       | %                       | N       | %                       | N       |
| <b>Boys</b>                           |           |                |      |         |       |         |                         |         |                         |         |
| <b>Obesity</b>                        |           |                |      |         |       |         |                         |         |                         |         |
| 2003 <sup>b</sup>                     | 12        | 144,195        | 17   | 266,690 | 20    | 335,777 | 15                      | 410,884 | 17                      | 746,662 |
| 2010                                  | 13        | 159,497        | 19   | 277,657 | 31    | 479,519 | 17                      | 443,604 | 19                      | 792,321 |
| <b>Overweight</b>                     |           |                |      |         |       |         |                         |         |                         |         |
| 2003 <sup>b</sup>                     | 13        | 156,669        | 15   | 244,021 | 14    | 242,822 | 15                      | 400,690 | 15                      | 643,513 |
| 2010                                  | 15        | 173,127        | 14   | 215,147 | 14    | 221,859 | 15                      | 389,113 | 14                      | 610,799 |
| <b>Girls</b>                          |           |                |      |         |       |         |                         |         |                         |         |
| <b>Obesity</b>                        |           |                |      |         |       |         |                         |         |                         |         |
| 2003 <sup>b</sup>                     | 10        | 116,261        | 14   | 208,041 | 22    | 351,682 | 12                      | 324,302 | 16                      | 675,983 |
| 2010                                  | 10        | 118,172        | 24   | 342,449 | 27    | 396,325 | 19                      | 483,867 | 22                      | 910,630 |
| <b>Overweight</b>                     |           |                |      |         |       |         |                         |         |                         |         |
| 2003 <sup>b</sup>                     | 12        | 140,880        | 14   | 211,311 | 16    | 260,856 | 13                      | 352,192 | 15                      | 613,048 |
| 2010                                  | 13        | 146,924        | 14   | 197,401 | 16    | 241,566 | 13                      | 345,338 | 14                      | 586,338 |
| <i>Bases (weighted)</i>               |           |                |      |         |       |         |                         |         |                         |         |
| <i>Boys</i>                           |           |                |      |         |       |         |                         |         |                         |         |
| 2003                                  | 330       | -              | 549  | -       | 574   | -       | 878                     | -       | 1452                    | -       |
| <i>Girls</i>                          |           |                |      |         |       |         |                         |         |                         |         |
| 2003                                  | 341       | -              | 516  | -       | 535   | -       | 858                     | -       | 1393                    | -       |
| <i>Bases (unweighted)<sup>c</sup></i> |           |                |      |         |       |         |                         |         |                         |         |
| <i>Boys</i>                           |           |                |      |         |       |         |                         |         |                         |         |
| 2003                                  | 332       | 1183.6         | 532  | 1581.8  | 553   | 1676.8  | 864                     | 2765.4  | 1417                    | 4442.2  |
| 2010                                  | -         | 1186.8         | -    | 1490.4  | -     | 1554.3  | -                       | 2677.2  | -                       | 4231.5  |
| <i>Girls</i>                          |           |                |      |         |       |         |                         |         |                         |         |
| 2003                                  | 336       | 1129.3         | 533  | 1506.8  | 547   | 1591.9  | 869                     | 2636.1  | 1416                    | 4228.0  |
| 2010                                  | -         | 1132.3         | -    | 1427.4  | -     | 1489.0  | -                       | 2559.7  | -                       | 4048.7  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.<sup>d</sup> For 2010 data, the total number of people either obese or overweight may differ from the cumulative total of the age groups presented. This is due to imprecision within forecasting modelling.

**Table 16** Prevalence and number of adults overweight and obese in 2003 and 2010, by social class and sex*Aged 16 and over**2003, 2010 (predicted)*

| BMI Status                            | Social Class |           |        |           |
|---------------------------------------|--------------|-----------|--------|-----------|
|                                       | Non Manual   |           | Manual |           |
|                                       | %            | N         | %      | N         |
| <b>Men</b>                            |              |           |        |           |
| <b>Obesity</b>                        |              |           |        |           |
| 2003 <sup>b</sup>                     | 21           | 2,074,731 | 23     | 2,209,624 |
| 2010                                  | 27           | 2,721,283 | 29     | 2,990,515 |
| <b>Overweight</b>                     |              |           |        |           |
| 2003 <sup>b</sup>                     | 44           | 4,339,797 | 42     | 3,952,612 |
| 2010                                  | 42           | 4,231,987 | 38     | 3,930,498 |
| <b>Women</b>                          |              |           |        |           |
| <b>Obesity</b>                        |              |           |        |           |
| 2003 <sup>b</sup>                     | 19           | 2,607,392 | 28     | 2,012,112 |
| 2010                                  | 18           | 2,504,559 | 28     | 2,099,698 |
| <b>Overweight</b>                     |              |           |        |           |
| 2003 <sup>b</sup>                     | 32           | 4,336,979 | 33     | 2,422,643 |
| 2010                                  | 28           | 3,964,729 | 28     | 2,101,652 |
| <b>Bases (weighted)</b>               |              |           |        |           |
| <i>Men</i>                            |              |           |        |           |
| 2003                                  | 3829         | -         | 3195   | -         |
| <i>Women</i>                          |              |           |        |           |
| 2003                                  | 4226         | -         | 3149   | -         |
| <b>Bases (unweighted)<sup>c</sup></b> |              |           |        |           |
| <i>Men</i>                            |              |           |        |           |
| 2003                                  | 3506         | 9656.1    | 2958   | 9734.5    |
| 2010                                  | -            | 10,186.2  | -      | 10,269.2  |
| <i>Women</i>                          |              |           |        |           |
| 2003                                  | 4567         | 13517.5   | 3399   | 7148.7    |
| 2010                                  | -            | 14048.5   | -      | 7429.5    |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.

**Table 17      Prevalence and number of adults overweight and obese in 2003 and 2010, by Government Office Region and sex**

*Aged 16 and over*

*2003, 2010 (predicted)*

| BMI Status                            | Government Office Region |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
|---------------------------------------|--------------------------|----------------|------------|-----------|--------------------------|---------|---------------|---------|---------------|---------|-----------------|---------|--------|-----------|------------|-----------|------------|---------|
|                                       | North East               |                | North West |           | Yorkshire and the Humber |         | West Midlands |         | East Midlands |         | East of England |         | London |           | South East |           | South West |         |
|                                       | %                        | N <sup>a</sup> | %          | N         | %                        | N       | %             | N       | %             | N       | %               | N       | %      | N         | %          | N         | %          | N       |
| <b>Men</b>                            |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| <b>Obesity</b>                        |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003 <sup>b</sup>                     | 23                       | 201,812        | 24         | 623,493   | 25                       | 483,872 | 23            | 476,790 | 24            | 394,821 | 24              | 518,856 | 18     | 519,146   | 20         | 625,827   | 23         | 430,014 |
| 2010                                  | 31                       | 309,267        | 23         | 612,111   | 39                       | 784,073 | 24            | 514,643 | 27            | 468,313 | 30              | 682,481 | 17     | 527,370   | 23         | 754,779   | 22         | 470,294 |
| <b>Overweight</b>                     |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003 <sup>b</sup>                     | 42                       | 378,134        | 42         | 1,081,749 | 41                       | 794,487 | 43            | 914,100 | 45            | 764,796 | 44              | 937,827 | 41     | 1,199,184 | 45         | 1,416,670 | 46         | 882,096 |
| 2010                                  | 40                       | 399,969        | 39         | 1,065,832 | 39                       | 784,816 | 40            | 841,404 | 40            | 706,050 | 44              | 998,012 | 38     | 1,181,743 | 39         | 1,289,283 | 41         | 853,682 |
| <b>Women</b>                          |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| <b>Obesity</b>                        |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003 <sup>b</sup>                     | 24                       | 260,000        | 24         | 689,591   | 24                       | 507,830 | 29            | 619,847 | 24            | 427,865 | 24              | 559,481 | 20     | 766,816   | 19         | 641,175   | 21         | 448,484 |
| 2010                                  | 25                       | 267,271        | 22         | 630,157   | 27                       | 573,968 | 24            | 547,224 | 22            | 401,130 | 24              | 573,558 | 19     | 602,854   | 17         | 582,728   | 16         | 358,886 |
| <b>Overweight</b>                     |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003 <sup>b</sup>                     | 35                       | 375,993        | 36         | 1,007,098 | 32                       | 662,790 | 33            | 709,600 | 33            | 609,781 | 33              | 736,226 | 27     | 999,865   | 32         | 1,093,318 | 35         | 728,431 |
| 2010                                  | 32                       | 340,189        | 30         | 863,080   | 27                       | 578,568 | 28            | 622,355 | 29            | 538,128 | 29              | 700,878 | 25     | 797,490   | 26         | 913,042   | 29         | 645,790 |
| <b>Bases (weighted)</b>               |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| <i>Men</i>                            |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003                                  | 368                      | -              | 963        | -         | 712                      | -       | 770           | -       | 635           | -       | 815             | -       | 1077   | -         | 1153       | -         | 709        | -       |
| <i>Women</i>                          |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003                                  | 376                      | -              | 901        | -         | 650                      | -       | 696           | -       | 582           | -       | 735             | -       | 876    | -         | 1071       | -         | 683        | -       |
| <b>Bases (unweighted)<sup>c</sup></b> |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| <i>Men</i>                            |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003                                  | 398                      | 752.6          | 933        | 2612.8    | 631                      | 1933.9  | 718           | 2060.6  | 617           | 1666.2  | 789             | 2129.9  | 849    | 2909.6    | 1022       | 3143.4    | 645        | 1957.7  |
| 2010                                  | -                        | 1004.0         | -          | 2720.4    | -                        | 2020.0  | -             | 2125.6  | -             | 1764.3  | -               | 2275.10 | -      | 3114.84   | -          | 3334.42   | -          | 2097.2  |
| <i>Women</i>                          |                          |                |            |           |                          |         |               |         |               |         |                 |         |        |           |            |           |            |         |
| 2003                                  | 468                      | 1068.5         | 1006       | 2830.1    | 667                      | 2078.4  | 778           | 2181.9  | 678           | 1755.4  | 825             | 2257.1  | 837    | 3032.9    | 1119       | 3354.6    | 712        | 2110.4  |
| 2010                                  | -                        | 1075.6         | -          | 2887.4    | -                        | 2148.2  | -             | 2254.8  | -             | 1847.5  | -               | 2377.70 | -      | 3145.04   | -          | 3508.90   | -          | 2227.5  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese

<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.

<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.

<sup>d</sup> Caution must be taken when interpreting trends and forecasted estimated by Government Office Region. Changes in the way the data is presented and administrative changes to GOR boundaries mean the GOR categories are not always directly comparable year on year as they do not always represent the identical geographic areas.

**Table 18      Prevalence and number of women overweight and obese in 2003 and 2010, by levels of physical activity<sup>d</sup>**

*Aged 16 and over*

*2003, 2010 (predicted)*

| BMI Status                            | Level of physical activity |                |        |                        |
|---------------------------------------|----------------------------|----------------|--------|------------------------|
|                                       | Insufficiently active      |                | Active |                        |
|                                       | %                          | N <sup>a</sup> | %      | N                      |
| <b>Women</b>                          |                            |                |        |                        |
| <b>Obesity</b>                        |                            |                |        |                        |
| 2003 <sup>b</sup>                     | 25                         | 3,929,356      | 16     | 780,884 <sup>d</sup>   |
| 2010                                  | 23                         | 3,662,795      | 17     | 920,674                |
| <b>Overweight</b>                     |                            |                |        |                        |
| 2003 <sup>b</sup>                     | 33                         | 5,132,141      | 32     | 1,556,977 <sup>d</sup> |
| 2010                                  | 29                         | 4,548,293      | 29     | 1,609,305              |
| <b>Bases (weighted)</b>               |                            |                |        |                        |
| <b>Women</b>                          |                            |                |        |                        |
| 2003                                  | 4869                       | -              | 1689   | -                      |
| <b>Bases (unweighted)<sup>c</sup></b> |                            |                |        |                        |
| <b>Women</b>                          |                            |                |        |                        |
| 2003                                  | 5281                       | 15338.9        | 1797   | 5322.0                 |
| 2010                                  | -                          | 15941.5        | -      | 5531.1                 |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese

<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.

<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.

<sup>d</sup> Due to features of the forecast modelling it is only possible to present obesity estimates in 2010 by levels of physical activity for women. See report commentary for a full explanation about estimates for men.

**Table 19      Prevalence and number of children overweight and obese in 2003 and 2010, by social class and sex**

*Aged 2-15*

*2003, 2010 (predicted)*

| BMI Status                            | Social Class and Age Group |                |        |         |                 |         |        |         |
|---------------------------------------|----------------------------|----------------|--------|---------|-----------------|---------|--------|---------|
|                                       | Total aged 2-10            |                |        |         | Total aged 2-15 |         |        |         |
|                                       | Non Manual                 |                | Manual |         | Non Manual      |         | Manual |         |
|                                       | %                          | N <sup>a</sup> | %      | N       | %               | N       | %      | N       |
| <b>Boys</b>                           |                            |                |        |         |                 |         |        |         |
| <b>Obesity</b>                        |                            |                |        |         |                 |         |        |         |
| 2003 <sup>b</sup>                     | 14                         | 217,242        | 16     | 184,029 | 16              | 382,253 | 18     | 345,909 |
| 2010                                  | 17                         | 258,577        | 22     | 252,142 | 18              | 345,436 | 25     | 462,687 |
| <b>Overweight</b>                     |                            |                |        |         |                 |         |        |         |
| 2003 <sup>b</sup>                     | 15                         | 231,627        | 15     | 181,657 | 14              | 341,005 | 16     | 308,993 |
| 2010                                  | 14                         | 212,505        | 15     | 174,676 | 16              | 306,830 | 15     | 280,893 |
| <b>Girls</b>                          |                            |                |        |         |                 |         |        |         |
| <b>Obesity</b>                        |                            |                |        |         |                 |         |        |         |
| 2003 <sup>b</sup>                     | 11                         | 159,727        | 15     | 166,049 | 14              | 328,365 | 19     | 337,199 |
| 2010                                  | 13                         | 194,688        | 27     | 303,645 | 17              | 391,777 | 28     | 492,363 |
| <b>Overweight</b>                     |                            |                |        |         |                 |         |        |         |
| 2003 <sup>b</sup>                     | 12                         | 186,109        | 14     | 155,567 | 14              | 337,755 | 15     | 266,060 |
| 2010                                  | 13                         | 184,244        | 15     | 162,748 | 15              | 336,234 | 15     | 253,739 |
| <b>Bases (weighted)</b>               |                            |                |        |         |                 |         |        |         |
| <i>Boys</i>                           |                            |                |        |         |                 |         |        |         |
| 2003                                  | 451                        | -              | 371    | -       | 731             | -       | 641    | -       |
| <i>Girls</i>                          |                            |                |        |         |                 |         |        |         |
| 2003                                  | 453                        | -              | 371    | -       | 743             | -       | 595    | -       |
| <b>Bases (unweighted)<sup>c</sup></b> |                            |                |        |         |                 |         |        |         |
| <i>Boys</i>                           |                            |                |        |         |                 |         |        |         |
| 2003                                  | 460                        | 1578.8         | 352    | 1186.4  | 747             | 2460.9  | 600    | 1981.2  |
| 2010                                  | -                          | 1528.4         | -      | 1148.5  | -               | 2344.1  | -      | 1887.2  |
| <i>Girls</i>                          |                            |                |        |         |                 |         |        |         |
| 2003                                  | 478                        | 1492.9         | 359    | 1144.1  | 788             | 2415.2  | 577    | 1813.8  |
| 2010                                  | -                          | 1449.6         | -      | 1110.9  | -               | 2312.8  | -      | 1736.9  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese

<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.

<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.



**Table 20**      **Prevalence and number of children aged 2-10 overweight and obese in 2003 and 2010, by Government Office Region and sex***Aged 2-10**2003, 2010 (predicted)*

| BMI Status                            | Government Office Region |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
|---------------------------------------|--------------------------|----------------|------------|--------|--------------------------|--------|---------------|--------|---------------|--------|---------|--------|--------|---------|------------|--------|------------|--------|
|                                       | North East               |                | North West |        | Yorkshire and the Humber |        | West Midlands |        | East Midlands |        | Eastern |        | London |         | South East |        | South West |        |
|                                       | %                        | N <sup>a</sup> | %          | N      | %                        | N      | %             | N      | %             | N      | %       | N      | %      | N       | %          | N      | %          | N      |
| <b>Boys</b>                           |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| <b>Obesity</b>                        |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003 <sup>b</sup>                     | 8                        | 11,052         | 14         | 54,103 | 11                       | 31,631 | 15            | 46,917 | 18            | 42,939 | 16      | 49,818 | 21     | 88,478  | 12         | 54,931 | 14         | 36,528 |
| 2010                                  | 11                       | 14,192         | 13         | 46,073 | 17                       | 44,909 | 15            | 44,768 | 17            | 37,666 | 19      | 56,754 | 29     | 122,728 | 16         | 69,237 | 16         | 39,321 |
| <b>Overweight</b>                     |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003 <sup>b</sup>                     | 13                       | 18,255         | 14         | 52,260 | 14                       | 40,161 | 18            | 55,533 | 13            | 30,616 | 16      | 48,033 | 10     | 42,893  | 18         | 79,274 | 15         | 39,851 |
| 2010                                  | 14                       | 17,564         | 14         | 50,815 | 16                       | 41,862 | 16            | 45,474 | 15            | 34,187 | 13      | 40,140 | 14     | 60,696  | 14         | 60,066 | 14         | 35,215 |
| <b>Girls</b>                          |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| <b>Obesity</b>                        |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003 <sup>b</sup>                     | 10                       | 12,596         | 14         | 49,148 | 15                       | 40,819 | 14            | 42,030 | 9             | 20,758 | 9       | 25,290 | 17     | 69,016  | 12         | 50,092 | 9          | 21,599 |
| 2010                                  | 14                       | 15,964         | 23         | 78,379 | 15                       | 37,184 | 19            | 53,388 | 11            | 23,501 | 11      | 32,397 | 15     | 63,015  | 13         | 53,635 | 8          | 18,655 |
| <b>Overweight</b>                     |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003 <sup>b</sup>                     | 21                       | 27,742         | 11         | 41,149 | 14                       | 36,287 | 15            | 44,080 | 10            | 21,092 | 9       | 27,266 | 13     | 52,153  | 16         | 68,154 | 12         | 30,927 |
| 2010                                  | 15                       | 17,000         | 11         | 38,669 | 15                       | 37,166 | 14            | 39,081 | 15            | 33,239 | 14      | 40,161 | 14     | 58,657  | 12         | 51,590 | 11         | 27,279 |
| <b>Bases (weighted)</b>               |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| <i>Boys</i>                           |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003                                  | 45                       | -              | 113        | -      | 82                       | -      | 93            | -      | 81            | -      | 96      | -      | 136    | -       | 128        | -      | 103        | -      |
| <i>Girls</i>                          |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003                                  | 49                       | -              | 122        | -      | 92                       | -      | 97            | -      | 68            | -      | 90      | -      | 99     | -       | 164        | -      | 77         | -      |
| <b>Bases (unweighted)<sup>c</sup></b> |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| <i>Boys</i>                           |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003                                  | 54                       | 135.7          | 131        | 381.4  | 71                       | 279.7  | 103           | 234.2  | 82            | 303.6  | 93      | 307.3  | 112    | 417.8   | 124        | 450.4  | 94         | 262.1  |
| 2010                                  | -                        | 124.9          | -          | 358.2  | -                        | 262.2  | -             | 224.4  | -             | 290.7  | -       | 301.4  | -      | 424.9   | -          | 438.5  | -          | 252.0  |
| <i>Girls</i>                          |                          |                |            |        |                          |        |               |        |               |        |         |        |        |         |            |        |            |        |
| 2003                                  | 53                       | 129.1          | 133        | 362.0  | 88                       | 268.2  | 105           | 221.5  | 73            | 290.1  | 94      | 292.5  | 97     | 401.1   | 155        | 426.3  | 71         | 249.5  |
| 2010                                  | -                        | 115.1          | -          | 340.1  | -                        | 253.1  | -             | 215.0  | -             | 278.6  | -       | 291.5  | -      | 409.6   | -          | 417.0  | -          | 239.7  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.<sup>d</sup> Caution must be taken when interpreting trends and forecast predictions by Government Office Region. Changes in the way the data is presented and administrative changes to GOR boundaries mean the GOR categories are not always directly comparable year on year as they do not always represent the identical geographic areas.

**Table 21      Prevalence and number of children aged 2-15 overweight and obese in 2003 and 2010, by Government Office Region and sex***Aged 2-15**2003, 2010 (predicted)*

| BMI Status                            | Government Office Region <sup>d</sup> |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
|---------------------------------------|---------------------------------------|----------------|------------|---------|--------------------------|---------|---------------|---------|---------------|--------|---------|--------|--------|---------|------------|---------|------------|--------|
|                                       | North East                            |                | North West |         | Yorkshire and the Humber |         | West Midlands |         | East Midlands |        | Eastern |        | London |         | South East |         | South West |        |
|                                       | %                                     | N <sup>a</sup> | %          | N       | %                        | N       | %             | N       | %             | N      | %       | N      | %      | N       | %          | N       | %          | N      |
| <b>Boys</b>                           |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| <b>Obesity</b>                        |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003 <sup>b</sup>                     | 16                                    | 35,043         | 15         | 94,932  | 15                       | 69,330  | 20            | 96,182  | 22            | 82,043 | 17      | 80,700 | 22     | 143,052 | 13         | 93,933  | 14         | 58,370 |
| 2010                                  | 20                                    | 39,800         | 12         | 67,276  | 18                       | 73,772  | 26            | 122,038 | 28            | 99,148 | 21      | 99,764 | 28     | 174,218 | 12         | 86,230  | 14         | 58,096 |
| <b>Overweight</b>                     |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003 <sup>b</sup>                     | 15                                    | 34,324         | 16         | 101,729 | 13                       | 57,245  | 15            | 71,734  | 13            | 48,788 | 12      | 56,092 | 14     | 92,146  | 17         | 119,613 | 15         | 65,439 |
| 2010                                  | 15                                    | 30,810         | 14         | 80,508  | 16                       | 65,065  | 14            | 63,992  | 13            | 48,240 | 13      | 62,794 | 16     | 101,755 | 15         | 101,725 | 14         | 56,317 |
| <b>Girls</b>                          |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| <b>Obesity</b>                        |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003 <sup>b</sup>                     | 15                                    | 31,477         | 17         | 98,469  | 21                       | 88,963  | 21            | 98,694  | 14            | 51,453 | 12      | 54,790 | 17     | 103,883 | 13         | 89,893  | 16         | 63,113 |
| 2010                                  | 24                                    | 44,256         | 24         | 128,999 | 28                       | 112,628 | 24            | 107,125 | 18            | 60,488 | 15      | 67,335 | 14     | 88,655  | 15         | 97,043  | 16         | 61,707 |
| <b>Overweight</b>                     |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003 <sup>b</sup>                     | 17                                    | 36,111         | 13         | 73,750  | 15                       | 62,943  | 15            | 71,009  | 14            | 48,559 | 11      | 50,342 | 12     | 75,294  | 19         | 129,425 | 15         | 60,655 |
| 2010                                  | 15                                    | 28,437         | 14         | 73,642  | 16                       | 64,272  | 15            | 68,124  | 15            | 52,511 | 14      | 63,878 | 15     | 89,168  | 14         | 92,683  | 13         | 51,027 |
| <b>Bases (weighted)</b>               |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| <i>Boys</i>                           |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003                                  | 75                                    | -              | 196        | -       | 129                      | -       | 152           | -       | 129           | -      | 175     | -      | 216    | -       | 208        | -       | 172        | -      |
| <i>Girls</i>                          |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003                                  | 73                                    | -              | 207        | -       | 147                      | -       | 156           | -       | 115           | -      | 147     | -      | 169    | -       | 245        | -       | 134        | -      |
| <b>Bases (unweighted)<sup>c</sup></b> |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| <i>Boys</i>                           |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003                                  | 86                                    | 221.6          | 217        | 619.8   | 115                      | 451.9   | 167           | 379.1   | 133           | 488.2  | 168     | 486.9  | 174    | 641.2   | 196        | 719.6   | 161        | 424.8  |
| 2010                                  | -                                     | 202.7          | -          | 570.7   | -                        | 419.6   | -             | 359.2   | -             | 461.6  | -       | 477.4  | -      | 633.5   | -          | 697.5   | -          | 409.3  |
| <i>Girls</i>                          |                                       |                |            |         |                          |         |               |         |               |        |         |        |        |         |            |         |            |        |
| 2003                                  | 80                                    | 211.1          | 224        | 589.1   | 144                      | 432.7   | 168           | 358.0   | 126           | 465.6  | 156     | 463.7  | 159    | 613.9   | 232        | 679.5   | 127        | 402.6  |
| 2010                                  | -                                     | 187.2          | -          | 543.3   | -                        | 406.8   | -             | 344.9   | -             | 439.5  | -       | 461.2  | -      | 613.1   | -          | 662.0   | -          | 390.8  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.<sup>d</sup> Caution must be taken when interpreting trends and forecast predictions by Government Office Region. Changes in the way the data is presented and administrative changes to GOR boundaries mean the GOR categories are not always directly comparable year on year as they do not always represent the identical geographic areas.

**Table 22**      **Prevalence and number of children's overweight and obese in 2003 and 2010, by physical activity levels and sex**

*Aged 2-15*

*2002, 2010 (predicted)*

| BMI Status                            | Physical activity status and age group |                |        |         |                       |         |        |         |
|---------------------------------------|--|----------------|--------|---------|-----------------------|---------|--------|---------|
|                                       | Total aged 2-10                        |                |        |         | Total aged 2-15       |         |        |         |
|                                       | Insufficiently active                  |                | Active |         | Insufficiently active |         | Active |         |
|                                       | %                                      | N <sup>a</sup> | %      | N       | %                     | N       | %      | N       |
| <b>Boys</b>                           |  |                |        |         |                       |         |        |         |
| <b>Obesity</b>                        |  |                |        |         |                       |         |        |         |
| 2002 <sup>b</sup>                     | 17                                     | 139,697        | 14     | 278,221 | 18                    | 238,163 | 16     | 508,825 |
| 2010                                  | 14                                     | 112,251        | 13     | 237,020 | 16                    | 200,392 | 14     | 421,584 |
| <b>Overweight</b>                     |  |                |        |         |                       |         |        |         |
| 2002 <sup>b</sup>                     | 12                                     | 94,680         | 14     | 275,779 | 13                    | 173,753 | 14     | 437,495 |
| 2010                                  | 12                                     | 96,510         | 14     | 258,092 | 13                    | 163,047 | 14     | 403,346 |
| <b>Girls</b>                          |  |                |        |         |                       |         |        |         |
| <b>Obesity</b>                        |  |                |        |         |                       |         |        |         |
| 2002 <sup>b</sup>                     | 16                                     | 143,673        | 15     | 266,783 | 18                    | 302,008 | 16     | 413,016 |
| 2010                                  | 13                                     | 114,779        | 13     | 220,505 | 16                    | 246,290 | 14     | 335,801 |
| <b>Overweight</b>                     |  |                |        |         |                       |         |        |         |
| 2002 <sup>b</sup>                     | 14                                     | 126,587        | 12     | 221,389 | 14                    | 232,671 | 14     | 355,929 |
| 2010                                  | 13                                     | 111,113        | 13     | 213,931 | 14                    | 213,642 | 13     | 333,437 |
| <b>Bases (weighted)</b>               |  |                |        |         |                       |         |        |         |
| <i>Boys</i>                           |  |                |        |         |                       |         |        |         |
| 2002                                  | 688                                    | -              | 1657   | -       | 1097                  | -       | 2615   | -       |
| <i>Girls</i>                          |  |                |        |         |                       |         |        |         |
| 2002                                  | 764                                    | -              | 1512   | -       | 1395                  | -       | 2208   | -       |
| <b>Bases (unweighted)<sup>c</sup></b> |  |                |        |         |                       |         |        |         |
| <i>Boys</i>                           |  |                |        |         |                       |         |        |         |
| 2002                                  | 594                                    | 839.6          | 1426   | 1973.4  | 954                   | 1343.5  | 2267   | 3133.3  |
| 2010                                  | -                                      | 785.1          | -      | 1892.1  | -                     | 1250.4  | -      | 2981.1  |
| <i>Girls</i>                          |  |                |        |         |                       |         |        |         |
| 2002                                  | 645                                    | 904.9          | 1292   | 1774.6  | 1209                  | 1659.8  | 1902   | 2601.7  |
| 2010                                  | -                                      | 859.4          | -      | 1700.3  | -                     | 1567.3  | -      | 2481.3  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese

<sup>b</sup> 2002 prevalence estimates presented are based on data weighted for selection bias. The weighted bases for these estimates are also presented.

<sup>c</sup> Population bases (n) are presented in thousands. For 2002, data from the 2002 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.

**Table 23      Prevalence and number of children overweight and obese in 2003 and 2010, by parental BMI status and sex**

*Aged 2-15*

*2003, 2010 (predicted)*

| BMI Status                            | Parental BMI and Age Group    |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
|---------------------------------------|-------------------------------|----------------|--------------------------------|---------|----------------------------------|---------|-------------------------------|--------|--------------------------------|---------|----------------------------------|---------|
|                                       | Total aged 2-10               |                |                                |         |                                  |         | Total aged 2-15               |        |                                |         |                                  |         |
|                                       | No parent<br>overweight/obese |                | One parent<br>overweight/obese |         | Both parents<br>overweight/obese |         | No parent<br>overweight/obese |        | One parent<br>overweight/obese |         | Both parents<br>overweight/obese |         |
|                                       | %                             | N <sup>a</sup> | %                              | N       | %                                | N       | %                             | N      | %                              | N       | %                                | N       |
| <b>Boys</b>                           |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| <b>Obesity</b>                        |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003 <sup>b</sup>                     | 5                             | 11,835         | 13                             | 224,616 | 25                               | 178,337 | 6                             | 21,649 | 17                             | 448,941 | 24                               | 311,397 |
| 2010                                  | 7                             | 21,598         | 15                             | 250,912 | 32                               | 219,563 | 6                             | 22,691 | 18                             | 472,050 | 34                               | 415,844 |
| <b>Overweight</b>                     |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003 <sup>b</sup>                     | 12                            | 30,481         | 14                             | 253,689 | 23                               | 165,140 | 10                            | 40,475 | 14                             | 394,325 | 22                               | 278,058 |
| 2010                                  | 12                            | 35,593         | 13                             | 217,844 | 21                               | 143,736 | 10                            | 37,245 | 14                             | 369,464 | 19                               | 237,396 |
| <b>Girls</b>                          |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| <b>Obesity</b>                        |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003 <sup>b</sup>                     | 4                             | 10,701         | 12                             | 201,181 | 22                               | 149,500 | 4                             | 16,945 | 16                             | 400,774 | 27                               | 313,661 |
| 2010                                  | 7                             | 18,108         | 20                             | 328,215 | 26                               | 172,400 | 6                             | 26,886 | 24                             | 588,107 | 29                               | 320,727 |
| <b>Overweight</b>                     |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003 <sup>b</sup>                     | 9                             | 22,862         | 11                             | 187,495 | 17                               | 121,770 | 9                             | 40,917 | 13                             | 324,808 | 18                               | 217,063 |
| 2010                                  | 6                             | 16,273         | 14                             | 225,962 | 14                               | 94,341  | 8                             | 36,114 | 14                             | 355,801 | 16                               | 175,585 |
| <b>Bases (weighted)</b>               |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| <i>Boys</i>                           |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003                                  | 62                            | -              | 445                            | -       | 185                              | -       | 100                           | -      | 706                            | -       | 337                              | -       |
| <i>Girls</i>                          |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003                                  | 68                            | -              | 430                            | -       | 178                              | -       | 117                           | -      | 666                            | -       | 302                              | -       |
| <b>Bases (unweighted)<sup>c</sup></b> |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| <i>Boys</i>                           |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003                                  | 61                            | 244.5          | 424                            | 1792.1  | 184                              | 728.8   | 99                            | 391.8  | 675                            | 2766.0  | 329                              | 1284.4  |
| 2010                                  | -                             | 304.0          | -                              | 1678.8  | -                                | 694.3   | -                             | 374.3  | -                              | 2625.2  | -                                | 1232.0  |
| <i>Girls</i>                          |                               |                |                                |         |                                  |         |                               |        |                                |         |                                  |         |
| 2003                                  | 66                            | 270.3          | 423                            | 1690.0  | 188                              | 675.8   | 117                           | 471.7  | 662                            | 2603.2  | 313                              | 1153.1  |
| 2010                                  | -                             | 257.7          | -                              | 1644.0  | -                                | 658.0   | -                             | 446.3  | -                              | 2497.3  | -                                | 1105.0  |

<sup>a</sup> N represents the estimated number of people within each age group who are either overweight or obese

<sup>b</sup> 2003 prevalence estimates presented are based on data weighted for non-response. The weighted bases for these estimates are also presented.

<sup>c</sup> Population bases (n) are presented in thousands. For 2003, data from the 2003 mid population estimates have been used. For 2010, forecasted mid-year population estimates for 2010 have been applied.